

Adopted Levels, Gammas

| Type            | Author                 | History | Citation           | Literature Cutoff Date |
|-----------------|------------------------|---------|--------------------|------------------------|
| Full Evaluation | M. Shamsuzzoha Basunia |         | NDS 199,271 (2025) | 1-Sep-2024             |

$Q(\beta^-) = -2239.5$ ;  $S(n) = 7874.1$  13;  $S(p) = 9096.1$  15;  $Q(\alpha) = -5521.6$  11 [2021Wa16](#)

$S(2n) = 19397.4$ ,  $S(2p) = 16356.7$  11 ([2021Wa16](#)).

For isotope shift data, see [1995Ke04](#).

[1982Th03](#):  $^{56}\text{Fe}(^{28}\text{Si}, 2pn\gamma)$   $E = 88$  MeV – reported  $E_\gamma = 190.3$  5.

 $^{81}\text{Kr}$  LevelsCross Reference (XREF) Flags

|          |                                                                                      |          |                                            |          |                                                          |
|----------|--------------------------------------------------------------------------------------|----------|--------------------------------------------|----------|----------------------------------------------------------|
| <b>A</b> | $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h)                                       | <b>E</b> | $^{78}\text{Se}(\alpha, n\gamma)$          | <b>I</b> | $^{81}\text{Br}(p, n\gamma)$                             |
| <b>B</b> | $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min)                                      | <b>F</b> | $^{80}\text{Se}(\alpha, 3n\gamma)$         | <b>J</b> | $^{81}\text{Br}(^3\text{He}, t), (^3\text{He}, t\gamma)$ |
| <b>C</b> | $^{81}\text{Kr}$ IT decay                                                            | <b>G</b> | $^{80}\text{Kr}(d, p), (\text{pol } d, p)$ | <b>K</b> | $^{82}\text{Se}(\alpha, 5n\gamma)$                       |
| <b>D</b> | $^{73}\text{Ge}(^{11}\text{B}, p2n\gamma), ^{74}\text{Ge}(^{10}\text{B}, p2n\gamma)$ | <b>H</b> | $^{81}\text{Br}(p, n)$                     |          |                                                          |

| E(level) <sup>†</sup>    | J <sup>π</sup>   | T <sub>1/2</sub> <sup>#</sup>  | XREF                                                        | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------|------------------|--------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.0 <sup>a</sup>         | 7/2 <sup>+</sup> | 2.13×10 <sup>5@</sup> y +16–26 | <a href="#">AB</a> <a href="#">CDEF</a> <a href="#">IJK</a> | $\% \varepsilon = 100$<br>$\mu = -0.907$ 2; $Q = +0.644$ 4<br>$\mu$ : from collinear laser fast-beam spectroscopy ( <a href="#">1995Ke04</a> , <a href="#">2019StZV</a> ); relative to $^{83}\text{Kr}$ standard, diamagnetic correction included. Other: $-0.909$ 4 ( <a href="#">1993Ca41</a> ); laser resonance fluorescence spectroscopy, $^{83}\text{Kr}$ standard).<br>$Q$ : From <a href="#">2021StZZ</a> – based on $+0.629$ 13 ( <a href="#">1993Ca41</a> ); laser resonance fluorescence spectroscopy, if $Q(^{83}\text{Kr}) = 0.253$ 5 ( <a href="#">1989Ra17</a> ), adjusted by <a href="#">2001Ke15</a> to $+0.644$ 4 assuming their value of $0.259$ 1 for $Q(^{83}\text{Kr})$ . Other: $+0.64$ 7 ( <a href="#">1995Ke04</a> , collinear laser fast-beam spectroscopy); uncertainty includes uncertainty in electric-field gradient and the Sternheimer correction.<br>$\Delta \langle r^2 \rangle (^{86}\text{Kr}, ^{81}\text{Kr}) = +0.099$ fm <sup>2</sup> ( <a href="#">1995Ke04</a> ); uncertainty is 0.004 (statistical only), 0.018 (including systematic uncertainties), 0.034 (total uncertainty).<br>$\Delta \langle r^2 \rangle (^{80}\text{Kr}, ^{81}\text{Kr}) = -0.015$ fm <sup>2</sup> 8 ( <a href="#">1996Li25</a> ; statistical uncertainty only).<br>$J^\pi$ : $E3$ $\gamma$ from $1/2^-$ ; $49.57\gamma$ $M1(+E2)$ from $9/2^+$ .<br>$T_{1/2}$ : Weighted average of $3.9$ ns 4 from $(\alpha, n\gamma)$ and $4.0$ ns 4 from $(p, n\gamma)$ .<br>$J^\pi$ : from $(\text{pol } d, p) = 4$ and vector analyzing power.<br>$\%IT = 99.9975$ 4; $\% \varepsilon = 2.5 \times 10^{-3}$ 4<br>$\mu = +0.586$ 2<br>$\% \varepsilon$ from $^{81}\text{Kr}$ $\varepsilon$ decay (13.10 s).<br>$\mu$ : From collinear laser fast-beam spectroscopy ( <a href="#">1995Ke04</a> , <a href="#">2019StZV</a> ); relative to $^{83}\text{Kr}$ standard, diamagnetic correction included.<br>$\Delta \langle r^2 \rangle (^{86}\text{Kr}, ^{81}\text{Kr}) = +0.080$ fm <sup>2</sup> ( <a href="#">1995Ke04</a> ); uncertainty is 0.008 (statistical only), 0.022 (including systematic uncertainties), 0.041 (total uncertainty).<br>$\Delta \langle r^2 \rangle (^{80}\text{Kr}, ^{81}\text{Kr}) = -0.034$ fm <sup>2</sup> 11 ( <a href="#">1996Li25</a> ; statistical uncertainty only).<br>$\langle r^2 \rangle^{1/2}(\text{charge}) = 4.1952$ fm 26 ( <a href="#">2013An02</a> ).<br>$J^\pi$ : from $(\text{pol } d, p) = 1$ and vector analyzing power.<br>$T_{1/2}$ : from <a href="#">1987Lo06</a> . Others: $13.32$ s 15 from <a href="#">1987Da06</a> , $13$ s 2 ( <a href="#">1940Cr06</a> ), $13$ s 1 ( <a href="#">1969Ha03</a> ), $12.8$ s 3 ( <a href="#">1986Al11</a> ), $13.4$ s 7 |
| 49.56 <sup>&amp;</sup> 4 | 9/2 <sup>+</sup> | 4.0 ns 4                       | <a href="#">AB</a> <a href="#">DEFG</a> <a href="#">IJK</a> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 190.53 <sup>m</sup> 4    | 1/2 <sup>-</sup> | 13.10 s 2                      | <a href="#">ABC</a> <a href="#">EFGHIJK</a>                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{81}\text{Kr}$  Levels (continued)

| E(level) <sup>†</sup>      | J <sup>π</sup>                                         | T <sub>1/2</sub> <sup>#</sup> | XREF       | Comments                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------|--------------------------------------------------------|-------------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 456.70 <sup>n</sup> 3      | 5/2 <sup>-</sup>                                       |                               | AB EFGHIJK | (2005Ka39).<br>J <sup>π</sup> : from (pol d,p)=3 and vector analyzing power; E1 γ to 7/2 <sup>+</sup> , γ to 1/2 <sup>-</sup> .                                                                                                                                                                                                                                    |
| 548.99 3                   | 5/2 <sup>+</sup>                                       |                               | AB E G IJ  | J <sup>π</sup> : From (pol d,p)=2 and vector analyzing power.                                                                                                                                                                                                                                                                                                      |
| 608.51 6                   | 3/2 <sup>+</sup>                                       |                               | A E I      | J <sup>π</sup> : 3/2 from γ(θ) in (α,nγ); E2 γ to 7/2 <sup>+</sup> ; 1136.4γ from (1/2) <sup>-</sup> .                                                                                                                                                                                                                                                             |
| 636.76 4                   | 3/2 <sup>-</sup>                                       |                               | AB E G IJ  | J <sup>π</sup> : from (pol d,p)=1 and vector analyzing power.                                                                                                                                                                                                                                                                                                      |
| 700.84 <sup>m</sup> 5      | 5/2 <sup>-</sup>                                       |                               | A EF IJK   | J <sup>π</sup> : E2 510γ to 1/2 <sup>-</sup> 190; E2+M1, ΔJ=0, 244γ to 5/2 <sup>-</sup> 457.                                                                                                                                                                                                                                                                       |
| 732.06 7                   | (5/2) <sup>+</sup>                                     |                               | AB E G I   | XREF: A(?).<br>J <sup>π</sup> : 5/2 <sup>+</sup> from (pol d,p)=2 and vector analyzing power; J=5/2 favored by excitation function data in (α,nγ), however, 682γ(θ) in (α,nγ) supports ΔJ=1 instead as a ΔJ=2 transition to 9/2 <sup>+</sup> . Also 682γ to 9/2 <sup>+</sup> is M1,E2 from α(K)exp in (p,nγ). Uncertain placement of the 682γ in ε decay (30 min). |
| 873.69 <sup>a</sup> 13     | 11/2 <sup>+</sup>                                      |                               | B EF IJK   | J <sup>π</sup> : E2, ΔJ=2, 874γ to 7/2 <sup>+</sup> ; (M1+E2) γ to 9/2 <sup>+</sup> 50; band member.                                                                                                                                                                                                                                                               |
| 902.53 <sup>n</sup> 7      | (7/2) <sup>-</sup>                                     |                               | EF I K     | J <sup>π</sup> : E1 853γ to 9/2 <sup>+</sup> ; (D+Q) 446γ to 5/2 <sup>-</sup> .                                                                                                                                                                                                                                                                                    |
| 919.95 8                   | 3/2 <sup>-</sup>                                       |                               | A E G IJ   | J <sup>π</sup> : From (pol d,p); L(d,p)=1.                                                                                                                                                                                                                                                                                                                         |
| 934.07 <sup>o</sup> 18     | 11/2 <sup>+</sup>                                      | 0.19 ps 6                     | B EF I K   | J <sup>π</sup> : 884.7γ M1+E2, ΔJ=1, to 9/2 <sup>+</sup> in (α,3nγ).                                                                                                                                                                                                                                                                                               |
| 976.23 <sup>&amp;</sup> 14 | 13/2 <sup>+</sup>                                      | 1.5 ps 6                      | DEF I K    | XREF: I(?).<br>J <sup>π</sup> : Stretched E2 927γ to 9/2 <sup>+</sup> ; band assignment.                                                                                                                                                                                                                                                                           |
| 976.65 10                  | 1/2 <sup>+</sup>                                       |                               | A E G I    | J <sup>π</sup> : L(d,p)=0, E1 340γ to 3/2 <sup>-</sup> 637.                                                                                                                                                                                                                                                                                                        |
| 981.67 10                  | (9/2) <sup>+</sup>                                     |                               | B F I      | J <sup>π</sup> : log ft=6.7 from 9/2 <sup>+</sup> in ε decay; 932.0γ(θ) data consistent with ΔJ=1 or 0 to 9/2 <sup>+</sup> and 981.6γ(θ) data consistent with ΔJ=1 to 7/2 <sup>+</sup> (both in (α,3nγ)); J=11/2 favored by 932γ and 982γ excit in (p,nγ).                                                                                                         |
| 994.25 5                   | 1/2 <sup>-</sup> , 3/2 <sup>-</sup> , 5/2 <sup>-</sup> |                               | A E I      | J <sup>π</sup> : log ft=5.7 from 3/2 <sup>-</sup> . 537.61γ E2(+M1) to 5/2 <sup>-</sup> ; J <sup>π</sup> =5/2 <sup>-</sup> if the placement of weak 994γ to 7/2 <sup>+</sup> g.s. is correct.                                                                                                                                                                      |
| 1014.88 11                 |                                                        |                               | B I        | J <sup>π</sup> : γs to 5/2 <sup>+</sup> and 7/2 <sup>+</sup> , so J <sup>π</sup> =(3/2 <sup>+</sup> , 5/2 <sup>+</sup> , 7/2 <sup>+</sup> , 9/2 <sup>+</sup> ).                                                                                                                                                                                                    |
| 1025.66 4                  | 3/2 <sup>-</sup> , 5/2 <sup>-</sup>                    |                               | A E I      | J <sup>π</sup> : E1 γ to 5/2 <sup>+</sup> , log ft=5.9 from 3/2 <sup>-</sup> . J <sup>π</sup> =(5/2) <sup>-</sup> if weak 1025γ to 7/2 <sup>+</sup> g.s. is correctly placed.                                                                                                                                                                                      |
| 1093.5?                    |                                                        |                               | E          | XREF: E(?).<br>J <sup>π</sup> : γ to 3/2 <sup>-</sup> , so J≤(7/2).                                                                                                                                                                                                                                                                                                |
| 1100.01 7                  | 5/2 <sup>+</sup>                                       |                               | AB G I     | XREF: A(?).<br>J <sup>π</sup> : From (pol d,p); L(d,p)=2.                                                                                                                                                                                                                                                                                                          |
| 1206.65 10                 | 7/2                                                    |                               | B E I      | J <sup>π</sup> : log ft=6.95 from 9/2 <sup>+</sup> ; D+Q γ, ΔJ=1, to 5/2 <sup>+</sup> .                                                                                                                                                                                                                                                                            |
| 1239.08 10                 | (3/2) <sup>+</sup>                                     |                               | A E I      | J <sup>π</sup> : E1(+M2) γ to 3/2 <sup>-</sup> ; γs to 1/2 <sup>-</sup> and 5/2 <sup>-</sup> .                                                                                                                                                                                                                                                                     |
| 1278.25 14                 | (1/2, 3/2)                                             |                               | g I        | XREF: g(1281).<br>J <sup>π</sup> : γs to 1/2 <sup>-</sup> and 1/2 <sup>+</sup> . L(d,p)=2, J <sup>π</sup> =3/2 <sup>+</sup> from (pol d,p) for 1278 and/or 1281 levels.                                                                                                                                                                                            |
| 1280.49 8                  | (3/2, 5/2 <sup>-</sup> )                               |                               | A g I      | XREF: A(?)g(1281).<br>J <sup>π</sup> : γs to 1/2 <sup>-</sup> ; 5/2 <sup>+</sup> ; and 5/2 <sup>-</sup> . L(d,p)=2, J <sup>π</sup> =3/2 <sup>+</sup> from (pol d,p) for 1281 and/or 1278 levels.                                                                                                                                                                   |
| 1338.23? 13                |                                                        |                               | A          | XREF: A(?).<br>J <sup>π</sup> : γs to 3/2 <sup>-</sup> so J≤(7/2).                                                                                                                                                                                                                                                                                                 |
| 1349.14 <sup>n</sup> 17    | 9/2 <sup>-</sup>                                       |                               | EF K       | J <sup>π</sup> : (E1) γ to 7/2 <sup>+</sup> ; E2, ΔJ=2, γ to 5/2 <sup>-</sup> ; γ cascade based on 5/2 <sup>-</sup> .                                                                                                                                                                                                                                              |
| 1351.30 10                 | (3/2 <sup>+</sup> , 5/2, 7/2 <sup>-</sup> )            |                               | I          | J <sup>π</sup> : γ's to 7/2 <sup>+</sup> and 3/2 <sup>-</sup> .                                                                                                                                                                                                                                                                                                    |
| 1395.58 14                 | (3/2 <sup>+</sup> , 5/2, 7/2 <sup>-</sup> )            |                               | E I        | J <sup>π</sup> : γ's to 7/2 <sup>+</sup> and 3/2 <sup>-</sup> .                                                                                                                                                                                                                                                                                                    |
| 1443.50 <sup>m</sup> 8     | 9/2 <sup>-</sup>                                       |                               | EF I K     | J <sup>π</sup> : E2, ΔJ=2, 742γ to 5/2 <sup>-</sup> 701; γ cascade based on 1/2 <sup>-</sup> .                                                                                                                                                                                                                                                                     |
| 1491.64 18                 | 1/2 <sup>+</sup>                                       |                               | G I        | J <sup>π</sup> : L(d,p)=0.                                                                                                                                                                                                                                                                                                                                         |
| 1506.21 8                  | (3/2 <sup>+</sup> , 5/2, 7/2 <sup>+</sup> )            |                               | I          | J <sup>π</sup> : γ's to 7/2 <sup>+</sup> ; 5/2 <sup>-</sup> ; and 3/2 <sup>+</sup> .                                                                                                                                                                                                                                                                               |
| 1558.3? 4                  |                                                        |                               | A          | XREF: A(?).                                                                                                                                                                                                                                                                                                                                                        |
| 1607.43 <sup>o</sup> 17    | (13/2) <sup>+</sup>                                    | 3.5 ps 21                     | EF K       | J <sup>π</sup> : 631γ to 13/2 <sup>+</sup> 976; M1+E2 674γ to 11/2 <sup>+</sup> 934; γ cascade based on 11/2 <sup>+</sup> .                                                                                                                                                                                                                                        |
| 1677.99 5                  | 1/2 <sup>-</sup> , 3/2 <sup>-</sup> , 5/2 <sup>-</sup> |                               | A I        | J <sup>π</sup> : log ft=5.5 from 3/2 <sup>-</sup> . If the placement of 701.47γ to 1/2 <sup>+</sup> 976 is correct, 5/2 <sup>-</sup> can be ruled out.                                                                                                                                                                                                             |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{81}\text{Kr}$  Levels (continued)

| E(level) <sup>†</sup>       | J <sup>π</sup>                        | T <sub>1/2</sub> <sup>#</sup> | XREF |     | Comments                                                                                                                                                                                                                       |
|-----------------------------|---------------------------------------|-------------------------------|------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1682.7 4                    | 7/2,9/2,11/2 <sup>(+)</sup>           |                               | B    | g   | XREF: g(1678).<br>J <sup>π</sup> : log ft=6.4 from 9/2 <sup>+</sup> ; γ to 7/2 <sup>+</sup> . J=9/2 <sup>+</sup> from (pol d,p) for 1682.7 and/or 1687.9 level.                                                                |
| 1687.9 3                    | 7/2,9/2,11/2 <sup>(+)</sup>           |                               | B    | g   | XREF: g(1678).<br>J <sup>π</sup> : log ft=6.4 from 9/2 <sup>+</sup> , γ to 7/2 <sup>+</sup> . J=9/2 <sup>+</sup> from (pol d,p) for 1682.7 and/or 1687.9 level.                                                                |
| 1743.61 9                   | (7/2) <sup>+</sup>                    |                               | B    | I   | J <sup>π</sup> : log ft=5.15 from 9/2 <sup>+</sup> , γ to 5/2 <sup>-</sup> .                                                                                                                                                   |
| 1744.77 10                  | (1/2) <sup>-</sup>                    |                               | A    | G I | J <sup>π</sup> : L(d,p)=1, J=(1/2) from (pol d,p).                                                                                                                                                                             |
| 1781.8 5                    | 7/2,9/2,11/2 <sup>(+)</sup>           |                               | B    |     | J <sup>π</sup> : log ft=6.8 from 9/2 <sup>+</sup> ; γ to 7/2 <sup>+</sup> .                                                                                                                                                    |
| 1828.84 <sup>n</sup> 17     | (11/2) <sup>-</sup>                   |                               |      | F K | J <sup>π</sup> : γs to (7/2) <sup>-</sup> and 9/2 <sup>+</sup> ; γ cascade based on 5/2 <sup>-</sup> .                                                                                                                         |
| 1841.5 5                    | (13/2) <sup>+</sup>                   |                               |      | E K | J <sup>π</sup> : (M1+E2) γ to 11/2 <sup>+</sup> ; 908γ excit in (α,nγ).                                                                                                                                                        |
| 1853.97 21                  |                                       |                               |      | I   | J <sup>π</sup> : γ to 3/2 <sup>-</sup> so J≤(7/2).                                                                                                                                                                             |
| 1888 <sup>‡</sup>           | 5/2 <sup>+</sup>                      |                               |      | G   | J <sup>π</sup> : L(d,p)=2, J=5/2 from (pol d,p).                                                                                                                                                                               |
| 1903.6 4                    | 7/2,9/2,11/2 <sup>(+)</sup>           |                               | B    | I   | J <sup>π</sup> : log ft=6.6 from 9/2 <sup>+</sup> , 1903γ to 7/2 <sup>+</sup> g.s..                                                                                                                                            |
| 1990.96 17                  |                                       |                               |      | I   | J <sup>π</sup> : γ to 5/2 <sup>-</sup> .                                                                                                                                                                                       |
| 1993.56 <sup>a</sup> 18     | 15/2 <sup>+</sup>                     | 0.15 ps 6                     | EF   | K   | J <sup>π</sup> : E2, ΔJ=2, γ to 11/2 <sup>+</sup> ; M1+E2 γ to 13/2 <sup>+</sup> ; band assignment.                                                                                                                            |
| 2021.26? 20                 |                                       |                               |      | I   | XREF: I(?).<br>J <sup>π</sup> : γ to 3/2 <sup>-</sup> so J≤(7/2).                                                                                                                                                              |
| 2065.08 17                  | (1/2,3/2) <sup>-</sup>                |                               | A    | I   | J <sup>π</sup> : log ft=5.8 from 3/2 <sup>-</sup> ; γ to 1/2 <sup>+</sup> .                                                                                                                                                    |
| 2069.1 11                   |                                       |                               |      | E   | J <sup>π</sup> : γ to 11/2 <sup>+</sup> .                                                                                                                                                                                      |
| 2097.02 21                  | (1/2,3/2,5/2 <sup>-</sup> )           |                               |      | I   | J <sup>π</sup> : γ to 1/2 <sup>-</sup> .                                                                                                                                                                                       |
| 2135.77 <sup>&amp;</sup> 24 | 17/2 <sup>+</sup>                     | 0.40 ps 8                     | DEF  | K   | J <sup>π</sup> : E2, ΔJ=2, γ to 13/2 <sup>+</sup> ; band assignment.                                                                                                                                                           |
| 2144.04 21                  | (1/2,3/2,5/2 <sup>-</sup> )           |                               |      | I   | J <sup>π</sup> : γ to 1/2 <sup>-</sup> .                                                                                                                                                                                       |
| 2166.05 <sup>n</sup> 12     | 13/2 <sup>-</sup>                     |                               | EF   | K   | J <sup>π</sup> : 816.7γ stretched E2 to 9/2 <sup>-</sup> ; 1231.7γ D to 11/2 <sup>+</sup> .                                                                                                                                    |
| 2192.4 4                    | (15/2) <sup>+</sup>                   | >2.1 ps                       | EF   |     | J <sup>π</sup> : (E2) γ to 11/2 <sup>+</sup> .                                                                                                                                                                                 |
| 2217.2 10                   | (13/2) <sup>+</sup>                   |                               | E    |     | J <sup>π</sup> : (M1+E2) γ to 11/2 <sup>+</sup> ; excit in (α,nγ) favors J=13/2.                                                                                                                                               |
| 2218 <sup>‡</sup>           | 5/2 <sup>+</sup>                      |                               |      | G   | J <sup>π</sup> : From (pol d,p); L(d,p)=2.                                                                                                                                                                                     |
| 2291.04 25                  | (5/2 <sup>+</sup> ,7/2 <sup>+</sup> ) |                               |      | I   | J <sup>π</sup> : γs to 5/2 <sup>-</sup> ; (9/2 <sup>+</sup> ); and 3/2 <sup>+</sup> .                                                                                                                                          |
| 2363.0 11                   |                                       |                               | E    |     | J <sup>π</sup> : 1429γ to 11/2 <sup>+</sup> 934.                                                                                                                                                                               |
| 2365 <sup>‡</sup>           | 1/2 <sup>+</sup>                      |                               |      | G   | J <sup>π</sup> : From (pol d,p); L(d,p)=0.                                                                                                                                                                                     |
| 2420.28 <sup>b</sup> 15     | (13/2) <sup>-</sup>                   |                               | EF   | K   | J <sup>π</sup> : γ to 9/2 <sup>-</sup> ; analogy to $^{83}\text{Kr}$ (1986Fu03). Band assignment.                                                                                                                              |
| 2421                        | 1/2 <sup>+</sup>                      |                               |      | G   | J <sup>π</sup> : From (pol d,p); L(d,p)=0.                                                                                                                                                                                     |
| 2530 <sup>‡</sup>           |                                       |                               |      | G   |                                                                                                                                                                                                                                |
| 2533.59 <sup>c</sup> 13     | 15/2 <sup>-</sup>                     | 1.4 ps 7                      | EF   | K   | J <sup>π</sup> : M1+E2 368γ to 13/2 <sup>-</sup> 2166; D intraband 113γ to (13/2 <sup>-</sup> ) 2420; 166γ M1(+E2) from 17/2 <sup>-</sup> at 2699; band assignment.                                                            |
| 2557.08 6                   | (15/2) <sup>-</sup>                   |                               |      | K   | J <sup>π</sup> : γ to (13/2 <sup>-</sup> ), band assignment.                                                                                                                                                                   |
| 2680 <sup>‡</sup>           |                                       |                               |      | G   |                                                                                                                                                                                                                                |
| 2694.5 <sup>o</sup> 3       | (17/2) <sup>+</sup>                   |                               | F    | K   | J <sup>π</sup> : γs to 17/2 <sup>+</sup> and 13/2 <sup>+</sup> ; γ cascade based on 11/2 <sup>+</sup> .                                                                                                                        |
| 2699.62 <sup>b</sup> 14     | 17/2 <sup>-</sup>                     | <0.2 ns                       | EF   | K   | J <sup>π</sup> : E2, ΔJ=2, γ to 13/2 <sup>-</sup> ; γs to 15/2 <sup>+</sup> and 17/2 <sup>+</sup> ; band assignment.                                                                                                           |
| 2784.1 <sup>d</sup> 3       | (15/2) <sup>-</sup>                   |                               | F    | K   | T <sub>1/2</sub> : From centroid shift in (α,nγ).<br>J <sup>π</sup> : 1177γ to (13/2) <sup>+</sup> 1607; similar structure known in $^{83}\text{Kr}$ (1986Fu03).                                                               |
| 2828.14 <sup>f</sup> 14     | 17/2 <sup>-</sup>                     | 2.4 ps 8                      | F    | K   | J <sup>π</sup> : (15/2,17/2) <sup>-</sup> from M1 γ to 15/2 <sup>-</sup> and D 128.6γ to 17/2 <sup>-</sup> ; 834.5γ stretched E1 to 15/2 <sup>+</sup> (α,5nγ); bandhead of level sequence similar to one in $^{83}\text{Kr}$ . |
| 2830 <sup>‡</sup>           |                                       |                               |      | G   |                                                                                                                                                                                                                                |
| 3061.62 <sup>c</sup> 15     | (19/2) <sup>-</sup>                   | 1.5 ps 6                      | F    | K   | J <sup>π</sup> : M1+E2 362γ to 17/2 <sup>-</sup> 2699; band assignment.                                                                                                                                                        |
| 3070 <sup>‡</sup>           |                                       |                               |      | G   |                                                                                                                                                                                                                                |
| 3092.3 <sup>e</sup> 3       | (17/2) <sup>-</sup>                   | 1.9 ps 6                      | F    | K   | J <sup>π</sup> : M1+E2 γ to (15/2) <sup>-</sup> , M1 γ to 15/2 <sup>-</sup> ; band assignment.                                                                                                                                 |
| 3172.6 <sup>g</sup> 5       | (19/2) <sup>-</sup>                   |                               |      | K   | J <sup>π</sup> : γ to 17/2 <sup>-</sup> ; band assignment.                                                                                                                                                                     |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)**

| $^{81}\text{Kr}$ Levels (continued) |                     |                               |      |   |                                                                                                         |
|-------------------------------------|---------------------|-------------------------------|------|---|---------------------------------------------------------------------------------------------------------|
| E(level) <sup>†</sup>               | J <sup>π</sup>      | T <sub>1/2</sub> <sup>#</sup> | XREF |   | Comments                                                                                                |
| 3195.4 <sup>a</sup> 3               | (19/2) <sup>+</sup> | 0.14 ps 6                     | F    | K | J <sup>π</sup> : M1+E2 γ to 17/2 <sup>+</sup> ; band assignment.                                        |
| 3270 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 3310 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 3392.9 <sup>&amp;</sup> 3           | 21/2 <sup>+</sup>   | 0.27 ps 6                     | D F  | K | XREF: D(?).<br>J <sup>π</sup> : E2 γ to 17/2 <sup>+</sup> ; band assignment.                            |
| 3455.9 <sup>d</sup> 4               | (19/2) <sup>-</sup> |                               | F    | K | J <sup>π</sup> : γ to 17/2 <sup>-</sup> and (15/2 <sup>-</sup> ), band assignment.                      |
| 3460 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 3490.41 <sup>b</sup> 18             | (21/2) <sup>-</sup> | 1.8 ps 8                      | F    | K | J <sup>π</sup> : 428.8γ to (19/2) <sup>-</sup> ; band assignment.                                       |
| 3557.7 <sup>o</sup> 4               | (21/2) <sup>+</sup> |                               | F    | K | J <sup>π</sup> : γ to (17/2 <sup>+</sup> ), γ cascade based on 11/2 <sup>+</sup> .                      |
| 3624.1 <sup>h</sup> 3               | (21/2) <sup>+</sup> | 0.33 ps 6                     | F    | K | J <sup>π</sup> : M1+(E2) 231γ to 21/2 <sup>+</sup> ; J=(21/2) based on 231γ excit.                      |
| 3630 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 3649.95 <sup>f</sup> 24             | (21/2) <sup>-</sup> |                               | F    | K | J <sup>π</sup> : E2, ΔJ=2, γ to 17/2 <sup>-</sup> and M1+E2 γ to (19/2) <sup>-</sup> ; band assignment. |
| 3750 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 3820 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 3856.1 <sup>e</sup> 5               | (21/2) <sup>-</sup> |                               | F    | K | J <sup>π</sup> : E2, ΔJ=2, γ to 17/2 <sup>-</sup> , γ to (19/2) <sup>-</sup> ; band assignment.         |
| 3957.2 <sup>i</sup> 3               | (23/2) <sup>+</sup> | 0.28 ps 5                     | F    | K | J <sup>π</sup> : M1 γ to (21/2) <sup>+</sup> ; band assignment.                                         |
| 4099.1 <sup>c</sup> 3               | (23/2) <sup>-</sup> | 1.9 ps 6                      | F    | K | J <sup>π</sup> : E2, ΔJ=2, γ to (19/2) <sup>-</sup> , M1+E2 γ to (21/2) <sup>-</sup> ; band assignment. |
| 4180 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 4202.2 <sup>g</sup> 7               | (23/2) <sup>-</sup> |                               |      | K | J <sup>π</sup> : γs to (19/2) <sup>-</sup> and 21/2 <sup>-</sup> , band assignment.                     |
| 4300.3 <sup>d</sup> 5               | (23/2) <sup>-</sup> |                               | F    | K | J <sup>π</sup> : E2, ΔJ=2, γ to (19/2) <sup>-</sup> , (M1+E2) to (21/2) <sup>-</sup> ; band assignment. |
| 4470 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 4472.0 <sup>h</sup> 4               | (25/2) <sup>+</sup> | 0.16 ps 6                     | F    | K | J <sup>π</sup> : M1+E2 γ to (23/2) <sup>+</sup> ; band assignment.                                      |
| 4513.9 <sup>a</sup> 7               | (23/2) <sup>+</sup> |                               |      | K | J <sup>π</sup> : γs to (19/2) <sup>+</sup> and (21/2) <sup>+</sup> , band assignment.                   |
| 4560 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 4690 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 4713.8 <sup>b</sup> 4               | (25/2) <sup>-</sup> | 1.0 ps 6                      | F    | K | J <sup>π</sup> : γs to (23/2) <sup>-</sup> and (21/2) <sup>-</sup> ; band assignment.                   |
| 4738.9 <sup>l</sup> 6               | (25/2) <sup>+</sup> |                               |      | K | J <sup>π</sup> : E2 γ to 21/2 <sup>+</sup> , (M1+E2) γ to (23/2) <sup>+</sup> , band assignment.        |
| 4820 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 4842.3 <sup>e</sup>                 | (25/2) <sup>-</sup> |                               |      | K | J <sup>π</sup> : γ to (23/2) <sup>-</sup> ; band assignment.                                            |
| 4907.0 <sup>j</sup> 6               | (25/2) <sup>+</sup> |                               |      | K | J <sup>π</sup> : γ to 21/2 <sup>+</sup> and M1+E2 γ to (23/2) <sup>+</sup> ; band assignment.           |
| 4960 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 4963.5 <sup>f</sup> 6               | (25/2) <sup>-</sup> |                               |      | K | J <sup>π</sup> : γs to (21/2) <sup>-</sup> and (23/2) <sup>-</sup> ; band assignment.                   |
| 5047.2 <sup>i</sup> 4               | (27/2) <sup>+</sup> | 0.10 ps 4                     | F    | K | J <sup>π</sup> : M1+E2 γ to (25/2) <sup>+</sup> ; γ to (23/2) <sup>+</sup> , band assignment.           |
| 5130 <sup>‡</sup>                   |                     |                               | G    |   |                                                                                                         |
| 5410.6 <sup>c</sup> 8               | (27/2) <sup>-</sup> |                               |      | K | J <sup>π</sup> : γ to (23/2) <sup>-</sup> and (25/2) <sup>-</sup> ; band assignment.                    |
| 5580.8 <sup>k</sup> 6               | (27/2) <sup>+</sup> |                               |      | K | J <sup>π</sup> : γ to (23/2) <sup>+</sup> and (25/2) <sup>+</sup> ; band assignment.                    |
| 5758.9 <sup>h</sup> 8               | (29/2) <sup>+</sup> |                               | F    | K | XREF: F(?).<br>J <sup>π</sup> : γ to (25/2) <sup>+</sup> and (27/2) <sup>+</sup> ; band assignment.     |
| 6057.8 <sup>l</sup> 9               | (29/2) <sup>+</sup> |                               |      | K | J <sup>π</sup> : γ to (25/2) <sup>+</sup> and (27/2) <sup>+</sup> ; band assignment.                    |
| 6152.1 <sup>b</sup> 11              | (29/2) <sup>-</sup> |                               |      | K | J <sup>π</sup> : γ to (25/2) <sup>-</sup> ; band assignment.                                            |
| 6316.6 <sup>j</sup> 7               | (29/2) <sup>+</sup> |                               |      | K | J <sup>π</sup> : γs to (25/2) <sup>+</sup> and (27/2) <sup>+</sup> ; band assignment.                   |
| 6529.8 <sup>i</sup> 9               | (31/2) <sup>+</sup> |                               |      | K | J <sup>π</sup> : γ to (27/2) <sup>+</sup> and (29/2) <sup>+</sup> ; band assignment.                    |
| 7046.2 <sup>k</sup> 9               | (31/2) <sup>+</sup> |                               |      | K | J <sup>π</sup> : γ to (27/2) <sup>+</sup> and (29/2) <sup>+</sup> ; band assignment.                    |
| 7326.5 <sup>h</sup> 10              | (33/2) <sup>+</sup> |                               |      | K | J <sup>π</sup> : γ to (29/2) <sup>+</sup> and (31/2) <sup>+</sup> ; band assignment.                    |
| 7536.8 <sup>l</sup> 13              | (33/2) <sup>+</sup> |                               |      | K | J <sup>π</sup> : γ to (29/2) <sup>+</sup> ; band assignment.                                            |
| 9052.8 <sup>h</sup> 15              | (37/2) <sup>+</sup> |                               |      | K | J <sup>π</sup> : γ to (33/2) <sup>+</sup> ; band assignment.                                            |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{81}\text{Kr}$  Levels (continued)

| E(level) <sup>†</sup> | J <sup>π</sup>   | XREF | Comments                                                                                                                                                                 |
|-----------------------|------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9717 15               | 3/2 <sup>-</sup> | H J  | E(level): from ( $^3\text{He},t$ ). Other: 9.70E+03 10 from (p,n).<br>Isobaric analog of $^{81}\text{Br}$ g.s.<br>J <sup>π</sup> : L=0 in ( $^3\text{He},t$ ) and (p,n). |

<sup>†</sup> From least-squares fit to  $E\gamma$  for levels with depopulating  $\gamma$ , otherwise from particle dataset/s. In the least-squares fit complex or doubtfully-placed lines were omitted, except when all were questionable. For a few  $\gamma$ -rays, uncertainty increased for a better fit, marked by comments/footnote. Several excited level energies are higher in Adopted Levels compared to those in ( $\alpha,5n\gamma$ ), due to adopted  $E\gamma$ .

<sup>‡</sup> From (d,p);  $\Delta E$  unstated by authors but probably  $\leq 5$  keV for  $E < 2500$  (based on comparison with adopted E),  $\leq 10$  keV for  $E \geq 2500$ .

<sup>#</sup> From ( $\alpha,3n\gamma$ ) (DSA measurement), except as noted.

<sup>@</sup>  $2.13 \times 10^5$  y +16–26 from 1964Ea05 (Authors also reported uncertainty as +0.016–0.26 – appears to be a misprint). In 1964Ea05,  $\omega_K(\text{Br})=0.5775$  and  $\varepsilon K=0.8417$  (from total-to-K-capture ratio of 1.188 +85–16) were used. Note that for efficiency calibration  $^{88}\text{Y}$  was used with  $\omega_K(\text{Sr})=0.653$  [in their Ref. 14 (1960Ha39)] and  $\varepsilon K=0.8818$  (from total-to-K-capture ratio of 1.134). Current values of  $\varepsilon K$  remain almost the same (0.8473 and  $\approx 0.87$ , respectively), however, different  $\omega_K$  value exists in the literature [ $\omega_K(\text{Br})=0.586$  9 – average of expt. value (1994Hu23 p.351), 0.598 (1994Hu23), 0.618 (1979Kr22), 0.628 (listed from literature in 1994Hu23 p.351)]. Consideration of any of these  $\omega_K(\text{Br})$  values would yield a higher half-life compared to the reported one by the same factor. For example, in the previous evaluations (2008Ba34, 1996Ba89, 1993Ba30) adjusted value of  $T_{1/2}=2.29 \times 10^5$  y 11 was recommended, assuming  $\omega_K(\text{Br})=0.618$  19 and  $\varepsilon K=0.8473$ . The uncertainty was the 5% as mentioned in 1964Ea05 (estimated uncertainty from six measurements). Note that another 5.7% [ $\omega_K(\text{Sr})0.69$  (1994Hu23)/0.653] decrease can be expected if one considers the adjustment of efficiency calibration for the  $^{88}\text{Y}$  source. Here, the evaluator reports the same  $T_{1/2}$  value of 1964Ea05, based on the close experimental value of  $\omega_K(\text{Br})=0.586$  9 (1994Hu23) and 0.5775, used in 1964Ea05. Other:  $2.1 \times 10^5$  y 5 (1950Re54).

<sup>&</sup> Band(A): Band #1,  $\nu g_{9/2}^{-1}$ ,  $\alpha=+1/2$ . ( $\nu(g_{9/2})^3$ )<sup>7/2</sup> anomalously coupled configuration is indicated by measured  $\mu$  and Q (1995Ke04). Large signature splitting ( $\approx 400$  keV). Cranked shell-model calculations suggest almost oblate shape ( $\gamma \approx -60^\circ$ ) for lowest  $\alpha=+1/2$   $g_{9/2}$  neutron orbit (1986Fu03).

<sup>a</sup> Band(a): Band #1,  $\nu g_{9/2}^{-1}$ ,  $\alpha=-1/2$ .

<sup>b</sup> Band(B): Band #5, based on  $(13/2^-)$ ,  $\alpha=+1/2$ . Configuration= $\pi(g_{9/2}p_{3/2}) \otimes \nu g_{9/2}^{-1}$  (2022Mu09). Bands #5 and #6 interpreted by authors as chiral-doublet partners, and band #7 as pseudospin partner of band #5, thus forming a pseudospin-chiral triplet band structure.

<sup>c</sup> Band(b): Band #5, based on  $15/2^-$ ,  $\alpha=-1/2$ . See comment for  $\alpha=+1/2$  signature partner.

<sup>d</sup> Band(C): Band #6, based on  $(15/2^-)$ ,  $\alpha=-1/2$ . Interpreted as chiral-doublet partner of band #5, with configuration= $\pi(g_{9/2}p_{3/2}) \otimes \nu g_{9/2}^{-1}$  (2022Mu09). Bands #5, #6 and #7 form a pseudospin-chiral triplet band structure.

<sup>e</sup> Band(c): Band #6, based on  $(17/2^-)$ ,  $\alpha=+1/2$ . See comment for  $\alpha=-1/2$  signature partner.

<sup>f</sup> Band(D): Band #7, based on  $17/2^-$ ,  $\alpha=+1/2$ . Interpreted as pseudospin partner of band #5, with configuration= $\pi(g_{9/2}f_{5/2}) \otimes \nu g_{9/2}^{-1}$  (2022Mu09). Bands #5, #6 and #7 form a pseudospin-chiral triplet band structure.

<sup>g</sup> Band(d): Band #7, based on  $(15/2^-)$ ,  $\alpha=-1/2$ . See comment for  $\alpha=+1/2$  signature partner.

<sup>h</sup> Band(E): Band #2, based on  $(21/2^+)$ ,  $\alpha=+1/2$ . Configuration= $\pi g_{9/2}^2 \otimes \nu g_{9/2}^{-1}$  (2022Mu09), with bands #2 and #3 interpreted by authors as chiral-doublet partners.

<sup>i</sup> Band(e): Band #2, based on  $(23/2^+)$ ,  $\alpha=-1/2$  See comment for  $\alpha=+1/2$  signature partner.

<sup>j</sup> Band(F): Band#3, based on  $(25/2^+)$ ,  $\alpha=+1/2$ . Interpreted as chiral-doublet partner of band #2, with configuration= $\pi g_{9/2}^2 \otimes \nu g_{9/2}^{-1}$  (2022Mu09).

<sup>k</sup> Band(f): Band#3, based on  $(27/2^+)$ ,  $\alpha=-1/2$ . See comment for  $\alpha=+1/2$  signature partner.

<sup>l</sup> Band(G): Band based on  $(25/2^+)$ , 4738.9.

<sup>m</sup> Seq.(H):  $\gamma$  cascade based on  $1/2^-$ .

<sup>n</sup> Seq.(I):  $\gamma$  cascade based on  $5/2^-$ .

<sup>o</sup> Seq.(J):  $\gamma$  cascade based on  $11/2^+$ .

# Adopted Levels, Gammas (continued)

 $\gamma(^{81}\text{Kr})$ 

## Additional information 1.

 $\alpha(\text{K})_{\text{exp}}$  from (p,n $\gamma$ ) is adopted, if not noted otherwise.

6

| $E_i(\text{level})$ | $J_i^\pi$        | $E_\gamma^{\ddagger}$ | $I_\gamma^{\ddagger}$ | $E_f$  | $J_f^\pi$        | Mult. <sup>c</sup> | $\delta^c$  | $\alpha^f$              | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------|------------------|-----------------------|-----------------------|--------|------------------|--------------------|-------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 49.56               | 9/2 <sup>+</sup> | 49.57 4               | 100                   | 0.0    | 7/2 <sup>+</sup> | M1(+E2)            | 0.19 +12-19 | 1.3 6                   | B(M1)(W.u.)=0.019 +11-6<br>$\alpha(\text{K})=1.1$ 4; $\alpha(\text{L})=0.17$ 12; $\alpha(\text{M})=0.028$ 19<br>$\alpha(\text{N})=0.0025$ 15<br>$E_\gamma$ : weighted average of 49.57 5 from <sup>81</sup> Rb $\varepsilon$ decay (4.571 h), 49.5 1 from <sup>81</sup> Rb $\varepsilon$ decay (30.5 min), 49.5 2 from ( $\alpha,3n\gamma$ ), and 49.59 4 from (p,n $\gamma$ ).<br>Mult.: from $\alpha(\text{K})_{\text{exp}}$ <sup>81</sup> Rb $\varepsilon$ decay (4.571 h) and RUL.<br>$\delta$ : from $\alpha(\text{K})_{\text{exp}}$ in Rb $\varepsilon$ decay (4.571 h).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 190.53              | 1/2 <sup>-</sup> | 190.44 <sup>b</sup> 7 | 100                   | 0.0    | 7/2 <sup>+</sup> | E3                 |             | 0.479 7                 | B(E3)(W.u.)=0.01771 10<br>$\alpha(\text{K})=0.399$ 6; $\alpha(\text{L})=0.0681$ 10; $\alpha(\text{M})=0.01108$ 16<br>$\alpha(\text{N})=0.000984$ 14<br>Mult.: from $\alpha(\text{exp})$ in Rb $\varepsilon$ decay (30.5 min).<br>$\delta(\text{E3,M4})\leq 0.18$ .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 456.70              | 5/2 <sup>-</sup> | 266.6 2               | 1.31 22               | 190.53 | 1/2 <sup>-</sup> | [E2]               |             | 0.0257 4                | $\alpha(\text{K})=0.02258$ 32; $\alpha(\text{L})=0.00264$ 4; $\alpha(\text{M})=0.000427$ 6<br>$\alpha(\text{N})=4.15\times 10^{-5}$ 6<br>$E_\gamma$ : weighted average of 266.2 5 from <sup>81</sup> Rb $\varepsilon$ decay (4.571 h), 266.2 5 from <sup>81</sup> Rb $\varepsilon$ decay (30.5 min), and 266.7 2 from (p,n $\gamma$ ).<br>$I_\gamma$ : weighted average of 1.23 15 from <sup>81</sup> Rb $\varepsilon$ decay (4.571 h) and 1.9 4 from (p,n $\gamma$ ).<br>$\alpha(\text{K})=0.001081$ 15; $\alpha(\text{L})=0.0001147$ 16;<br>$\alpha(\text{M})=1.854\times 10^{-5}$ 26<br>$\alpha(\text{N})=1.864\times 10^{-6}$ 26<br>$E_\gamma$ : weighted average of 456.73 3 from <sup>81</sup> Rb $\varepsilon$ decay (4.571 h), 456.9 1 from <sup>81</sup> Rb $\varepsilon$ decay (30.5 min), 456.6 2 from ( $\alpha,3n\gamma$ ), and 456.9 1 from (p,n $\gamma$ ).<br>$I_\gamma$ : from <sup>81</sup> Rb $\varepsilon$ decay (4.571 h). Other: 100 19 from <sup>81</sup> Rb $\varepsilon$ decay (30.5 min).<br>Mult.: From $\alpha(\text{K})_{\text{exp}}=0.00099$ 12, weighted average of 0.00097 12 from (p,n $\gamma$ ) and 0.0014 5 from Rb $\varepsilon$ decay (4.571 h). |
|                     |                  | 456.75 4              | 100.0 31              | 0.0    | 7/2 <sup>+</sup> | E1                 |             | 1.22 $\times 10^{-3}$ 2 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 548.99              | 5/2 <sup>+</sup> | 499.46 8              | 29.3 18               | 49.56  | 9/2 <sup>+</sup> | [E2]               |             | 0.00320 4               | $\alpha(\text{K})=0.00284$ 4; $\alpha(\text{L})=0.000314$ 4; $\alpha(\text{M})=5.07\times 10^{-5}$ 7<br>$\alpha(\text{N})=5.04\times 10^{-6}$ 7<br>$E_\gamma$ : weighted average of 499.44 8 from <sup>81</sup> Rb $\varepsilon$ decay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

# Adopted Levels, Gammas (continued)

| E <sub>i</sub> (level) | J <sup>π</sup> <sub>i</sub> | E <sub>γ</sub> <sup>‡</sup> | I <sub>γ</sub> <sup>‡</sup> | E <sub>f</sub> | J <sup>π</sup> <sub>f</sub> | Mult. <sup>c</sup> | γ( <sup>81</sup> Kr) (continued) |                         | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|-----------------------------|--------------------|----------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        |                             |                             |                             |                |                             |                    | δ <sup>c</sup>                   | α <sup>f</sup>          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 548.99                 | 5/2 <sup>+</sup>            | 549.02 4                    | 100.0 25                    | 0.0            | 7/2 <sup>+</sup>            | M1+E2              | 1.2 +28-6                        | 0.00213 24              | (4.571 h), 499.4 2 from <sup>81</sup> Rb ε decay (30.5 min), and 499.5 1 from (p,nγ).<br>I <sub>γ</sub> : unweighted average of 25.1 10 from <sup>81</sup> Rb ε decay (4.571 h), 27.8 17 from <sup>81</sup> Rb ε decay (30.5 min), 33.5 9 from (α,nγ), and 30.6 13 from (p,nγ).<br>α(K)=0.00189 21; α(L)=0.000206 25;<br>α(M)=3.3×10 <sup>-5</sup> 4<br>α(N)=3.3×10 <sup>-6</sup> 4<br>E <sub>γ</sub> : weighted average of 549.02 4 from <sup>81</sup> Rb ε decay (4.571 h), 548.9 1 from <sup>81</sup> Rb ε decay (30.5 min), and 549.1 1 from (p,nγ).<br>I <sub>γ</sub> : from (p,nγ). Others: 100.0 30 from <sup>81</sup> Rb ε decay (4.571 h), 100 7 from <sup>81</sup> Rb ε decay (30.5 min), and 100.0 31 from (α,nγ).<br>Mult.,δ: from α(K)exp=0.00195 19, weighted average of 0.00190 20 from (p,nγ) and 0.0025 7 from ε decay (4.571 h).<br>α(K)=2.7 22; α(L)=0.5 5; α(M)=0.09 8<br>α(N)=0.007 7<br>E <sub>γ</sub> : weighted average of 59.65 15 from <sup>81</sup> Rb ε decay (4.571 h) and 59.5 1 from (p,nγ).<br>I <sub>γ</sub> : from ε decay (4.571 h).<br>α(K)=0.001585 22; α(L)=0.0001733 24;<br>α(M)=2.80×10 <sup>-5</sup> 4<br>α(N)=2.80×10 <sup>-6</sup> 4<br>E <sub>γ</sub> : unweighted average of 608.45 8 from <sup>81</sup> Rb ε decay (4.571 h) and 608.7 1 from (p,nγ).<br>I <sub>γ</sub> : From (p,nγ). Other: 100 5 from <sup>81</sup> Rb ε decay (4.571 h).<br>Mult.: From α(K)exp in (p,nγ); δ(M1,E2)≥0.33.<br>α(K)=0.1175 17; α(L)=0.01276 18; α(M)=0.002047 29<br>α(N)=0.0002002 29<br>α(K)=0.058 34; α(L)=0.007 4; α(M)=0.0011 7<br>α(N)=1.1×10 <sup>-4</sup> 7<br>α(K)=0.00273 21; α(L)=0.000296 24;<br>α(M)=4.8×10 <sup>-5</sup> 4<br>α(N)=4.8×10 <sup>-6</sup> 4 |
| 608.51                 | 3/2 <sup>+</sup>            | 59.55 10                    | 3.2 6                       | 548.99         | 5/2 <sup>+</sup>            | [M1,E2]            |                                  | 3.4 28                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                        |                             | 608.58 13                   | 100.0 29                    | 0.0            | 7/2 <sup>+</sup>            | E2                 |                                  | 1.79×10 <sup>-3</sup> 3 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 636.76                 | 3/2 <sup>-</sup>            | 87.80 <sup>#</sup> 10       | 0.069 <sup>#</sup> 7        | 548.99         | 5/2 <sup>+</sup>            | [E1]               |                                  | 0.1325 19               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                        |                             | 180.20 <sup>#</sup> 10      | 0.659 <sup>#</sup> 17       | 456.70         | 5/2 <sup>-</sup>            | [M1,E2]            |                                  | 0.07 4                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                        |                             | 446.17 4                    | 100 3                       | 190.53         | 1/2 <sup>-</sup>            | M1+E2              | 0.44 +20-26                      | 0.00308 23              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

Adopted Levels, Gammas (continued)

| $E_i(\text{level})$ | $J_i^\pi$          | $E_\gamma^{\ddagger}$               | $I_\gamma^{\ddagger}$             | $E_f$                                             | $J_f^\pi$        | Mult. <sup>c</sup> | $\gamma(^{81}\text{Kr})$ (continued) |                         | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------|--------------------|-------------------------------------|-----------------------------------|---------------------------------------------------|------------------|--------------------|--------------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                    |                                     |                                   |                                                   |                  |                    | $\delta^c$                           | $\alpha^f$              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 700.84              | 5/2 <sup>-</sup>   | 63.97 <sup>#</sup> 5                | 1.04 <sup>#</sup> 22              | 636.76                                            | 3/2 <sup>-</sup> | (M1+E2)            | 0.15 +9-15                           | 0.54 14                 | $E_\gamma$ : weighted average of 446.16 2 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h), 446.3 1 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min), and 446.4 1 from (p,n $\gamma$ ).<br>$\alpha(\text{K})=0.47$ 11; $\alpha(\text{L})=0.061$ 23; $\alpha(\text{M})=0.010$ 4<br>$\alpha(\text{N})=9.4\times 10^{-4}$ 32<br>Mult., $\delta$ : from $\alpha(\text{K})\text{exp}$ in Rb $\varepsilon$ decay (4.571 h), and adopted $\Delta\pi=\text{no}$ .<br>$\alpha(\text{K})=0.0252$ 22; $\alpha(\text{L})=0.00296$ 27; $\alpha(\text{M})=0.00048$ 4<br>$\alpha(\text{N})=4.6\times 10^{-5}$ 4                                                                                                                                                          |
|                     |                    | 244.06 12                           | 6.9 11                            | 456.70                                            | 5/2 <sup>-</sup> | E2+M1              | +1.6 +6-3                            | 0.0287 25               | $E_\gamma$ : weighted average of 243.94 13 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h), 245.0 5 from ( $\alpha$ ,3n $\gamma$ ), and 244.1 1 from (p,n $\gamma$ ).<br>$I_\gamma$ : unweighted average of 5.78 18 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h), and 8.0 6 from (p,n $\gamma$ ). Other: 100 48 from ( $\alpha$ ,n $\gamma$ ),<br>Mult.: from $\alpha(\text{K})\text{exp}$ in Rb $\varepsilon$ decay (4.571 h).<br>$\delta$ : weighted average of +1.8 +8-5 from ( $\alpha$ ,n $\gamma$ ) and 1.3 +8-4 from $\alpha(\text{K})\text{exp}=0.023$ 4 in $\varepsilon$ decay (4.571 h).<br>$\alpha(\text{K})=0.00266$ 4; $\alpha(\text{L})=0.000293$ 4; $\alpha(\text{M})=4.75\times 10^{-5}$ 7<br>$\alpha(\text{N})=4.72\times 10^{-6}$ 7 |
| 732.06              | (5/2) <sup>+</sup> | 510.3 1                             | 100 4                             | 190.53                                            | 1/2 <sup>-</sup> | E2                 |                                      | 0.00300 4               | $E_\gamma$ : from (p,n $\gamma$ ). Others: 510.4 3 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 510 1 from ( $\alpha$ ,3n $\gamma$ ).<br>$I_\gamma$ : from (p,n $\gamma$ ). Other: 100 18 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h).<br>Mult., $\delta$ : from $\alpha(\text{K})\text{exp}=0.0025$ 4 (weighted average of 0.0025 5 from (p,n $\gamma$ ) and 0.0025 7 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h)), mult.=E2(+?) with $\delta(\text{D},\text{Q})>0.7$ or $\delta(\text{Q},\text{O})<0.28$ .                                                                                                                                                                                                                          |
|                     |                    | 183.4 <sup>&amp;</sup> 2<br>682.4 1 | 28 <sup>&amp;</sup> 6<br>100.0 32 | 548.99 5/2 <sup>+</sup><br>49.56 9/2 <sup>+</sup> |                  | (E2)               |                                      | 1.30 $\times 10^{-3}$ 2 | $\alpha(\text{K})=0.001153$ 16; $\alpha(\text{L})=0.0001253$ 18;<br>$\alpha(\text{M})=2.027\times 10^{-5}$ 28<br>$\alpha(\text{N})=2.030\times 10^{-6}$ 28<br>$E_\gamma$ : weighted average of 682.3 1 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min) and 682.4 1 from (p,n $\gamma$ ). Other: 682.3 5 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h).<br>$I_\gamma$ : from (p,n $\gamma$ ). Others: 100 4 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min) and 100 4 from ( $\alpha$ ,n $\gamma$ ).<br>Mult.: M1,E2 from $\alpha(\text{K})\text{exp}$ in (p,n $\gamma$ ); $\Delta J=2$ from                                                                                                                                                      |

# Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                    |                       |                       |        |                  |                    |            |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------|--------------------|-----------------------|-----------------------|--------|------------------|--------------------|------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$          | $E_\gamma^{\ddagger}$ | $I_\gamma^{\ddagger}$ | $E_f$  | $J_f^\pi$        | Mult. <sup>c</sup> | $\delta^c$ | $\alpha^f$               | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 732.06                               | (5/2) <sup>+</sup> | 732.1 1               | 43.2 24               | 0.0    | 7/2 <sup>+</sup> | [M1,E2]            |            | 0.00099 9                | level scheme. However, D(+Q), $\Delta J=1$ from $683\gamma(\theta)$ in ( $\alpha, n\gamma$ ) is inconsistent and this discrepancy is unexplained. $\alpha(K)=0.00088$ 8; $\alpha(L)=9.4\times 10^{-5}$ 9; $\alpha(M)=1.53\times 10^{-5}$ 15 $\alpha(N)=1.54\times 10^{-6}$ 14 $E_\gamma$ : from (p,n $\gamma$ ). Other: 732.1 2 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min). $I_\gamma$ : weighted average of 42.9 24 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min) and 47 8 from (p,n $\gamma$ ).                                                                                                                                                                                         |
| 873.69                               | 11/2 <sup>+</sup>  | 824.1 2               | 100.0 16              | 49.56  | 9/2 <sup>+</sup> | (M1+E2)            | -0.8 +4-6  | 7.36 $\times 10^{-4}$ 27 | $\alpha(K)=0.000653$ 24; $\alpha(L)=6.98\times 10^{-5}$ 29; $\alpha(M)=1.13\times 10^{-5}$ 5 $\alpha(N)=1.14\times 10^{-6}$ 4 $E_\gamma$ : weighted average of 824.2 5 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min), 823.9 2 from ( $\alpha, 3n\gamma$ ), and 824.3 2 from (p,n $\gamma$ ). $I_\gamma$ : from ( $\alpha, n\gamma$ ). Others: 100 8 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min), 100 5 from ( $\alpha, 3n\gamma$ ), and 100 21 from (p,n $\gamma$ ). Mult., $\delta$ : D+Q from ( $\alpha, n\gamma$ ); pol=-0.11 11 ( $\alpha, 3n\gamma$ ). Other $\delta$ : $\approx 0.7$ from ( $\alpha, 3n\gamma$ ).                                                                    |
|                                      |                    | 873.7 2               | 60.7 20               | 0.0    | 7/2 <sup>+</sup> | E2 <sup>d</sup>    |            | 6.85 $\times 10^{-4}$ 10 | $\alpha(K)=0.000608$ 9; $\alpha(L)=6.53\times 10^{-5}$ 9; $\alpha(M)=1.057\times 10^{-5}$ 15 $\alpha(N)=1.063\times 10^{-6}$ 15 $E_\gamma$ : weighted average of 873.8 3 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min), 873.4 2 from ( $\alpha, 3n\gamma$ ), and 873.9 2 from (p,n $\gamma$ ). $I_\gamma$ : from ( $\alpha, n\gamma$ ). Others: 59 5 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min), 62 6 from ( $\alpha, 3n\gamma$ ), and 61 13 from (p,n $\gamma$ ).                                                                                                                                                                                                                        |
| 902.53                               | (7/2) <sup>-</sup> | 445.2                 | 89 6                  | 456.70 | 5/2 <sup>-</sup> | (D+Q)              |            |                          | $E_\gamma$ : From ( $\alpha, 5n\gamma$ ). Other: 446.1 2 in ( $\alpha, 3n\gamma$ ); in ( $\alpha, n\gamma$ ) and (p,n $\gamma$ ), $\gamma$ is doublet including strong component from 636 level. Mult.: D+Q from $\gamma(\theta)$ in ( $\alpha, 3n\gamma$ ), but transition may have more than one placement.                                                                                                                                                                                                                                                                                                                                                                                              |
|                                      |                    | 853.1 1               | 100 5                 | 49.56  | 9/2 <sup>+</sup> | E1                 |            | 2.92 $\times 10^{-4}$ 4  | $\alpha(K)=0.000260$ 4; $\alpha(L)=2.74\times 10^{-5}$ 4; $\alpha(M)=4.43\times 10^{-6}$ 6 $\alpha(N)=4.47\times 10^{-7}$ 6 $E_\gamma$ : From (p,n $\gamma$ ). Others: 853.0 ( $\alpha, 5n\gamma$ ), 852.7 4 from ( $\alpha, 3n\gamma$ ). $I_\gamma$ : From ( $\alpha, n\gamma$ ). Other: 100 12 ( $\alpha, 3n\gamma$ ), 73 6 from (p,n $\gamma$ ). $\delta$ : $\delta(E1, M2)\leq 0.23$ from $\alpha(K)\exp<0.00032$ (p,n $\gamma$ ). $E_\gamma$ : From (p,n $\gamma$ ). Other: 902.3 3 from ( $\alpha, 3n\gamma$ ). $I_\gamma$ : unweighted average of 92 5 from ( $\alpha, n\gamma$ ), 63 9 from ( $\alpha, 3n\gamma$ ). Other: $I_\gamma=137$ 7 in (p,n $\gamma$ ); 902 $\gamma$ may be complex there. |
|                                      |                    | 902.4 1               | 78 15                 | 0.0    | 7/2 <sup>+</sup> |                    |            |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 919.95                               | 3/2 <sup>-</sup>   | 218.7 5               | 6.6 7                 | 700.84 | 5/2 <sup>-</sup> |                    |            |                          | $E_\gamma$ : unweighted average of 218.2 5 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 219.2 1 from (p,n $\gamma$ ). $I_\gamma$ : weighted average of 6.3 16 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 6.7 7 from (p,n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                                               |

Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                   |                               |                       |                 |                                       |                    |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------|-------------------|-------------------------------|-----------------------|-----------------|---------------------------------------|--------------------|------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$         | $E_\gamma^{\ddagger}$         | $I_\gamma^{\ddagger}$ | $E_f$           | $J_f^\pi$                             | Mult. <sup>c</sup> | $\delta^c$ | $\alpha^f$              | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 919.95                               | 3/2 <sup>-</sup>  | 283.3 1                       | 14.5 7                | 636.76          | 3/2 <sup>-</sup>                      | M1                 |            | 0.00839 12              | $\alpha(\text{K})=0.00744$ 10; $\alpha(\text{L})=0.000809$ 11; $\alpha(\text{M})=0.0001311$ 18<br>$\alpha(\text{N})=1.321\times 10^{-5}$ 19<br>$E_\gamma$ : from (p,n $\gamma$ ). Other: 283.1 5 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h).<br>$I_\gamma$ : from (p,n $\gamma$ ). Other: 15.0 32 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h).<br>Mult., $\delta$ : $\alpha(\text{K})$ exp from (p,n $\gamma$ ) allows M1 (pure) or E1+M2 (with $\delta=0.28$ 7) from $\alpha(\text{K})$ exp=0.0060 9; adopted $\Delta\pi=\text{no}$ .                                         |
|                                      |                   | 729.35 26                     | 100.0 31              | 190.53          | 1/2 <sup>-</sup>                      | (M1)               |            | $9.12\times 10^{-4}$ 13 | $\alpha(\text{K})=0.000811$ 11; $\alpha(\text{L})=8.62\times 10^{-5}$ 12; $\alpha(\text{M})=1.395\times 10^{-5}$ 20<br>$\alpha(\text{N})=1.413\times 10^{-6}$ 20<br>$E_\gamma$ : unweighted average of 729.09 6 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 729.6 1 from (p,n $\gamma$ ).<br>$I_\gamma$ : From $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h). Others: 100.0 32 from ( $\alpha$ ,n $\gamma$ ) and 100 21 from (p,n $\gamma$ ).<br>Other $E_\gamma$ : 729.62 9 from (p,n $\gamma$ ).<br>Mult.: Other: D in ( $\alpha$ ,n $\gamma$ ); adopted $\Delta\pi=\text{no}$ . |
| 934.07                               | 11/2 <sup>+</sup> | 884.7 3                       | 100.0 32              | 49.56           | 9/2 <sup>+</sup>                      | M1+E2 <sup>d</sup> | $-0.4^d$ 1 | $6.09\times 10^{-4}$ 9  | $\text{B}(\text{M1})(\text{W.u.})=0.14$ +6-3; $\text{B}(\text{E2})(\text{W.u.})=34$ +24-15<br>$\alpha(\text{K})=0.000541$ 8; $\alpha(\text{L})=5.75\times 10^{-5}$ 9; $\alpha(\text{M})=9.30\times 10^{-6}$ 15<br>$\alpha(\text{N})=9.42\times 10^{-7}$ 15<br>$E_\gamma$ : weighted average of 885.0 2 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min), 884.4 2 from ( $\alpha$ ,3n $\gamma$ ), and 884.0 6 from (p,n $\gamma$ ).<br>$\delta$ : Other $\delta$ : $-0.73$ +25-47 from ( $\alpha$ ,n $\gamma$ ).                                                                             |
|                                      |                   | 934 <sup>h</sup> 1            | $\approx 6$           | 0.0             | 7/2 <sup>+</sup>                      | [E2]               |            | $5.82\times 10^{-4}$ 8  | $\alpha(\text{K})=0.000517$ 7; $\alpha(\text{L})=5.54\times 10^{-5}$ 8; $\alpha(\text{M})=8.96\times 10^{-6}$ 13<br>$\alpha(\text{N})=9.02\times 10^{-7}$ 13<br>$\text{B}(\text{E2})(\text{W.u.})=11$ +14-7                                                                                                                                                                                                                                                                                                                                                                                     |
| 976.23                               | 13/2 <sup>+</sup> | 102.3 <sup>a</sup><br>926.6 2 | 100                   | 873.69<br>49.56 | 11/2 <sup>+</sup><br>9/2 <sup>+</sup> | E2                 |            | $5.94\times 10^{-4}$ 8  | $\text{B}(\text{E2})(\text{W.u.})=27$ +18-8<br>$\alpha(\text{K})=0.000527$ 7; $\alpha(\text{L})=5.65\times 10^{-5}$ 8; $\alpha(\text{M})=9.14\times 10^{-6}$ 13<br>$\alpha(\text{N})=9.20\times 10^{-7}$ 13<br>$E_\gamma$ : weighted average of 926.6 5 from ( $^{11}\text{B}$ ,p2n $\gamma$ ), 926.4 2 from ( $\alpha$ ,3n $\gamma$ ), and 926.9 3 from (p,n $\gamma$ ).<br>Mult.: Stretched Q from ( $\alpha$ ,n $\gamma$ ); not M2 from RUL; pol=+0.53 4 in ( $\alpha$ ,3n $\gamma$ ).                                                                                                       |
| 976.65                               | 1/2 <sup>+</sup>  | 339.93 15                     | 100.0 33              | 636.76          | 3/2 <sup>-</sup>                      | E1                 |            | 0.00263 4               | $\alpha(\text{K})=0.002335$ 33; $\alpha(\text{L})=0.0002487$ 35; $\alpha(\text{M})=4.02\times 10^{-5}$ 6<br>$\alpha(\text{N})=4.03\times 10^{-6}$ 6<br>$E_\gamma$ : weighted average of 339.64 20 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 340.0 1 from (p,n $\gamma$ ).<br>$I_\gamma$ : from (p,n $\gamma$ ).                                                                                                                                                                                                                                                                   |

Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                                                        |                         |                       |        |                  |                    |            |            |                                                                                                                                                                                                                        |
|--------------------------------------|--------------------------------------------------------|-------------------------|-----------------------|--------|------------------|--------------------|------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$                                              | $E_\gamma^{\ddagger}$   | $I_\gamma^{\ddagger}$ | $E_f$  | $J_f^\pi$        | Mult. <sup>c</sup> | $\delta^c$ | $\alpha^f$ | Comments                                                                                                                                                                                                               |
| 976.65                               | 1/2 <sup>+</sup>                                       | 368.1 1                 | 28.6                  | 608.51 | 3/2 <sup>+</sup> |                    |            |            | $E_\gamma, I_\gamma$ : for doublet in (p,n $\gamma$ ).                                                                                                                                                                 |
| 981.67                               | (9/2 <sup>+</sup> )                                    | 932.0 2                 | 100 4                 | 49.56  | 9/2 <sup>+</sup> |                    |            |            | $E_\gamma$ : weighted average of 932.4 2 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min), 932.0 4 from ( $\alpha$ ,3n $\gamma$ ), and 931.9 1 from (p,n $\gamma$ ).                                               |
|                                      |                                                        | 981.6 2                 | 54 11                 | 0.0    | 7/2 <sup>+</sup> |                    |            |            | $I_\gamma$ : from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min). Others: 100 17 from ( $\alpha$ ,3n $\gamma$ ) and 100 6 from (p,n $\gamma$ ).                                                                       |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | $E_\gamma$ : Weighted average of 981.6 2 from $\varepsilon$ decay (30.5 min) and 981.7 4 from ( $\alpha$ ,3n $\gamma$ ). Other $E_\gamma$ : 980.4 1 in (p,n $\gamma$ ) for contaminated $\gamma$ .                     |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | $I_\gamma$ : Unweighted average of inconsistent data (viz. 41 14) from ( $\alpha$ ,3n $\gamma$ ), 45 14 from (p,n $\gamma$ ), 76 4 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min). The weighted average is 71 8. |
| 994.25                               | 1/2 <sup>-</sup> , 3/2 <sup>-</sup> , 5/2 <sup>-</sup> | 357.42 6                | 34.5 12               | 636.76 | 3/2 <sup>-</sup> | (M1+E2)            | 0.5 +6-5   | 0.0057 16  | $\alpha(\text{K})=0.0050$ 14; $\alpha(\text{L})=5.5\times 10^{-4}$ 17; $\alpha(\text{M})=8.9\times 10^{-5}$ 27<br>$\alpha(\text{N})=8.9\times 10^{-6}$ 26                                                              |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | $E_\gamma$ : From $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h). Other: 357.8 1 from (p,n $\gamma$ ).                                                                                                                 |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | $I_\gamma$ : weighted average of 34.0 11 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 37.3 27 from (p,n $\gamma$ ).                                                                                         |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | Mult., $\delta$ : from $\alpha(\text{K})\text{exp}$ in $^{81}\text{Rb}$ $\varepsilon$ decay. Other: E1 from (p,n $\gamma$ ); E1 is inconsistent with log $ft=5.7$ to 994 level from 3/2 <sup>-</sup> .                 |
|                                      |                                                        | 386.09 <sup>#h</sup> 6  | 3.8 <sup>#</sup> 4    | 608.51 | 3/2 <sup>+</sup> |                    |            |            | $\alpha(\text{K})=0.00194$ 33; $\alpha(\text{L})=0.00021$ 4; $\alpha(\text{M})=3.4\times 10^{-5}$ 6                                                                                                                    |
|                                      |                                                        | 537.61 6                | 100 7                 | 456.70 | 5/2 <sup>-</sup> | E2(+M1)            |            | 0.0022 4   | $\alpha(\text{N})=3.4\times 10^{-6}$ 6                                                                                                                                                                                 |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | $E_\gamma$ : weighted average of 537.60 4 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 537.9 2 from (p,n $\gamma$ ).                                                                                        |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | $I_\gamma$ : from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h). Other: 100 20 from (p,n $\gamma$ ).                                                                                                                  |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | Other $E_\gamma$ : 537.9 2 in (p,n $\gamma$ ).                                                                                                                                                                         |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | Mult.: from $\alpha(\text{K})\text{exp}$ from Rb $\varepsilon$ decay (4.571 h), mult.=E2(+M1) for doublet, 90% of whose $I_\gamma$ is assigned to this placement.                                                      |
|                                      |                                                        | 803.72 6                | 36.9 14               | 190.53 | 1/2 <sup>-</sup> | M1,E2              |            | 0.00079 5  | $\alpha(\text{K})=0.00070$ 5; $\alpha(\text{L})=7.5\times 10^{-5}$ 6; $\alpha(\text{M})=1.22\times 10^{-5}$ 9<br>$\alpha(\text{N})=1.23\times 10^{-6}$ 9                                                               |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | $E_\gamma$ : weighted average of 803.69 6 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 803.8 1 from (p,n $\gamma$ ).                                                                                        |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | $I_\gamma$ : weighted average of 37.4 11 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 32.7 33 from (p,n $\gamma$ ).                                                                                         |
|                                      |                                                        |                         |                       |        |                  |                    |            |            | Mult.: from $\alpha(\text{K})\text{exp}$ in Rb $\varepsilon$ decay (4.571 h).                                                                                                                                          |
|                                      |                                                        | 993.69 <sup>#h</sup> 14 | 0.72 <sup>#</sup> 18  | 0.0    | 7/2 <sup>+</sup> |                    |            |            |                                                                                                                                                                                                                        |

Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                                     |                          |                       |        |                  |                    |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------|-------------------------------------|--------------------------|-----------------------|--------|------------------|--------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$                           | $E_\gamma^{\ddagger}$    | $I_\gamma^{\ddagger}$ | $E_f$  | $J_f^\pi$        | Mult. <sup>c</sup> | $\alpha^f$             | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 1014.88                              |                                     | 465.9 1                  | 100 11                | 548.99 | 5/2 <sup>+</sup> |                    |                        | $E_\gamma$ : from (p,n $\gamma$ ). Other: 465.5 3 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min).<br>$I_\gamma$ : from $\varepsilon$ decay (30.5 min).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                      |                                     | 1014.8 5                 | 57 4                  | 0.0    | 7/2 <sup>+</sup> |                    |                        | $E_\gamma$ : weighted average of 1014.4 4 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min) and 1015.3 5 from (p,n $\gamma$ ).<br>$I_\gamma$ : from $\varepsilon$ decay (30.5 min).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 1025.66                              | 3/2 <sup>-</sup> , 5/2 <sup>-</sup> | 388.91 7                 | 49 7                  | 636.76 | 3/2 <sup>-</sup> | M1                 | 0.00387 5              | $\alpha(\text{K})=0.00343$ 5; $\alpha(\text{L})=0.000370$ 5; $\alpha(\text{M})=6.00\times 10^{-5}$ 8<br>$\alpha(\text{N})=6.06\times 10^{-6}$ 8<br>$E_\gamma$ : weighted average of 388.86 7 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 389.0 1 from (p,n $\gamma$ ).<br>$I_\gamma$ : unweighted average of 56.0 29 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 41.8 28 from (p,n $\gamma$ ).<br>Mult.: from $\alpha(\text{K})_{\text{exp}}=0.0030$ 6; weighted average of 0.0028 6 in (p,n $\gamma$ ) and 0.0042 14 from Rb $\varepsilon$ decay (4.571 h).                                                                                                                  |
|                                      |                                     | 476.70 3                 | 57 8                  | 548.99 | 5/2 <sup>+</sup> | E1                 | $1.09\times 10^{-3}$ 2 | $\alpha(\text{K})=0.000971$ 14; $\alpha(\text{L})=0.0001031$ 14; $\alpha(\text{M})=1.665\times 10^{-5}$ 23<br>$\alpha(\text{N})=1.675\times 10^{-6}$ 23<br>$E_\gamma$ : weighted average of 476.69 3 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 476.8 1 from (p,n $\gamma$ ).<br>$I_\gamma$ : unweighted average of 64.3 17 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 49 5 from (p,n $\gamma$ ).<br>Mult.: Note: $\alpha(\text{K})_{\text{exp}}<0.0006$ in (p,n $\gamma$ ) but $\alpha(\text{K})(\text{E1})=0.00097$ .                                                                                                                                                     |
|                                      |                                     | 568.91 4                 | 61 6                  | 456.70 | 5/2 <sup>-</sup> | M1,E2              | 0.00188 29             | $\alpha(\text{K})=0.00167$ 26; $\alpha(\text{L})=0.000181$ 30; $\alpha(\text{M})=2.9\times 10^{-5}$ 5<br>$\alpha(\text{N})=2.9\times 10^{-6}$ 5<br>$E_\gamma$ : weighted average of 568.90 4 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 569.0 1 from (p,n $\gamma$ ).<br>$I_\gamma$ : unweighted average of 71.7 20 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h), 53 5 from ( $\alpha$ ,n $\gamma$ ), and 57.6 28 from (p,n $\gamma$ ).<br>Mult.: From $\alpha(\text{K})_{\text{exp}}=0.0016$ 3; weighted average of 0.0016 4 from (p,n $\gamma$ ) and 0.0015 6 from Rb $\varepsilon$ decay (4.571 h); D(+Q) from $\gamma(\theta)$ in ( $\alpha$ ,n $\gamma$ ).                   |
|                                      |                                     | 834.98 23                | 100.0 29              | 190.53 | 1/2 <sup>-</sup> | M1,E2              | 0.00072 4              | $\alpha(\text{K})=0.00064$ 4; $\alpha(\text{L})=6.9\times 10^{-5}$ 5; $\alpha(\text{M})=1.11\times 10^{-5}$ 8<br>$\alpha(\text{N})=1.12\times 10^{-6}$ 7<br>$E_\gamma$ : unweighted average of 834.75 6 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 835.2 2 from (p,n $\gamma$ ).<br>$I_\gamma$ : From $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h). Others: 100 17 from ( $\alpha$ ,n $\gamma$ ) and 100 5 from (p,n $\gamma$ ).<br>Other $E_\gamma$ : 835.14 18 from (p,n $\gamma$ ) for a contaminated $\gamma$ .<br>Mult.: from $\alpha(\text{K})_{\text{exp}}=0.00065$ 18; weighted average of 0.00062 22 from (p,n $\gamma$ ) and 0.0007 3 from Rb $\varepsilon$ decay (4.571 h). |
|                                      |                                     | 1025.08 <sup>#h</sup> 16 | 1.0 <sup>#</sup> 5    | 0.0    | 7/2 <sup>+</sup> |                    |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 1093.5?                              |                                     | 456.7 <sup>h</sup>       |                       | 636.76 | 3/2 <sup>-</sup> |                    |                        | $E_\gamma$ : from ( $\alpha$ ,n $\gamma$ ); for doublet.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                    |                                       |                       |                                                    |                    |                    |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------|--------------------|---------------------------------------|-----------------------|----------------------------------------------------|--------------------|--------------------|------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$          | $E_\gamma^{\ddagger}$                 | $I_\gamma^{\ddagger}$ | $E_f$                                              | $J_f^\pi$          | Mult. <sup>c</sup> | $\delta^c$ | $\alpha^f$              | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1100.01                              | 5/2 <sup>+</sup>   | 368.3 @ 3                             | 14.3 @ 8              | 732.06                                             | (5/2) <sup>+</sup> | [M1,E2]            |            | 0.0064 20               | $\alpha(\text{K})=0.0057$ 18; $\alpha(\text{L})=6.3\times 10^{-4}$ 21;<br>$\alpha(\text{M})=1.03\times 10^{-4}$ 34<br>$\alpha(\text{N})=1.02\times 10^{-5}$ 33                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                      |                    | 463.5 1                               | 28.0 31               | 636.76                                             | 3/2 <sup>-</sup>   | [E1]               |            | $1.17\times 10^{-3}$ 2  | $\alpha(\text{K})=0.001042$ 15; $\alpha(\text{L})=0.0001106$ 15;<br>$\alpha(\text{M})=1.786\times 10^{-5}$ 25<br>$\alpha(\text{N})=1.797\times 10^{-6}$ 25<br>$E_\gamma$ : from (p,n $\gamma$ ). Other: 463.3 3 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min).<br>$I_\gamma$ : from $\varepsilon$ decay (30.5 min).                                                                                                                                                                                                                                                                          |
|                                      |                    | 551.5 @ 15                            | 7.8 @ 31              | 548.99                                             | 5/2 <sup>+</sup>   | [M1,E2]            |            | 0.00204 34              | $\alpha(\text{K})=0.00181$ 30; $\alpha(\text{L})=0.000197$ 35;<br>$\alpha(\text{M})=3.2\times 10^{-5}$ 6<br>$\alpha(\text{N})=3.2\times 10^{-6}$ 5                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                      |                    | 643.6 @ 15                            | 2.5 @ 12              | 456.70                                             | 5/2 <sup>-</sup>   | [E1]               |            | $5.36\times 10^{-4}$ 8  | $\alpha(\text{K})=0.000477$ 7; $\alpha(\text{L})=5.04\times 10^{-5}$ 8;<br>$\alpha(\text{M})=8.14\times 10^{-6}$ 12<br>$\alpha(\text{N})=8.21\times 10^{-7}$ 12                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      |                    | 1099.7 1                              | 100 4                 | 0.0                                                | 7/2 <sup>+</sup>   | [M1,E2]            |            | $3.89\times 10^{-4}$ 11 | $\alpha(\text{K})=0.000346$ 9; $\alpha(\text{L})=3.67\times 10^{-5}$ 11;<br>$\alpha(\text{M})=5.94\times 10^{-6}$ 18<br>$\alpha(\text{N})=6.00\times 10^{-7}$ 17<br>$E_\gamma$ : weighted average of 1100.3 5 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h), 1099.9 2 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min), and 1099.6 1 from (p,n $\gamma$ ).<br>$I_\gamma$ : Same value in $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min) and (p,n $\gamma$ ).                                                                                                                             |
| 1206.65                              | 7/2                | 597.6 <sup>h</sup> 4<br>657.7 1       | 100 4                 | 608.51 3/2 <sup>+</sup><br>548.99 5/2 <sup>+</sup> |                    | D+Q                |            |                         | $E_\gamma$ : from (p,n $\gamma$ ).<br>$E_\gamma$ : from (p,n $\gamma$ ). Other: 657.5 2 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min).<br>$I_\gamma$ : from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min). Other: 100 4 from (p,n $\gamma$ ).<br>Mult.: From ( $\alpha$ ,n $\gamma$ ). D,E2 from $\alpha(\text{K})\text{exp}$ in (p,n $\gamma$ ).<br>$E_\gamma$ : from (p,n $\gamma$ ). Other: 1157.0 4 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min).<br>$I_\gamma$ : weighted average of 51 5 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min) and 42 4 from (p,n $\gamma$ ). |
|                                      |                    | 1156.9 2                              | 46 5                  | 49.56                                              | 9/2 <sup>+</sup>   |                    |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 1239.08                              | (3/2) <sup>+</sup> | 1206.0 @ <sup>h</sup> 15<br>319.25 16 | <8.6 @<br>30 6        | 0.0 7/2 <sup>+</sup><br>919.95 3/2 <sup>-</sup>    |                    | E1(+M2)            | 0.16 +9-16 | 0.0037 8                | $\alpha(\text{K})=0.0033$ 7; $\alpha(\text{L})=0.00036$ 8; $\alpha(\text{M})=5.8\times 10^{-5}$ 13<br>$\alpha(\text{N})=5.8\times 10^{-6}$ 13<br>$E_\gamma$ : unweighted average of 319.09 10 from $^{81}\text{Rb}$ $\varepsilon$                                                                                                                                                                                                                                                                                                                                                                   |

Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                         |                           |                            |        |                    |                    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------|-------------------------|---------------------------|----------------------------|--------|--------------------|--------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$               | $E_\gamma^\ddagger$       | $I_\gamma^\ddagger$        | $E_f$  | $J_f^\pi$          | Mult. <sup>c</sup> | $\alpha^f$              | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1239.08                              | (3/2) <sup>+</sup>      |                           |                            |        |                    |                    |                         | decay (4.571 h) and 319.4 1 from (p,n $\gamma$ ).<br>I $\gamma$ : unweighted average of 23.8 25 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 36 4 from (p,n $\gamma$ ).<br>$\alpha(\text{K})=0.000722$ 10; $\alpha(\text{L})=7.65\times 10^{-5}$ 11; $\alpha(\text{M})=1.236\times 10^{-5}$ 18<br>$\alpha(\text{N})=1.244\times 10^{-6}$ 18<br>E $\gamma$ : unweighted average of 537.8 2 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 538.9 2 from (p,n $\gamma$ ).<br>I $\gamma$ : from (p,n $\gamma$ ). Other: 100 38 in $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h).<br>Other data: E $\gamma$ =538.9 2, I $\gamma$ =100 17 in (p,n $\gamma$ ). Possibly present in ( $\alpha$ ,n $\gamma$ ) also. |
|                                      |                         | 538.4 6                   | 100 17                     | 700.84 | 5/2 <sup>-</sup>   | [E1]               | $8.12\times 10^{-4}$ 12 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                      |                         | 602.48 <sup>#</sup> 15    | 27.5 <sup>#</sup> 13       | 636.76 | 3/2 <sup>-</sup>   | [E1]               | $6.23\times 10^{-4}$ 9  | $\alpha(\text{K})=0.000554$ 8; $\alpha(\text{L})=5.86\times 10^{-5}$ 8; $\alpha(\text{M})=9.47\times 10^{-6}$ 13<br>$\alpha(\text{N})=9.55\times 10^{-7}$ 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                      |                         | 689.9 <sup>#</sup> 3      | 16.3 <sup>#</sup> 13       | 548.99 | 5/2 <sup>+</sup>   | [M1,E2]            | 0.00115 12              | $\alpha(\text{K})=0.00102$ 10; $\alpha(\text{L})=0.000110$ 12; $\alpha(\text{M})=1.77\times 10^{-5}$ 20<br>$\alpha(\text{N})=1.78\times 10^{-6}$ 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                      |                         | 782.5 <sup>#</sup> 5      | 7.5 <sup>#</sup> 13        | 456.70 | 5/2 <sup>-</sup>   | [E1]               | $3.50\times 10^{-4}$ 5  | $\alpha(\text{K})=0.000311$ 4; $\alpha(\text{L})=3.28\times 10^{-5}$ 5; $\alpha(\text{M})=5.30\times 10^{-6}$ 7<br>$\alpha(\text{N})=5.35\times 10^{-7}$ 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1278.25                              | (1/2,3/2)               | 1047.94 <sup>#</sup> 23   | 25.0 <sup>#</sup> 25       | 190.53 | 1/2 <sup>-</sup>   | [E1]               | $1.95\times 10^{-4}$ 3  | $\alpha(\text{K})=0.0001739$ 24; $\alpha(\text{L})=1.825\times 10^{-5}$ 26; $\alpha(\text{M})=2.95\times 10^{-6}$ 4<br>$\alpha(\text{N})=2.98\times 10^{-7}$ 4<br>E $\gamma$ : other: 1048.8 1 in (p,n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                      |                         | 301.6 <sup>&amp;</sup> 1  | 100 <sup>&amp;</sup> 10    | 976.65 | 1/2 <sup>+</sup>   |                    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                      |                         | 669.5 <sup>&amp;h</sup> 4 | 50 <sup>&amp;</sup> 13     | 608.51 | 3/2 <sup>+</sup>   |                    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                      |                         | 1087.3 <sup>&amp;h</sup>  | 195 <sup>&amp;</sup> 23    | 190.53 | 1/2 <sup>-</sup>   |                    |                         | E=1087.3 1 for triplet; I $\gamma$ for doublet including $\gamma$ from 1990 level.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 1280.49                              | (3/2,5/2 <sup>-</sup> ) | 579.4 <sup>&amp;</sup> 1  | 61 <sup>&amp;</sup> 11     | 700.84 | 5/2 <sup>-</sup>   |                    |                         | E $\gamma$ =732.1 1 for doublet in (p,n $\gamma$ ); divided intensity given.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                      |                         | 732.1 <sup>&amp;</sup>    | $\leq 83$ <sup>&amp;</sup> | 548.99 | 5/2 <sup>+</sup>   |                    |                         | E $\gamma$ : unweighted average of 822.8 5 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 824.3 2 from (p,n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                      |                         | 823.6 <sup>&amp;h</sup> 8 | $\leq 47$ <sup>&amp;</sup> | 456.70 | 5/2 <sup>-</sup>   |                    |                         | E $\gamma$ =824.3 2 for doublet in (p,n $\gamma$ ); divided intensity given.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                      |                         | 1090.2 <sup>&amp;</sup> 1 | 100 <sup>&amp;</sup> 17    | 190.53 | 1/2 <sup>-</sup>   |                    |                         | E $\gamma$ : other: 1090.6 4 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h).<br>I $\gamma$ : other: 7.5 15 in $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 1338.23?                             |                         | 701.47 <sup>#h</sup> 12   | 100 <sup>#</sup>           | 636.76 | 3/2 <sup>-</sup>   |                    |                         | E $\gamma$ , I $\gamma$ : for possible multiplet.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1349.14                              | 9/2 <sup>-</sup>        | 446.1                     |                            | 902.53 | (7/2) <sup>-</sup> |                    |                         | E $\gamma$ : this placement of complex $\gamma$ is tentatively made in ( $\alpha$ ,3n $\gamma$ ) only.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                      |                         | 892.4 3                   | 100 4                      | 456.70 | 5/2 <sup>-</sup>   | E2                 | $6.50\times 10^{-4}$ 9  | $\alpha(\text{K})=0.000577$ 8; $\alpha(\text{L})=6.20\times 10^{-5}$ 9; $\alpha(\text{M})=1.003\times 10^{-5}$ 14<br>$\alpha(\text{N})=1.009\times 10^{-6}$ 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                                             |                                                                                              |                                                                                     |                                   |                                                                              |                    |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------|--------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$                                   | $E_\gamma^\ddagger$                                                                          | $I_\gamma^\ddagger$                                                                 | $E_f$                             | $J_f^\pi$                                                                    | Mult. <sup>c</sup> | $\alpha^f$                     | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1349.14                              | 9/2 <sup>-</sup>                            | 1299 <i>1</i><br>1348.2 <i>5</i>                                                             | 35 <i>16</i><br>62 <i>22</i>                                                        | 49.56<br>0.0                      | 9/2 <sup>+</sup><br>7/2 <sup>+</sup>                                         | (E1)               | 2.67×10 <sup>-4</sup> <i>4</i> | $I_\gamma$ : from ( $\alpha, n\gamma$ ). Other: 100 <i>7</i> from ( $\alpha, 3n\gamma$ ).<br>Mult.: From $\gamma(\theta)$ , pol ( $\alpha, 3n\gamma$ ).<br><br>$\alpha(\text{K})=0.0001105$ <i>15</i> ; $\alpha(\text{L})=1.156\times 10^{-5}$ <i>16</i> ;<br>$\alpha(\text{M})=1.868\times 10^{-6}$ <i>26</i><br>$\alpha(\text{N})=1.892\times 10^{-7}$ <i>27</i> ; $\alpha(\text{IPF})=0.0001430$ <i>20</i><br>$I_\gamma$ : unweighted average of 40.4 <i>26</i> from ( $\alpha, n\gamma$ ) and 84 <i>16</i> from ( $\alpha, 3n\gamma$ ).<br>Mult.: From $\gamma(\theta)$ ( $\alpha, n\gamma$ ) and systematics.                                                                                                                                                                                                                                                                                  |
| 1351.30                              | (3/2 <sup>+</sup> , 5/2, 7/2 <sup>-</sup> ) | 650.5 <i>&amp; 1</i><br>714.7 <i>&amp; 3</i><br>1350.4 <i>&amp;† 2</i>                       | 76 <i>&amp; 11</i><br>47 <i>&amp; 16</i><br>100 <i>&amp; 16</i>                     | 700.84<br>636.76<br>0.0           | 5/2 <sup>-</sup><br>3/2 <sup>-</sup><br>7/2 <sup>+</sup>                     |                    |                                | $E_\gamma$ : uncertainty multiplied by a factor of 2 in the fitting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 1395.58                              | (3/2 <sup>+</sup> , 5/2, 7/2 <sup>-</sup> ) | 694.1 <i>&amp; 4</i><br>758.1 <i>3</i>                                                       | 100 <i>&amp; 5</i><br>13 <i>4</i>                                                   | 700.84<br>636.76                  | 5/2 <sup>-</sup><br>3/2 <sup>-</sup>                                         |                    |                                | $I_\gamma$ : from (p, $n\gamma$ ). Other: 100 <i>14</i> from ( $\alpha, n\gamma$ ).<br>$E_\gamma$ : From ( $\alpha, n\gamma$ ); $E=758.1$ <i>3</i> for doublet in (p, $n\gamma$ ).<br>$I_\gamma$ : From (p, $n\gamma$ ); doublet intensity suitably divided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1443.50                              | 9/2 <sup>-</sup>                            | 939.9 <i>&amp; 3</i><br>1395.6 <i>&amp; 2</i><br>742.4 <i>1</i>                              | 19 <i>&amp; 4</i><br>19 <i>&amp; 4</i><br>100.0 <i>32</i>                           | 456.70<br>0.0<br>700.84           | 5/2 <sup>-</sup><br>7/2 <sup>+</sup><br>5/2 <sup>-</sup>                     | E2                 | 1.04×10 <sup>-3</sup> <i>2</i> | $\alpha(\text{K})=0.000920$ <i>13</i> ; $\alpha(\text{L})=9.96\times 10^{-5}$ <i>14</i> ; $\alpha(\text{M})=1.611\times 10^{-5}$ <i>23</i><br>$\alpha(\text{N})=1.616\times 10^{-6}$ <i>23</i><br>$E_\gamma$ : weighted average of 742.2 <i>2</i> from ( $\alpha, 3n\gamma$ ) and 742.5 <i>1</i> from (p, $n\gamma$ ).<br>$I_\gamma$ : from ( $\alpha, n\gamma$ ). Others: 100 <i>5</i> from ( $\alpha, 3n\gamma$ ) and 100 <i>13</i> from (p, $n\gamma$ ).<br>Mult.: From $\gamma(\theta)$ , pol ( $\alpha, 3n\gamma$ ).<br>$E_\gamma$ : from (p, $n\gamma$ ). Other: 987 <i>1</i> from ( $\alpha, 3n\gamma$ ).<br>$I_\gamma$ : From (p, $n\gamma$ ), suggesting $\gamma$ is complex in (p, $n\gamma$ ).<br>Doubtful branch. Seen only in (p, $n\gamma$ ) and too strong to have been overlooked in ( $\alpha, n\gamma$ ) and ( $\alpha, 3n\gamma$ ), so evaluator suspects $\gamma$ is misplaced. |
|                                      |                                             | 987.1 <i>1</i>                                                                               | 78 <i>13</i>                                                                        | 456.70                            | 5/2 <sup>-</sup>                                                             |                    |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      |                                             | 1444.1 <i>&amp;h 2</i>                                                                       | 61 <i>&amp; 17</i>                                                                  | 0.0                               | 7/2 <sup>+</sup>                                                             |                    |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 1491.64                              | 1/2 <sup>+</sup>                            | 883.2 <i>&amp; 2</i><br>942.5 <i>&amp; 3</i>                                                 | ≤262 <i>&amp;</i><br>100 <i>&amp; 10</i>                                            | 608.51<br>548.99                  | 3/2 <sup>+</sup><br>5/2 <sup>+</sup>                                         |                    |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 1506.21                              | (3/2 <sup>+</sup> , 5/2, 7/2 <sup>+</sup> ) | 897.9 <i>&amp; 1</i><br>957.0 <i>&amp; 1</i><br>1048.8 <i>&amp;</i><br>1506.4 <i>&amp; 3</i> | 78 <i>&amp; 7</i><br>81 <i>&amp; 7</i><br><14.1 <i>&amp;</i><br>100 <i>&amp; 10</i> | 608.51<br>548.99<br>456.70<br>0.0 | 3/2 <sup>+</sup><br>5/2 <sup>+</sup><br>5/2 <sup>-</sup><br>7/2 <sup>+</sup> |                    |                                | $E_\gamma=1048.8$ <i>1</i> for doublet in (p, $n\gamma$ ); divided intensity given.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1558.3?                              |                                             | 532.3 <i>#h 5</i>                                                                            | 27.8 <i># 27</i>                                                                    | 1025.66                           | 3/2 <sup>-</sup> , 5/2 <sup>-</sup>                                          |                    |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                                                        |                                                                                                      |                                                                                         |                                      |                                                                              |                    |              |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------|--------------------|--------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$                                              | $E_\gamma^{\ddagger}$                                                                                | $I_\gamma^{\ddagger}$                                                                   | $E_f$                                | $J_f^\pi$                                                                    | Mult. <sup>c</sup> | $\delta^c$   | $\alpha^f$ | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1558.3?<br>1607.43                   | (13/2) <sup>+</sup>                                    | 1368.1 <sup>#h</sup> 5<br>631.1 4                                                                    | 100 <sup>#</sup> 11<br>34.3 21                                                          | 190.53<br>976.23                     | 1/2 <sup>-</sup><br>13/2 <sup>+</sup>                                        | [M1,E2]            |              | 0.00144 18 | $\alpha(\text{K})=0.00127$ 16; $\alpha(\text{L})=0.000138$ 19;<br>$\alpha(\text{M})=2.23\times 10^{-5}$ 30<br>$\alpha(\text{N})=2.24\times 10^{-6}$ 29<br>$I_\gamma$ : weighted average of 33.5 18 from $(\alpha, n\gamma)$<br>and 40 5 from $(\alpha, 3n\gamma)$ .<br>B(M1)(W.u.)=0.006 +6-2 if M1,<br>B(E2)(W.u.)=19 +20-7 if E2.<br>B(M1)(W.u.)=0.010 +11-4; B(E2)(W.u.)=14<br>+15-8<br>$\alpha(\text{K})=0.00105$ 5; $\alpha(\text{L})=0.000112$ 5;<br>$\alpha(\text{M})=1.82\times 10^{-5}$ 9<br>$\alpha(\text{N})=1.83\times 10^{-6}$ 8<br>$I_\gamma$ : from $(\alpha, n\gamma)$ . Other: 100 6 from $(\alpha, 3n\gamma)$ .<br>Mult.: From $\gamma(\theta)$ , pol $(\alpha, 3n\gamma)$ .<br>$\delta$ : Weighted average of -0.89 +30-20 $(\alpha, n\gamma)$<br>and -0.5 3 $(\alpha, 3n\gamma)$ . |
|                                      |                                                        | 673.6 2                                                                                              | 100.0 30                                                                                | 934.07                               | 11/2 <sup>+</sup>                                                            | M1+E2              | -0.73 +30-20 | 0.00118 5  | $\alpha(\text{K})=0.00088$ 8; $\alpha(\text{L})=9.4\times 10^{-5}$ 9;<br>$\alpha(\text{M})=1.52\times 10^{-5}$ 15<br>$\alpha(\text{N})=1.53\times 10^{-6}$ 14<br>$E_\gamma, I_\gamma$ : reported in $(\alpha, 3n\gamma)$ only.<br>B(M1)(W.u.)=0.0008 +23-6 if M1,<br>B(E2)(W.u.)=2 +5-1 if E2.<br>Possibly complex $\gamma$ with $E_\gamma=701.53$ 12;<br>from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) only.<br>$E_\gamma$ : Other: 758.1 3 (p,n $\gamma$ ).<br>$E_\gamma$ : other: 976.9 1 (p,n $\gamma$ ).<br>$E_\gamma$ : other: 1041.1 1 from (p,n $\gamma$ ).<br>$I_\gamma$ : from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h). Other: 94<br>13 from (p,n $\gamma$ ).                                                                                                                   |
|                                      |                                                        | 733.0 <sup>h</sup>                                                                                   | $\approx 7.2$                                                                           | 873.69                               | 11/2 <sup>+</sup>                                                            | [M1,E2]            |              | 0.00099 9  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1677.99                              | 1/2 <sup>-</sup> , 3/2 <sup>-</sup> , 5/2 <sup>-</sup> | 701.47 <sup>#h</sup> 12<br>758.11 <sup>#</sup> 14<br>977.15 <sup>#</sup> 4<br>1041.24 <sup>#</sup> 5 | 9.5 <sup>#</sup> 33<br>9.1 <sup>#</sup> 4<br>100.0 <sup>#</sup> 33<br>95 <sup>#</sup> 5 | 976.65<br>919.95<br>700.84<br>636.76 | 1/2 <sup>+</sup><br>3/2 <sup>-</sup><br>5/2 <sup>-</sup><br>3/2 <sup>-</sup> |                    |              |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                      |                                                        | 1069.47 <sup>#</sup> 11<br>1487.07 <sup>#</sup> 21<br>1633.2 <sup>@</sup> 5<br>1682.7 <sup>@</sup> 4 | 10.7 <sup>#</sup> 4<br>1.7 <sup>#</sup> 8<br>45.8 <sup>@</sup> 31<br>100 <sup>@</sup> 6 | 608.51<br>190.53<br>49.56<br>0.0     | 3/2 <sup>+</sup><br>1/2 <sup>-</sup><br>9/2 <sup>+</sup><br>7/2 <sup>+</sup> |                    |              |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1682.7                               | 7/2, 9/2, 11/2 <sup>(+)</sup>                          |                                                                                                      |                                                                                         |                                      |                                                                              |                    |              |            | $E_\gamma$ : in (p,n $\gamma$ ) a 1682.6 $\gamma$ is placed from a<br>2290 keV level.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 1687.9                               | 7/2, 9/2, 11/2 <sup>(+)</sup>                          | 1638.4 <sup>@</sup> 4<br>1687.9 <sup>@</sup> 4                                                       | 100 <sup>@</sup> 7<br>84 <sup>@</sup> 7                                                 | 49.56<br>0.0                         | 9/2 <sup>+</sup><br>7/2 <sup>+</sup>                                         |                    |              |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1743.61                              | (7/2) <sup>+</sup>                                     | 643.6 <sup>@</sup> 1                                                                                 | 100 <sup>@</sup> 4                                                                      | 1100.01                              | 5/2 <sup>+</sup>                                                             |                    |              |            | $E_\gamma$ : for doublet, but >98% of doublet's                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

Adopted Levels, Gammas (continued)

| $E_i(\text{level})$ | $J_i^\pi$                   | $E_\gamma^{\ddagger}$ | $I_\gamma^{\ddagger}$       | $E_f$   | $J_f^\pi$          | $\gamma(^{81}\text{Kr})$ (continued) |            |                         | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------|-----------------------------|-----------------------|-----------------------------|---------|--------------------|--------------------------------------|------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                             |                       |                             |         |                    | Mult. <sup>c</sup>                   | $\delta^c$ | $\alpha^f$              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1743.61             | (7/2) <sup>+</sup>          | 729.2 <sup>@</sup> 8  | 28.6 <sup>@</sup> 21        | 1014.88 |                    |                                      |            |                         | intensity is due to this placement. $E_\gamma=644.0$ 1 for doublet in (p,n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                     |                             | 761.9 <sup>@</sup> 1  | 8.2 <sup>@</sup> 6          | 981.67  | (9/2) <sup>+</sup> |                                      |            |                         | $E_\gamma$ : Other: 729.62 9 for multiplet in (p,n $\gamma$ ).<br>$I_\gamma$ : Other: 41 21 from (p,n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                     |                             |                       |                             |         |                    |                                      |            |                         | $E_\gamma, I_\gamma$ : $E_\gamma=761.9$ 1 but $I(762\gamma)$ is comparable to $I(1195\gamma)$ and $I(644\gamma)$ in (p,n $\gamma$ ), suggesting that 762 $\gamma$ is complex in (p,n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                     |                             | 1011 <sup>@</sup> 1   | <3.1 <sup>@</sup>           | 732.06  | (5/2) <sup>+</sup> |                                      |            |                         | $E_\gamma$ : unweighted average of 1194.6 2 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min) and 1195.2 2 from (p,n $\gamma$ ).<br>$E_\gamma$ : Other: 1195.2 2 in (p,n $\gamma$ ).<br>$I_\gamma$ : Other: 69 15 in (p,n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                     |                             | 1194.9 <sup>@</sup> 3 | 97 <sup>@</sup> 4           | 548.99  | 5/2 <sup>+</sup>   |                                      |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                     |                             | 1286.9 <sup>@</sup> 4 | 6.0 <sup>@</sup> 4          | 456.70  | 5/2 <sup>-</sup>   |                                      |            |                         | $E_\gamma$ : Other: 1744.0 10 (p,n $\gamma$ ).<br>$I_\gamma$ : $I(1744\gamma)/I(1195\gamma)=1.4$ 5 in (p,n $\gamma$ ) for $E_\gamma=1744$ 1, suggesting that 1744 $\gamma$ may be complex in (p,n $\gamma$ ).<br>$E_\gamma$ : weighted average of 1108.12 16 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 1107.9 1 from (p,n $\gamma$ ).<br>$I_\gamma$ : from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h). Other: 95 15 from (p,n $\gamma$ ).<br>$I_\gamma$ : Other: 119 22 suggests that $\gamma$ is complex in (p,n $\gamma$ ).<br>Other data: $E_\gamma=1553.6$ 3, $I_\gamma=105$ 21 for tentatively placed $\gamma$ from (p,n $\gamma$ ). |
|                     |                             | 1694.4 <sup>@</sup> 4 | 15.9 <sup>@</sup> 8         | 49.56   | 9/2 <sup>+</sup>   |                                      |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                     |                             | 1743.5 <sup>@</sup> 3 | 49.4 <sup>@</sup> 22        | 0.0     | 7/2 <sup>+</sup>   |                                      |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1744.77             | (1/2) <sup>-</sup>          | 1107.96 10            | 100 5                       | 636.76  | 3/2 <sup>-</sup>   |                                      |            |                         | $E_\gamma$ : for triplet in ( $\alpha$ ,3n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                     |                             | 1136.4 <sup>#</sup> 4 | 23 <sup>#</sup> 5           | 608.51  | 3/2 <sup>+</sup>   |                                      |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                     |                             | 1554.7 <sup>#</sup> 4 | 82 <sup>#</sup> 9           | 190.53  | 1/2 <sup>-</sup>   |                                      |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1781.8              | 7/2,9/2,11/2 <sup>(+)</sup> | 1732 <sup>@</sup> 1   | $\approx 21.3$ <sup>@</sup> | 49.56   | 9/2 <sup>+</sup>   |                                      |            |                         | $E_\gamma$ : for triplet in ( $\alpha$ ,3n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                     |                             | 1781.8 <sup>@</sup> 5 | 100 <sup>@</sup> 9          | 0.0     | 7/2 <sup>+</sup>   |                                      |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1828.84             | (11/2) <sup>-</sup>         | 926.4 <sup>g</sup> 2  | 100 <sup>g</sup>            | 902.53  | (7/2) <sup>-</sup> |                                      |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1841.5              | (13/2) <sup>+</sup>         | 1778.7 <sup>a</sup>   |                             | 49.56   | 9/2 <sup>+</sup>   |                                      |            |                         | $\alpha(K)=0.000515$ 10; $\alpha(L)=5.46\times 10^{-5}$ 11;<br>$\alpha(M)=8.84\times 10^{-6}$ 17<br>$\alpha(N)=8.94\times 10^{-7}$ 17<br>$E_\gamma, \text{Mult.}, \delta$ : D+Q from A <sub>2</sub> , A <sub>4</sub> ( $\alpha$ ,n $\gamma$ ); $\delta$ probably too large for E1+M2.                                                                                                                                                                                                                                                                                                                                                                       |
|                     |                             | 865.5 <sup>a</sup>    |                             | 976.23  | 13/2 <sup>+</sup>  |                                      |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                     |                             | 906.7                 | 100                         | 934.07  | 11/2 <sup>+</sup>  | (M1+E2)                              | -0.44 20   | $5.79\times 10^{-4}$ 11 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1853.97             |                             | 1791.0 <sup>a</sup>   |                             | 49.56   | 9/2 <sup>+</sup>   |                                      |            |                         | $E_\gamma$ : from (p,n $\gamma$ ); in ( $\alpha$ ,3n $\gamma$ ), a 1216.2 $\gamma$ is placed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                     |                             | 1217.2 2              | 100                         | 636.76  | 3/2 <sup>-</sup>   |                                      |            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## Adopted Levels, Gammas (continued)

| $E_i(\text{level})$ | $J_i^\pi$                   | $E_\gamma^{\ddagger}$      | $I_\gamma^{\ddagger}$       | $E_f$   | $J_f^\pi$          | $\gamma(^{81}\text{Kr})$ (continued) |              | $\alpha^f$              | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|-----------------------------|----------------------------|-----------------------------|---------|--------------------|--------------------------------------|--------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                             |                            |                             |         |                    | Mult. <sup>c</sup>                   | $\delta^c$   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 1903.6              | 7/2,9/2,11/2 <sup>(+)</sup> | 1854.0 4                   | 22 5                        | 49.56   | 9/2 <sup>+</sup>   |                                      |              |                         | from a 2192-keV level, but the 1257 $\gamma$ which also deexcites that level is absent in (p,n $\gamma$ ).<br>$E_\gamma$ : weighted average of 1853 1 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min) and 1854.2 4 from (p,n $\gamma$ ).<br>$I_\gamma$ : other: 79 10 (p,n $\gamma$ ).<br>$E_\gamma$ : unweighted average of 1902.6 7 from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min) and 1904.3 3 from (p,n $\gamma$ ).<br>$I_\gamma$ : from $^{81}\text{Rb}$ $\varepsilon$ decay (30.5 min). Other: 100 11 from (p,n $\gamma$ ). |
|                     |                             | 1903.5 9                   | 100 10                      | 0.0     | 7/2 <sup>+</sup>   |                                      |              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 1990.96             |                             | 976.9 <sup>&amp;h</sup>    | $\leq 18$ <sup>&amp;</sup>  | 1014.88 |                    |                                      |              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                     |                             | 1015.3 <sup>&amp;h</sup> 5 | 59 <sup>&amp;</sup>         | 976.23  | 13/2 <sup>+</sup>  |                                      |              |                         | $E_\gamma, I_\gamma$ : $E_\gamma=1015.3$ 5 for doublet including $\gamma$ from 1015 level. $I_\gamma$ has been suitably divided.                                                                                                                                                                                                                                                                                                                                                                                                             |
|                     |                             | 1087.3 <sup>&amp;h</sup>   | $\leq 140$ <sup>&amp;</sup> | 902.53  | (7/2) <sup>-</sup> |                                      |              |                         | $E_\gamma=1087.3$ 1 for triplet; undivided $I_\gamma$ for doublet includes $\gamma$ from 1278 level.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                     |                             | 1118.8 <sup>a</sup>        |                             | 873.69  | 11/2 <sup>+</sup>  |                                      |              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                     |                             | 1382.0 <sup>&amp;</sup> 2  | 100 <sup>&amp;</sup> 10     | 608.51  | 3/2 <sup>+</sup>   |                                      |              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                     |                             | 1535.1 <sup>&amp;</sup> 3  | 45 <sup>&amp;</sup> 11      | 456.70  | 5/2 <sup>-</sup>   |                                      |              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 1993.56             | 15/2 <sup>+</sup>           | 1017.5 3                   | 100 5                       | 976.23  | 13/2 <sup>+</sup>  | M1+E2                                | -0.94 +10-20 | 4.60 $\times 10^{-4}$ 7 | B(M1)(W.u.)=0.039 +25-13; B(E2)(W.u.)=41 +30-12<br>$\alpha(K)=0.000409$ 6; $\alpha(L)=4.35\times 10^{-5}$ 7;<br>$\alpha(M)=7.03\times 10^{-6}$ 11<br>$\alpha(N)=7.11\times 10^{-7}$ 11<br>Mult., $\delta, I_\gamma$ : From ( $\alpha, n\gamma$ ). D+Q from $\gamma(\theta)$ , magnetic and electric character from RUL.<br>Other: $\delta \approx -0.8$ from ( $\alpha, 3n\gamma$ ).                                                                                                                                                         |
|                     |                             | 1119.8 3                   | 88 4                        | 873.69  | 11/2 <sup>+</sup>  | E2 <sup>d</sup>                      |              | 3.84 $\times 10^{-4}$ 5 | B(E2)(W.u.)=48 +31-14<br>$\alpha(K)=0.000340$ 5; $\alpha(L)=3.62\times 10^{-5}$ 5;<br>$\alpha(M)=5.85\times 10^{-6}$ 8<br>$\alpha(N)=5.90\times 10^{-7}$ 8; $\alpha(\text{IPF})=1.304\times 10^{-6}$ 22<br>$I_\gamma$ : From ( $\alpha, n\gamma$ ).                                                                                                                                                                                                                                                                                          |
| 2021.26?            |                             | 1384.5 <sup>&amp;h</sup> 2 | 100                         | 636.76  | 3/2 <sup>-</sup>   |                                      |              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2065.08             | (1/2,3/2) <sup>-</sup>      | 1087.7 <sup>#</sup> 5      | 21 <sup>#</sup> 7           | 976.65  | 1/2 <sup>+</sup>   | [E1]                                 |              | 1.82 $\times 10^{-4}$ 3 | $\alpha(K)=0.0001621$ 23; $\alpha(L)=1.701\times 10^{-5}$ 24;<br>$\alpha(M)=2.75\times 10^{-6}$ 4<br>$\alpha(N)=2.78\times 10^{-7}$ 4<br>$E_\gamma$ : weighted average of 1363.8 6 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 1364.5 2 from (p,n $\gamma$ ).<br>$I_\gamma$ : unweighted average of 14 7 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 35 8 from (p,n $\gamma$ ).                                                                                                                                      |
|                     |                             | 1364.4 2                   | 25 11                       | 700.84  | 5/2 <sup>-</sup>   |                                      |              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                   |                       |                       |         |            |                    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------|-------------------|-----------------------|-----------------------|---------|------------|--------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$         | $E_\gamma^{\ddagger}$ | $I_\gamma^{\ddagger}$ | $E_f$   | $J_f^\pi$  | Mult. <sup>c</sup> | $\alpha^f$              | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2065.08                              | $(1/2,3/2)^-$     | 1428.3 6              | 100 7                 | 636.76  | $3/2^-$    |                    |                         | $E_\gamma$ : unweighted average of 1427.74 20 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 1428.9 2 from (p,n $\gamma$ ).<br>$I_\gamma$ : from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h). Other: 100 11 from (p,n $\gamma$ ).<br>$E_\gamma$ : weighted average of 1874.0 4 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 1874.6 4 from (p,n $\gamma$ ).<br>$I_\gamma$ : weighted average of 43 7 from $^{81}\text{Rb}$ $\varepsilon$ decay (4.571 h) and 52 8 from (p,n $\gamma$ ).<br>$E_\gamma$ : from ( $\alpha$ ,n $\gamma$ ).                          |
|                                      |                   | 1874.3 4              | 47 7                  | 190.53  | $1/2^-$    |                    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2069.1                               |                   | 1135.0                | 100                   | 934.07  | $11/2^+$   |                    |                         | $E_\gamma$ : from ( $\alpha$ ,n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2097.02                              | $(1/2,3/2,5/2^-)$ | 1177.0& 2             | 100& 10               | 919.95  | $3/2^-$    |                    |                         | $E_\gamma$ : A 1176.5 $\gamma$ is placed in ( $\alpha$ ,3n $\gamma$ ) from a 2786-keV level, but the 1809 $\gamma$ which also deexcites that level is absent in (p,n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                      |                   | 1908& 1               | 52& 11                | 190.53  | $1/2^-$    |                    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2135.77                              | $17/2^+$          | 142.0 <sup>a</sup>    |                       | 1993.56 | $15/2^+$   |                    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                      |                   | 1159.4 3              | 100                   | 976.23  | $13/2^+$   | E2                 | $3.58\times 10^{-4}$ 5  | B(E2)(W.u.)=32 +8-6<br>$\alpha(\text{K})=0.000315$ 4; $\alpha(\text{L})=3.35\times 10^{-5}$ 5; $\alpha(\text{M})=5.41\times 10^{-6}$ 8<br>$\alpha(\text{N})=5.46\times 10^{-7}$ 8; $\alpha(\text{IPF})=3.65\times 10^{-6}$ 6<br>$E_\gamma$ : weighted average of 1158.5 8 from ( $^{11}\text{B}$ ,p2n $\gamma$ ) and 1159.5 2 from ( $\alpha$ ,3n $\gamma$ ).<br>Mult.: from $\gamma(\theta)$ , pol ( $\alpha$ ,3n $\gamma$ ).                                                                                                                                                        |
| 2144.04                              | $(1/2,3/2,5/2^-)$ | 1224.1& 2             | 80& 23                | 919.95  | $3/2^-$    |                    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                      |                   | 1953& 1               | 100& 20               | 190.53  | $1/2^-$    |                    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2166.05                              | $13/2^-$          | 337.1 3               | 13.8 25               | 1828.84 | $(11/2^-)$ |                    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                      |                   | 722.8 2               | 48.6 29               | 1443.50 | $9/2^-$    | E2                 | $1.11\times 10^{-3}$ 2  | $\alpha(\text{K})=0.000988$ 14; $\alpha(\text{L})=0.0001070$ 15; $\alpha(\text{M})=1.732\times 10^{-5}$ 24<br>$\alpha(\text{N})=1.736\times 10^{-6}$ 24<br>$I_\gamma$ : from ( $\alpha$ ,n $\gamma$ ).<br>Mult.: From $\gamma(\theta)$ , pol ( $\alpha$ ,3n $\gamma$ ) – for doublet with $^{81}\text{Br}$ $\gamma$ .<br>$\alpha(\text{K})=0.000720$ 10; $\alpha(\text{L})=7.75\times 10^{-5}$ 11; $\alpha(\text{M})=1.255\times 10^{-5}$ 18<br>$\alpha(\text{N})=1.260\times 10^{-6}$ 18<br>$I_\gamma$ : from ( $\alpha$ ,n $\gamma$ ). Other: 100 6 from ( $\alpha$ ,3n $\gamma$ ). |
|                                      |                   | 816.7 2               | 100 4                 | 1349.14 | $9/2^-$    | E2 <sup>d</sup>    | $8.11\times 10^{-4}$ 11 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                      |                   | 1189.7 3              | 59 4                  | 976.23  | $13/2^+$   |                    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                      |                   | 1231.7 3              | 49 4                  | 934.07  | $11/2^+$   | (E1)               | $2.11\times 10^{-4}$ 3  | $\alpha(\text{K})=0.0001294$ 18; $\alpha(\text{L})=1.355\times 10^{-5}$ 19; $\alpha(\text{M})=2.190\times 10^{-6}$ 31<br>$\alpha(\text{N})=2.217\times 10^{-7}$ 31; $\alpha(\text{IPF})=6.54\times 10^{-5}$ 9<br>$I_\gamma$ : weighted average of 51 4 from ( $\alpha$ ,n $\gamma$ ) and 46 5 from ( $\alpha$ ,3n $\gamma$ ).<br>Mult.: D from $\gamma(\theta)$ ( $\alpha$ ,n $\gamma$ ); systematics favor E1.                                                                                                                                                                       |
|                                      |                   | 1292.3 3              | 45 4                  | 873.69  | $11/2^+$   | (E1)               | $2.40\times 10^{-4}$ 3  | $\alpha(\text{K})=0.0001189$ 17; $\alpha(\text{L})=1.245\times 10^{-5}$ 17; $\alpha(\text{M})=2.012\times 10^{-6}$ 28<br>$\alpha(\text{N})=2.036\times 10^{-7}$ 29; $\alpha(\text{IPF})=0.0001066$ 15<br>$I_\gamma$ : weighted average of 46 4 from ( $\alpha$ ,n $\gamma$ ) and 44 5 from ( $\alpha$ ,3n $\gamma$ ).<br>Mult.: D from $\gamma(\theta)$ ( $\alpha$ ,n $\gamma$ ); systematics favor E1.                                                                                                                                                                               |
| 2192.4                               | $(15/2^+)$        | 1216.2 4              | 100 15                | 976.23  | $13/2^+$   | D+Q <sup>d</sup>   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                                        |                                                                                      |                                                                            |                                                                                  |                      |                    |                      |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------|--------------------|----------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$                              | $E_\gamma^{\ddagger}$                                                                | $I_\gamma^{\ddagger}$                                                      | $E_f$                                                                            | $J_f^\pi$            | Mult. <sup>c</sup> | $\delta^c$           | $\alpha^f$              | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2192.4                               | (15/2 <sup>+</sup> )                   | 1258 1                                                                               | 100                                                                        | 934.07                                                                           | 11/2 <sup>+</sup>    | (E2)               |                      | $3.15 \times 10^{-4}$ 4 | $\alpha(\text{K})=0.000264$ 4; $\alpha(\text{L})=2.80 \times 10^{-5}$ 4;<br>$\alpha(\text{M})=4.52 \times 10^{-6}$ 6<br>$\alpha(\text{N})=4.57 \times 10^{-7}$ 6; $\alpha(\text{IPF})=1.851 \times 10^{-5}$ 33<br>$E_\gamma$ : from ( $\alpha, 3n\gamma$ ); a 1257.3 $\gamma$ is placed from this level in ( $\alpha, n\gamma$ ), but absence of 1216 $\gamma$ in that reaction favors a placement of that $\gamma$ from a 3392 level instead (as in ( $\alpha, 3n\gamma$ )).<br>Mult.: D from $\gamma(\theta)$ ( $\alpha, n\gamma$ ); systematics favor E2. |
| 2217.2                               | (13/2 <sup>+</sup> )                   | 1343.5                                                                               | 100                                                                        | 873.69                                                                           | 11/2 <sup>+</sup>    | (M1+E2)            | -1.8 +5-8            | $2.93 \times 10^{-4}$ 4 | $\alpha(\text{K})=0.0002287$ 32; $\alpha(\text{L})=2.416 \times 10^{-5}$ 35;<br>$\alpha(\text{M})=3.91 \times 10^{-6}$ 6<br>$\alpha(\text{N})=3.95 \times 10^{-7}$ 6; $\alpha(\text{IPF})=3.59 \times 10^{-5}$ 12<br>$E_\gamma, \text{Mult.}, \delta$ : From ( $\alpha, n\gamma$ ). D+Q from A <sub>2</sub> , A <sub>4</sub> .                                                                                                                                                                                                                               |
| 2291.04                              | (5/2 <sup>+</sup> , 7/2 <sup>+</sup> ) | 1309.4 <sup>&amp;</sup> 4<br>1682.6 <sup>&amp;</sup> 3<br>1831.6 <sup>&amp;†</sup> 5 | 100 <sup>&amp;</sup> 21<br>40 <sup>&amp;</sup> 10<br>36 <sup>&amp;</sup> 8 | 981.67 (9/2 <sup>+</sup> )<br>608.51 3/2 <sup>+</sup><br>456.70 5/2 <sup>-</sup> |                      |                    |                      |                         | $E_\gamma$ : uncertainty multiplied by a factor of 3 in the fitting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2363.0                               |                                        | 1428.9                                                                               | 100                                                                        | 934.07                                                                           | 11/2 <sup>+</sup>    |                    |                      |                         | $E_\gamma$ : from ( $\alpha, n\gamma$ ). The 1428 $\gamma$ from (p, $n\gamma$ ) and <sup>81</sup> Rb $\varepsilon$ decay (4.571 h) is placed, instead, from the 2064 level.                                                                                                                                                                                                                                                                                                                                                                                  |
| 2420.28                              | (13/2 <sup>-</sup> )                   | 591.3 <sup>a</sup><br>976.7 3                                                        | 100                                                                        | 1828.84 (11/2 <sup>-</sup> )<br>1443.50 9/2 <sup>-</sup>                         |                      |                    |                      |                         | $\gamma$ is apparently different from the 977 $\gamma$ reported in (p, $n\gamma$ ) and <sup>81</sup> Rb $\varepsilon$ decay (4.571 h).                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2533.59                              | 15/2 <sup>-</sup>                      | 113.3 1                                                                              | 13.1 6                                                                     | 2420.28                                                                          | (13/2 <sup>-</sup> ) | (M1)               |                      | 0.0916 13               | B(M1)(W.u.)=0.7 +6-2<br>$\alpha(\text{K})=0.0809$ 11; $\alpha(\text{L})=0.00904$ 13;<br>$\alpha(\text{M})=0.001467$ 21<br>$\alpha(\text{N})=0.0001471$ 21<br>Mult.: D from $\gamma(\theta)$ ( $\alpha, 3n\gamma$ ); intraband $\gamma$ .                                                                                                                                                                                                                                                                                                                     |
|                                      |                                        | 367.5 1                                                                              | 86 7                                                                       | 2166.05                                                                          | 13/2 <sup>-</sup>    | M1+E2 <sup>d</sup> | -0.09 <sup>d</sup> 3 | 0.00447 7               | B(M1)(W.u.)=0.13 +11-4; B(E2)(W.u.)=9 +13-6<br>$\alpha(\text{K})=0.00396$ 6; $\alpha(\text{L})=0.000428$ 7;<br>$\alpha(\text{M})=6.94 \times 10^{-5}$ 11<br>$\alpha(\text{N})=7.00 \times 10^{-6}$ 11<br>$I_\gamma$ : unweighted average of 93.6 32 from ( $\alpha, n\gamma$ ) and 79 4 from ( $\alpha, 3n\gamma$ ).                                                                                                                                                                                                                                         |
|                                      |                                        | 706.0 <sup>g†</sup> 3                                                                | ≈6.3 <sup>g</sup>                                                          | 1828.84                                                                          | (11/2 <sup>-</sup> ) | [E2]               |                      | $1.19 \times 10^{-3}$ 2 | $\alpha(\text{K})=0.001052$ 15; $\alpha(\text{L})=0.0001141$ 16;<br>$\alpha(\text{M})=1.846 \times 10^{-5}$ 26<br>$\alpha(\text{N})=1.850 \times 10^{-6}$ 26<br>B(E2)(W.u.)=3 +7-2<br>$E_\gamma$ : uncertainty multiplied by a factor of 2 in the fitting.<br>$E_\gamma$ : 706.0 3 for doublet.                                                                                                                                                                                                                                                              |

## Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                      |                       |                       |         |                      |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------|----------------------|-----------------------|-----------------------|---------|----------------------|----------------------|-------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$            | $E_\gamma^{\ddagger}$ | $I_\gamma^{\ddagger}$ | $E_f$   | $J_f^\pi$            | Mult. <sup>c</sup>   | $\delta^c$        | $\alpha^f$              | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 2533.59                              | 15/2 <sup>-</sup>    | 926.4 <sup>g</sup> 2  | $\approx 5^g$         | 1607.43 | (13/2) <sup>+</sup>  | [E1]                 |                   | 2.48×10 <sup>-4</sup> 4 | $\alpha(\text{K})=0.0002205$ 31; $\alpha(\text{L})=2.319\times 10^{-5}$ 32;<br>$\alpha(\text{M})=3.75\times 10^{-6}$ 5<br>$\alpha(\text{N})=3.79\times 10^{-7}$ 5<br>B(E1)(W.u.)=8×10 <sup>-6</sup> +17-5<br>$E_\gamma$ : for triplet in ( $\alpha, 3n\gamma$ ).<br>B(E1)(W.u.)=3.2×10 <sup>-5</sup> +29-11<br>$\alpha(\text{K})=8.68\times 10^{-5}$ 12; $\alpha(\text{L})=9.07\times 10^{-6}$ 13;<br>$\alpha(\text{M})=1.465\times 10^{-6}$ 21<br>$\alpha(\text{N})=1.484\times 10^{-7}$ 21; $\alpha(\text{IPF})=0.000294$ 4<br>$I_\gamma$ : from ( $\alpha, n\gamma$ ). Other: 100 6 from ( $\alpha, 3n\gamma$ ). |
|                                      |                      | 1557.2 3              | 100 4                 | 976.23  | 13/2 <sup>+</sup>    | (E1) <sup>d</sup>    |                   | 3.91×10 <sup>-4</sup> 5 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2557.0                               | (15/2 <sup>-</sup> ) | 136.5 <sup>a</sup>    |                       | 2420.28 | (13/2 <sup>-</sup> ) |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2694.5                               | (17/2 <sup>+</sup> ) | 559.0 4               | 100 12                | 2135.77 | 17/2 <sup>+</sup>    |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      |                      | 701.0 4               | $\approx 24$          | 1993.56 | 15/2 <sup>+</sup>    |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      |                      | 852.1 <sup>a</sup>    |                       | 1841.5  | (13/2 <sup>+</sup> ) |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      |                      | 1087.2 4              | 41 7                  | 1607.43 | (13/2) <sup>+</sup>  |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      |                      | 1717.4 <sup>a</sup>   |                       | 976.23  | 13/2 <sup>+</sup>    |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2699.62                              | 17/2 <sup>-</sup>    | 166.1 1               | 100 4                 | 2533.59 | 15/2 <sup>-</sup>    | M1(+E2) <sup>d</sup> | $\approx -0.05^d$ | $\approx 0.0332$        | $\alpha(\text{K})\approx 0.0293$ ; $\alpha(\text{L})\approx 0.00325$ ; $\alpha(\text{M})\approx 0.000527$<br>$\alpha(\text{N})\approx 5.29\times 10^{-5}$                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                      |                      | 533.6 3               | 12.9 18               | 2166.05 | 13/2 <sup>-</sup>    | E2 <sup>d</sup>      |                   | 0.00262 4               | $\alpha(\text{K})=0.002323$ 33; $\alpha(\text{L})=0.000256$ 4;<br>$\alpha(\text{M})=4.14\times 10^{-5}$ 6<br>$\alpha(\text{N})=4.12\times 10^{-6}$ 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                      |                      | 564.0                 |                       | 2135.77 | 17/2 <sup>+</sup>    |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      |                      | 706.0 <sup>g</sup> 3  | $\approx 22.2^g$      | 1993.56 | 15/2 <sup>+</sup>    | (E1)                 |                   | 4.36×10 <sup>-4</sup> 6 | $\alpha(\text{K})=0.000388$ 5; $\alpha(\text{L})=4.10\times 10^{-5}$ 6;<br>$\alpha(\text{M})=6.62\times 10^{-6}$ 9<br>$\alpha(\text{N})=6.68\times 10^{-7}$ 9<br>$E_\gamma$ : 706.0 3 for doublet.<br>Mult.: From $\gamma(\theta)$ , pol ( $\alpha, 3n\gamma$ ) – for doublet.                                                                                                                                                                                                                                                                                                                                      |
| 2784.1                               | (15/2 <sup>-</sup> ) | 942.0 <sup>a</sup>    |                       | 1841.5  | (13/2 <sup>+</sup> ) |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      |                      | 954.6 <sup>a</sup>    |                       | 1828.84 | (11/2 <sup>-</sup> ) |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      |                      | 1176.5 3              | 100 9                 | 1607.43 | (13/2) <sup>+</sup>  |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      |                      | 1809 1                | $\approx 44$          | 976.23  | 13/2 <sup>+</sup>    |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2828.14                              | 17/2 <sup>-</sup>    | 128.6 1               | 40.0 25               | 2699.62 | 17/2 <sup>-</sup>    | (M1)                 |                   | 0.0650 9                | B(M1)(W.u.)=0.78 +39-20<br>$\alpha(\text{K})=0.0575$ 8; $\alpha(\text{L})=0.00639$ 9; $\alpha(\text{M})=0.001037$ 15<br>$\alpha(\text{N})=0.0001041$ 15<br>Mult.: D ( $\alpha, 3n\gamma$ ) and RUL; adopted $\Delta\pi=\text{no}$ .                                                                                                                                                                                                                                                                                                                                                                                 |
|                                      |                      | 271.1 <sup>a</sup>    |                       | 2557.0  | (15/2 <sup>-</sup> ) |                      |                   |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      |                      | 294.5 1               | 78 5                  | 2533.59 | 15/2 <sup>-</sup>    | M1 <sup>d</sup>      |                   | 0.00762 11              | B(M1)(W.u.)=0.13 +6-3<br>$\alpha(\text{K})=0.00676$ 9; $\alpha(\text{L})=0.000734$ 10;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Adopted Levels, Gammas (continued)   |                     |                       |                       |         |                      |                    |                      |                         |                                                                                                                                                                                                                                   |
|--------------------------------------|---------------------|-----------------------|-----------------------|---------|----------------------|--------------------|----------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\gamma(^{81}\text{Kr})$ (continued) |                     |                       |                       |         |                      |                    |                      |                         |                                                                                                                                                                                                                                   |
| $E_i(\text{level})$                  | $J_i^\pi$           | $E_\gamma^{\ddagger}$ | $I_\gamma^{\ddagger}$ | $E_f$   | $J_f^\pi$            | Mult. <sup>c</sup> | $\delta^c$           | $\alpha^f$              | Comments                                                                                                                                                                                                                          |
| 2828.14                              | 17/2 <sup>-</sup>   | 661.3 <sup>a</sup>    | 100 13                | 2166.05 | 13/2 <sup>-</sup>    | E1 <sup>e</sup>    |                      | 3.06×10 <sup>-4</sup> 4 | $\alpha(\text{M})=0.0001189$ 17<br>$\alpha(\text{N})=1.199\times 10^{-5}$ 17                                                                                                                                                      |
|                                      |                     | 834.5 4               |                       | 1993.56 | 15/2 <sup>+</sup>    |                    |                      |                         | $\alpha(\text{K})=0.000272$ 4; $\alpha(\text{L})=2.87\times 10^{-5}$ 4;<br>$\alpha(\text{M})=4.63\times 10^{-6}$ 7<br>$\alpha(\text{N})=4.68\times 10^{-7}$ 7<br>B(E1)(W.u.)=1.2×10 <sup>-4</sup> +6-3                            |
| 3061.62                              | (19/2) <sup>-</sup> | 233.5 1               | 6.8 10                | 2828.14 | 17/2 <sup>-</sup>    | M1+E2 <sup>d</sup> | -0.08 <sup>d</sup> 5 | 0.01381 34              | B(M1)(W.u.)=0.072 +48-23; B(E2)(W.u.)=10 +22-9<br>$\alpha(\text{K})=0.01224$ 30; $\alpha(\text{L})=0.00134$ 4; $\alpha(\text{M})=0.000217$ 6<br>$\alpha(\text{N})=2.19\times 10^{-5}$ 6                                           |
|                                      |                     | 362.0 1               | 100 4                 | 2699.62 | 17/2 <sup>-</sup>    | M1+E2 <sup>d</sup> | -0.08 <sup>d</sup> 3 | 0.00463 7               | B(M1)(W.u.)=0.28 +18-8; B(E2)(W.u.)=17 +21-11<br>$\alpha(\text{K})=0.00411$ 6; $\alpha(\text{L})=0.000444$ 7;<br>$\alpha(\text{M})=7.19\times 10^{-5}$ 11<br>$\alpha(\text{N})=7.25\times 10^{-6}$ 11                             |
|                                      |                     | 528.1 3               | 1.5 5                 | 2533.59 | 15/2 <sup>-</sup>    | [E2]               |                      | 0.00271 4               | B(E2)(W.u.)=6.1 +46-24<br>$\alpha(\text{K})=0.002396$ 34; $\alpha(\text{L})=0.000264$ 4;<br>$\alpha(\text{M})=4.27\times 10^{-5}$ 6<br>$\alpha(\text{N})=4.25\times 10^{-6}$ 6                                                    |
| 3092.3                               | (17/2) <sup>-</sup> | 264.4 <sup>a</sup>    | 100                   | 2828.14 | 17/2 <sup>-</sup>    | M1+E2 <sup>d</sup> | -0.07 <sup>d</sup> 4 | 0.00685 11              | B(M1)(W.u.)=0.39 +18-9; B(E2)(W.u.)=25 +44-20<br>$\alpha(\text{K})=0.00608$ 10; $\alpha(\text{L})=0.000660$ 11;<br>$\alpha(\text{M})=0.0001069$ 18<br>$\alpha(\text{N})=1.077\times 10^{-5}$ 18                                   |
|                                      |                     | 308.2 1               |                       | 2784.1  | (15/2 <sup>-</sup> ) |                    |                      |                         |                                                                                                                                                                                                                                   |
| 3172.6                               | (19/2) <sup>-</sup> | 535.2 <sup>a</sup>    |                       | 2557.0  | (15/2 <sup>-</sup> ) | M1 <sup>e</sup>    |                      | 1.66×10 <sup>-3</sup> 2 | $\alpha(\text{K})=0.001476$ 21; $\alpha(\text{L})=0.0001577$ 22;<br>$\alpha(\text{M})=2.55\times 10^{-5}$ 4<br>$\alpha(\text{N})=2.58\times 10^{-6}$ 4                                                                            |
|                                      |                     | 558.2 <sup>a</sup>    |                       | 2533.59 | 15/2 <sup>-</sup>    |                    |                      |                         |                                                                                                                                                                                                                                   |
| 3195.4                               | (19/2) <sup>+</sup> | 344.0 <sup>a</sup>    | 100 8                 | 2828.14 | 17/2 <sup>-</sup>    | M1+E2 <sup>d</sup> | ≈-0.2 <sup>d</sup>   | ≈4.12×10 <sup>-4</sup>  | B(M1)(W.u.)=0.09 +7-3; B(E2)(W.u.)=4 +6-3<br>$\alpha(\text{K})\approx 0.000366$ ; $\alpha(\text{L})\approx 3.87\times 10^{-5}$ ;<br>$\alpha(\text{M})\approx 6.26\times 10^{-6}$<br>$\alpha(\text{N})\approx 6.34\times 10^{-7}$  |
|                                      |                     | 472.2 <sup>a</sup>    |                       | 2699.62 | 17/2 <sup>-</sup>    |                    |                      |                         |                                                                                                                                                                                                                                   |
| 3195.4                               | (19/2) <sup>+</sup> | 616.0 <sup>ah</sup>   | 100 8                 | 2557.0  | (15/2 <sup>-</sup> ) | M1+E2 <sup>d</sup> | ≈-0.2 <sup>d</sup>   | ≈4.12×10 <sup>-4</sup>  | $\alpha(\text{K})=0.000291$ 4; $\alpha(\text{L})=3.09\times 10^{-5}$ 4;<br>$\alpha(\text{M})=4.99\times 10^{-6}$ 7<br>$\alpha(\text{N})=5.04\times 10^{-7}$ 7; $\alpha(\text{IPF})=8.56\times 10^{-6}$ 13<br>B(E2)(W.u.)=22 +15-7 |
|                                      |                     | 1059.7 2              |                       | 2135.77 | 17/2 <sup>+</sup>    |                    |                      |                         |                                                                                                                                                                                                                                   |
|                                      |                     | 1202.2 4              | 39 5                  | 1993.56 | 15/2 <sup>+</sup>    | [E2]               |                      | 3.36×10 <sup>-4</sup> 5 |                                                                                                                                                                                                                                   |

| Adopted Levels, Gammas (continued)   |                     |                                                                                                 |                              |                                                  |                                                                                                             |                      |                      |                          |                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------|---------------------|-------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------|----------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\gamma(^{81}\text{Kr})$ (continued) |                     |                                                                                                 |                              |                                                  |                                                                                                             |                      |                      |                          |                                                                                                                                                                                                                                                                                                                                   |
| $E_i(\text{level})$                  | $J_i^\pi$           | $E_\gamma^{\ddagger}$                                                                           | $I_\gamma^{\ddagger}$        | $E_f$                                            | $J_f^\pi$                                                                                                   | Mult. <sup>c</sup>   | $\delta^c$           | $\alpha^f$               | Comments                                                                                                                                                                                                                                                                                                                          |
| 3392.9                               | 21/2 <sup>+</sup>   | 196.8 <sup>a</sup><br>1257.0 2                                                                  | 100                          | 3195.4<br>2135.77                                | (19/2) <sup>+</sup><br>17/2 <sup>+</sup>                                                                    | E2 <sup>d</sup>      |                      | 3.15×10 <sup>-4</sup> 4  | B(E2)(W.u.)=32 +9-6<br>$\alpha(\text{K})=0.000264$ 4; $\alpha(\text{L})=2.80\times 10^{-5}$ 4;<br>$\alpha(\text{M})=4.53\times 10^{-6}$ 6<br>$\alpha(\text{N})=4.58\times 10^{-7}$ 6; $\alpha(\text{IPF})=1.830\times 10^{-5}$ 26<br>$E_\gamma$ : from ( $\alpha, 3n\gamma$ ). Other: 1257 1 from ( $^{11}\text{B}, p2n\gamma$ ). |
| 3455.9                               | (19/2) <sup>-</sup> | 283.5 <sup>a</sup><br>363.5 5<br>627.5 <sup>a</sup><br>670.5 <sup>a</sup><br>756.7 <sup>a</sup> | 100                          | 3172.6<br>3092.3<br>2828.14<br>2784.1<br>2699.62 | (19/2) <sup>-</sup><br>(17/2) <sup>-</sup><br>17/2 <sup>-</sup><br>(15/2) <sup>-</sup><br>17/2 <sup>-</sup> |                      |                      |                          |                                                                                                                                                                                                                                                                                                                                   |
| 3490.41                              | (21/2) <sup>-</sup> | 428.8 <sup>g</sup> 1<br>791 1                                                                   | ≈100 <sup>g</sup><br>11 3    | 3061.62<br>2699.62                               | (19/2) <sup>-</sup><br>17/2 <sup>-</sup>                                                                    | [E2]                 |                      | 8.80×10 <sup>-4</sup> 13 | $E_\gamma$ : 428.8 1 for doublet.<br>B(E2)(W.u.)=5 +7-2<br>$\alpha(\text{K})=0.000781$ 11; $\alpha(\text{L})=8.42\times 10^{-5}$ 12;<br>$\alpha(\text{M})=1.363\times 10^{-5}$ 20<br>$\alpha(\text{N})=1.368\times 10^{-6}$ 20                                                                                                    |
| 3557.7                               | (21/2) <sup>+</sup> | 863.3 3<br>1420.8 <sup>a</sup>                                                                  | 100                          | 2694.5<br>2135.77                                | (17/2) <sup>+</sup><br>17/2 <sup>+</sup>                                                                    |                      |                      |                          |                                                                                                                                                                                                                                                                                                                                   |
| 3624.1                               | (21/2) <sup>+</sup> | 231.2 1                                                                                         | ≈22.7                        | 3392.9                                           | 21/2 <sup>+</sup>                                                                                           | M1(+E2) <sup>d</sup> | -0.05 <sup>d</sup> 5 | 0.01406 29               | B(M1)(W.u.)=0.8 +8-5<br>$\alpha(\text{K})=0.01245$ 25; $\alpha(\text{L})=0.001363$ 30;<br>$\alpha(\text{M})=0.000221$ 5<br>$\alpha(\text{N})=2.22\times 10^{-5}$ 5<br>$E_\gamma$ : 428.8 1 for doublet.                                                                                                                           |
|                                      |                     | 428.8 <sup>g</sup> 1<br>1488.2 3                                                                | ≈33.3 <sup>g</sup><br>100 11 | 3195.4<br>2135.77                                | (19/2) <sup>+</sup><br>17/2 <sup>+</sup>                                                                    | [E2]                 |                      | 2.90×10 <sup>-4</sup> 4  | B(E2)(W.u.)=7.2 +20-14<br>$\alpha(\text{K})=0.0001862$ 26; $\alpha(\text{L})=1.965\times 10^{-5}$ 28;<br>$\alpha(\text{M})=3.18\times 10^{-6}$ 4<br>$\alpha(\text{N})=3.22\times 10^{-7}$ 5; $\alpha(\text{IPF})=8.06\times 10^{-5}$ 11                                                                                           |
| 3649.95                              | (21/2) <sup>-</sup> | 476.5 <sup>a</sup><br>588.4 4                                                                   | 15 5                         | 3172.6<br>3061.62                                | (19/2) <sup>-</sup><br>(19/2) <sup>-</sup>                                                                  | M1+E2 <sup>e</sup>   |                      | 0.00172 25               | $\alpha(\text{K})=0.00153$ 22; $\alpha(\text{L})=0.000165$ 26;<br>$\alpha(\text{M})=2.7\times 10^{-5}$ 4<br>$\alpha(\text{N})=2.7\times 10^{-6}$ 4                                                                                                                                                                                |
|                                      |                     | 822.1 4<br>950.3 3                                                                              | ≈77<br>100 8                 | 2828.14<br>2699.62                               | 17/2 <sup>-</sup><br>17/2 <sup>-</sup>                                                                      | E2 <sup>e</sup>      |                      | 5.59×10 <sup>-4</sup> 8  | $\alpha(\text{K})=0.000496$ 7; $\alpha(\text{L})=5.31\times 10^{-5}$ 7;<br>$\alpha(\text{M})=8.60\times 10^{-6}$ 12<br>$\alpha(\text{N})=8.65\times 10^{-7}$ 12                                                                                                                                                                   |
| 3856.1                               | (21/2) <sup>-</sup> | 206.4 <sup>a</sup><br>399 1<br>762.0 <sup>a†</sup>                                              | 100                          | 3649.95<br>3455.9<br>3092.3                      | (21/2) <sup>-</sup><br>(19/2) <sup>-</sup><br>(17/2) <sup>-</sup>                                           |                      |                      |                          | $E_\gamma$ : Poor fit. Omitted in the least-squares fit.                                                                                                                                                                                                                                                                          |

Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                     |                                                                           |                       |                                        |                                                                                          |                      |                      |                         |                                                                                                                                                                                                                                                                            |
|--------------------------------------|---------------------|---------------------------------------------------------------------------|-----------------------|----------------------------------------|------------------------------------------------------------------------------------------|----------------------|----------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$           | $E_\gamma^{\ddagger}$                                                     | $I_\gamma^{\ddagger}$ | $E_f$                                  | $J_f^\pi$                                                                                | Mult. <sup>c</sup>   | $\delta^c$           | $\alpha^f$              | Comments                                                                                                                                                                                                                                                                   |
| 3856.1                               | (21/2) <sup>-</sup> | 794.0 <sup>a</sup><br>1156.0 <sup>a</sup>                                 |                       | 3061.62<br>2699.62                     | (19/2) <sup>-</sup><br>17/2 <sup>-</sup>                                                 | E2 <sup>e</sup>      |                      | 3.60×10 <sup>-4</sup> 5 | $\alpha(\text{K})=0.000317$ 4; $\alpha(\text{L})=3.37\times 10^{-5}$ 5;<br>$\alpha(\text{M})=5.45\times 10^{-6}$ 8<br>$\alpha(\text{N})=5.50\times 10^{-7}$ 8; $\alpha(\text{IPF})=3.37\times 10^{-6}$ 5                                                                   |
| 3957.2                               | (23/2) <sup>+</sup> | 333.1 1                                                                   | 47.3 22               | 3624.1                                 | (21/2) <sup>+</sup>                                                                      | M1 <sup>d</sup>      |                      | 0.00563 8               | B(M1)(W.u.)=0.68 +15-11<br>$\alpha(\text{K})=0.00499$ 7; $\alpha(\text{L})=0.000540$ 8; $\alpha(\text{M})=8.76\times 10^{-5}$ 12<br>$\alpha(\text{N})=8.83\times 10^{-6}$ 12                                                                                               |
|                                      |                     | 564.3 2                                                                   | 100.0 33              | 3392.9                                 | 21/2 <sup>+</sup>                                                                        | M1+E2 <sup>d</sup>   | -0.10 <sup>d</sup> 3 | 1.63×10 <sup>-3</sup> 2 | B(M1)(W.u.)=0.29 +6-5; B(E2)(W.u.)=11 +8-6<br>$\alpha(\text{K})=0.001445$ 21; $\alpha(\text{L})=0.0001544$ 22;<br>$\alpha(\text{M})=2.50\times 10^{-5}$ 4<br>$\alpha(\text{N})=2.53\times 10^{-6}$ 4                                                                       |
| 4099.1                               | (23/2) <sup>-</sup> | 761.0 <sup>a</sup><br>242.0 <sup>a</sup><br>449.5 <sup>a</sup><br>608.7 2 |                       | 3195.4<br>3856.1<br>3649.95<br>3490.41 | (19/2) <sup>+</sup><br>(21/2) <sup>-</sup><br>(21/2) <sup>-</sup><br>(21/2) <sup>-</sup> | M1+E2 <sup>d</sup>   | -0.20 <sup>d</sup> 6 | 1.38×10 <sup>-3</sup> 2 | B(M1)(W.u.)=0.031 +14-8; B(E2)(W.u.)=4.2 +37-22<br>$\alpha(\text{K})=0.001227$ 20; $\alpha(\text{L})=0.0001310$ 21;<br>$\alpha(\text{M})=2.122\times 10^{-5}$ 35<br>$\alpha(\text{N})=2.146\times 10^{-6}$ 34                                                              |
|                                      |                     | 1038 1                                                                    | 58 8                  | 3061.62                                | (19/2) <sup>-</sup>                                                                      | E2                   |                      | 4.54×10 <sup>-4</sup> 6 | B(E2)(W.u.)=4.4 +20-11<br>$\alpha(\text{K})=0.000404$ 6; $\alpha(\text{L})=4.31\times 10^{-5}$ 6;<br>$\alpha(\text{M})=6.97\times 10^{-6}$ 10<br>$\alpha(\text{N})=7.02\times 10^{-7}$ 10<br>Mult.: Q from $\gamma(\theta)$ ( $\alpha, 3n\gamma$ ); E2 from RUL.           |
| 4202.2                               | (23/2) <sup>-</sup> | 552.5 <sup>a</sup><br>1029.1 <sup>a</sup><br>1140.9 <sup>a</sup>          |                       | 3649.95<br>3172.6<br>3061.62           | (21/2) <sup>-</sup><br>(19/2) <sup>-</sup><br>(19/2) <sup>-</sup>                        |                      |                      |                         |                                                                                                                                                                                                                                                                            |
| 4300.3                               | (23/2) <sup>-</sup> | 443.1 <sup>a</sup><br>810.2 5                                             | 100                   | 3856.1<br>3490.41                      | (21/2) <sup>-</sup><br>(21/2) <sup>-</sup>                                               | (M1+E2) <sup>e</sup> |                      | 0.00078 5               | $\alpha(\text{K})=0.00069$ 5; $\alpha(\text{L})=7.4\times 10^{-5}$ 5; $\alpha(\text{M})=1.19\times 10^{-5}$ 9<br>$\alpha(\text{N})=1.20\times 10^{-6}$ 8                                                                                                                   |
|                                      |                     | 842.0 <sup>a†</sup><br>1237.5 <sup>a</sup>                                |                       | 3455.9<br>3061.62                      | (19/2) <sup>-</sup><br>(19/2) <sup>-</sup>                                               | E2 <sup>e</sup>      |                      | 3.22×10 <sup>-4</sup> 5 | E <sub>γ</sub> : Poor fit. Omitted in the least-squares fit.<br>$\alpha(\text{K})=0.000273$ 4; $\alpha(\text{L})=2.90\times 10^{-5}$ 4;<br>$\alpha(\text{M})=4.69\times 10^{-6}$ 7<br>$\alpha(\text{N})=4.73\times 10^{-7}$ 7; $\alpha(\text{IPF})=1.447\times 10^{-5}$ 20 |
| 4472.0                               | (25/2) <sup>+</sup> | 515.1 3                                                                   | 100                   | 3957.2                                 | (23/2) <sup>+</sup>                                                                      | M1+E2 <sup>d</sup>   | -0.10 <sup>d</sup> 4 | 2.01×10 <sup>-3</sup> 3 | B(M1)(W.u.)=1.0 +6-3; B(E2)(W.u.)=5×10 <sup>1</sup> +6-3<br>$\alpha(\text{K})=0.001783$ 26; $\alpha(\text{L})=0.0001909$ 28;                                                                                                                                               |

Adopted Levels, Gammas (continued)

| $\gamma(^{81}\text{Kr})$ (continued) |                      |                       |                       |         |                      |                      |             |                         |                                                                                                                                                                                                                               |
|--------------------------------------|----------------------|-----------------------|-----------------------|---------|----------------------|----------------------|-------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$            | $E_\gamma^{\ddagger}$ | $I_\gamma^{\ddagger}$ | $E_f$   | $J_f^\pi$            | Mult. <sup>c</sup>   | $\delta^c$  | $\alpha^f$              | Comments                                                                                                                                                                                                                      |
|                                      |                      |                       |                       |         |                      |                      |             |                         | $\alpha(\text{M})=3.09\times 10^{-5}$ 5<br>$\alpha(\text{N})=3.13\times 10^{-6}$ 5                                                                                                                                            |
| 4472.0                               | (25/2) <sup>+</sup>  | 847.1 <sup>a</sup>    |                       | 3624.1  | (21/2) <sup>+</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
|                                      |                      | 1078.4 <sup>a</sup>   |                       | 3392.9  | 21/2 <sup>+</sup>    |                      |             |                         |                                                                                                                                                                                                                               |
| 4513.9                               | (23/2 <sup>+</sup> ) | 890.0 <sup>a</sup>    |                       | 3624.1  | (21/2) <sup>+</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
|                                      |                      | 1121.3 <sup>a</sup>   |                       | 3392.9  | 21/2 <sup>+</sup>    |                      |             |                         |                                                                                                                                                                                                                               |
|                                      |                      | 1318.1 <sup>a</sup>   |                       | 3195.4  | (19/2) <sup>+</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
| 4713.8                               | (25/2 <sup>-</sup> ) | 412.7 <sup>a</sup>    |                       | 4300.3  | (23/2) <sup>-</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
|                                      |                      | 615 1                 | $\approx 42$          | 4099.1  | (23/2) <sup>-</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
|                                      |                      | 1223.5 4              | 100 13                | 3490.41 | (21/2 <sup>-</sup> ) | [E2]                 |             | $3.27\times 10^{-4}$ 5  | B(E2)(W.u.)=7 +8-3<br>$\alpha(\text{K})=0.000280$ 4; $\alpha(\text{L})=2.97\times 10^{-5}$ 4; $\alpha(\text{M})=4.80\times 10^{-6}$ 7<br>$\alpha(\text{N})=4.85\times 10^{-7}$ 7; $\alpha(\text{IPF})=1.195\times 10^{-5}$ 18 |
| 4738.9                               | (25/2 <sup>+</sup> ) | 266.8 <sup>a</sup>    |                       | 4472.0  | (25/2) <sup>+</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
|                                      |                      | 781.8 <sup>a</sup>    |                       | 3957.2  | (23/2) <sup>+</sup>  | (M1+E2) <sup>e</sup> |             | 0.00085 6               | $\alpha(\text{K})=0.00075$ 5; $\alpha(\text{L})=8.0\times 10^{-5}$ 7; $\alpha(\text{M})=1.30\times 10^{-5}$ 11<br>$\alpha(\text{N})=1.31\times 10^{-6}$ 10                                                                    |
|                                      |                      | 1114.5 <sup>a</sup>   |                       | 3624.1  | (21/2) <sup>+</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
|                                      |                      | 1345.8 <sup>a</sup>   |                       | 3392.9  | 21/2 <sup>+</sup>    | E2 <sup>e</sup>      |             | $2.96\times 10^{-4}$ 4  | $\alpha(\text{K})=0.0002288$ 32; $\alpha(\text{L})=2.420\times 10^{-5}$ 34;<br>$\alpha(\text{M})=3.92\times 10^{-6}$ 5<br>$\alpha(\text{N})=3.96\times 10^{-7}$ 6; $\alpha(\text{IPF})=3.84\times 10^{-5}$ 5                  |
| 4842.3                               | (25/2 <sup>-</sup> ) | 542.0 <sup>ah</sup>   |                       | 4300.3  | (23/2) <sup>-</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
| 4907.0                               | (25/2) <sup>+</sup>  | 950.0 <sup>a</sup>    |                       | 3957.2  | (23/2) <sup>+</sup>  | M1+E2 <sup>e</sup>   |             | $5.38\times 10^{-4}$ 23 | $\alpha(\text{K})=0.000478$ 20; $\alpha(\text{L})=5.09\times 10^{-5}$ 24;<br>$\alpha(\text{M})=8.2\times 10^{-6}$ 4<br>$\alpha(\text{N})=8.3\times 10^{-7}$ 4                                                                 |
|                                      |                      | 1513.4 <sup>a</sup>   |                       | 3392.9  | 21/2 <sup>+</sup>    |                      |             |                         |                                                                                                                                                                                                                               |
| 4963.5                               | (25/2 <sup>-</sup> ) | 864.5 <sup>a</sup>    |                       | 4099.1  | (23/2) <sup>-</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
|                                      |                      | 1313.7 <sup>a</sup>   |                       | 3649.95 | (21/2) <sup>-</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
|                                      |                      | 1472.7 <sup>a</sup>   |                       | 3490.41 | (21/2 <sup>-</sup> ) |                      |             |                         |                                                                                                                                                                                                                               |
| 5047.2                               | (27/2) <sup>+</sup>  | 575.3 2               | 100                   | 4472.0  | (25/2) <sup>+</sup>  | M1+E2 <sup>d</sup>   | $-0.10^d$ 4 | $1.56\times 10^{-3}$ 2  | B(M1)(W.u.)=1.1 +7-3; B(E2)(W.u.)=4 $\times 10^1$ +6-3<br>$\alpha(\text{K})=0.001382$ 20; $\alpha(\text{L})=0.0001477$ 21;<br>$\alpha(\text{M})=2.392\times 10^{-5}$ 35<br>$\alpha(\text{N})=2.419\times 10^{-6}$ 35          |
|                                      |                      | 1089.1 <sup>a</sup>   |                       | 3957.2  | (23/2) <sup>+</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
| 5410.6                               | (27/2 <sup>-</sup> ) | 697.3 <sup>a</sup>    |                       | 4713.8  | (25/2 <sup>-</sup> ) |                      |             |                         |                                                                                                                                                                                                                               |
|                                      |                      | 1311.0 <sup>a</sup>   |                       | 4099.1  | (23/2) <sup>-</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
| 5580.8                               | (27/2 <sup>+</sup> ) | 673.5 <sup>a</sup>    |                       | 4907.0  | (25/2) <sup>+</sup>  |                      |             |                         |                                                                                                                                                                                                                               |
|                                      |                      | 841.7 <sup>a</sup>    |                       | 4738.9  | (25/2 <sup>+</sup> ) |                      |             |                         |                                                                                                                                                                                                                               |

**Adopted Levels, Gammas (continued)**

$\gamma(^{81}\text{Kr})$  (continued)

| $E_i(\text{level})$ | $J_i^\pi$            | $E_\gamma^\ddagger$ | $I_\gamma^\ddagger$ | $E_f$  | $J_f^\pi$            | $E_i(\text{level})$ | $J_i^\pi$            | $E_\gamma^\ddagger$ | $E_f$  | $J_f^\pi$            |
|---------------------|----------------------|---------------------|---------------------|--------|----------------------|---------------------|----------------------|---------------------|--------|----------------------|
| 5580.8              | (27/2 <sup>+</sup> ) | 1108.9 <sup>a</sup> |                     | 4472.0 | (25/2 <sup>+</sup> ) | 6316.6              | (29/2 <sup>+</sup> ) | 1844.8 <sup>a</sup> | 4472.0 | (25/2 <sup>+</sup> ) |
|                     |                      | 1623.5 <sup>a</sup> |                     | 3957.2 | (23/2 <sup>+</sup> ) | 6529.8              | (31/2 <sup>+</sup> ) | 771.0 <sup>a</sup>  | 5758.9 | (29/2 <sup>+</sup> ) |
| 5758.9              | (29/2 <sup>+</sup> ) | 712 <i>I</i>        | 100                 | 5047.2 | (27/2 <sup>+</sup> ) |                     |                      | 1482.9 <sup>a</sup> | 5047.2 | (27/2 <sup>+</sup> ) |
|                     |                      | 1286.3 <sup>a</sup> |                     | 4472.0 | (25/2 <sup>+</sup> ) | 7046.2              | (31/2 <sup>+</sup> ) | 730.0 <sup>a</sup>  | 6316.6 | (29/2 <sup>+</sup> ) |
| 6057.8              | (29/2 <sup>+</sup> ) | 1011.0 <sup>a</sup> |                     | 5047.2 | (27/2 <sup>+</sup> ) |                     |                      | 1465.0 <sup>a</sup> | 5580.8 | (27/2 <sup>+</sup> ) |
|                     |                      | 1318.5 <sup>a</sup> |                     | 4738.9 | (25/2 <sup>+</sup> ) | 7326.5              | (33/2 <sup>+</sup> ) | 797.0 <sup>a</sup>  | 6529.8 | (31/2 <sup>+</sup> ) |
| 6152.1              | (29/2 <sup>-</sup> ) | 1438.3 <sup>a</sup> |                     | 4713.8 | (25/2 <sup>-</sup> ) |                     |                      | 1567.3 <sup>a</sup> | 5758.9 | (29/2 <sup>+</sup> ) |
| 6316.6              | (29/2 <sup>+</sup> ) | 735.6 <sup>a</sup>  |                     | 5580.8 | (27/2 <sup>+</sup> ) | 7536.8              | (33/2 <sup>+</sup> ) | 1479.0 <sup>a</sup> | 6057.8 | (29/2 <sup>+</sup> ) |
|                     |                      | 1270.0 <sup>a</sup> |                     | 5047.2 | (27/2 <sup>+</sup> ) | 9052.8              | (37/2 <sup>+</sup> ) | 1726.3 <sup>a</sup> | 7326.5 | (33/2 <sup>+</sup> ) |
|                     |                      | 1409.5 <sup>a</sup> |                     | 4907.0 | (25/2 <sup>+</sup> ) |                     |                      |                     |        |                      |

<sup>†</sup> Poor fit; uncertainty multiplied by a factor in the fitting or omitted.

<sup>‡</sup> From ( $\alpha, 3n\gamma$ ), except where otherwise noted.

# From  $\varepsilon$  decay (4.571 h).

@ From  $\varepsilon$  decay (30.5 min).

& From (p,n $\gamma$ ).

<sup>a</sup> From ( $\alpha, 5n\gamma$ ).

<sup>b</sup> Unweighted average of data from <sup>81</sup>Rb  $\varepsilon$  decay: 190.4 keV 2 ([1970Wa38](#)), 190.1 keV 3 ([1973Br32](#)), 190.30 keV 3 ([1975Va24](#)), 190.4 keV 2 ([1977Li14](#)), 190.4 keV 5 ([1981FrZY](#)), 190.54 keV 10 ([1982Gr07](#)); 190.78 keV 9 ([1979To08](#) – (p,n $\gamma$ )), and 190.7 *I* ([1986Fu03](#) – ( $\alpha, 3n\gamma$ )), 190.3 keV 5 ([1982Th03](#)).

<sup>c</sup> From  $\alpha(\text{K})\text{exp}$  in (p,n $\gamma$ ), unless noted otherwise.

<sup>d</sup> From ( $\alpha, 3n\gamma$ ).  $\gamma(\theta)$ , polarization.

<sup>e</sup> From ( $\alpha, 5n\gamma$ ), R<sub>ADO</sub>, pol measurements.

<sup>f</sup> [Additional information 2](#).

<sup>g</sup> Multiply placed with intensity suitably divided.

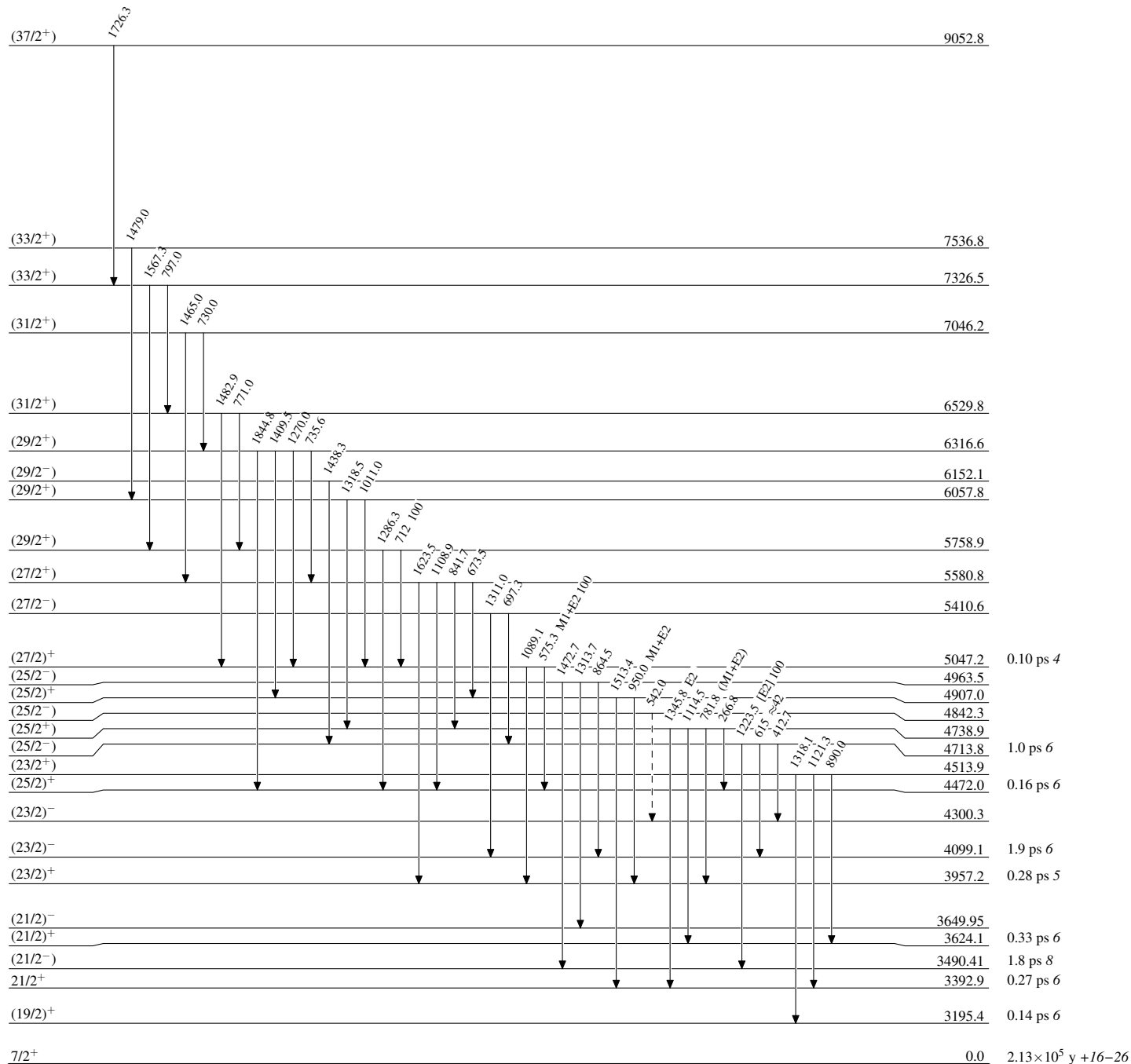
<sup>h</sup> Placement of transition in the level scheme is uncertain.

# Adopted Levels, Gammas

Legend

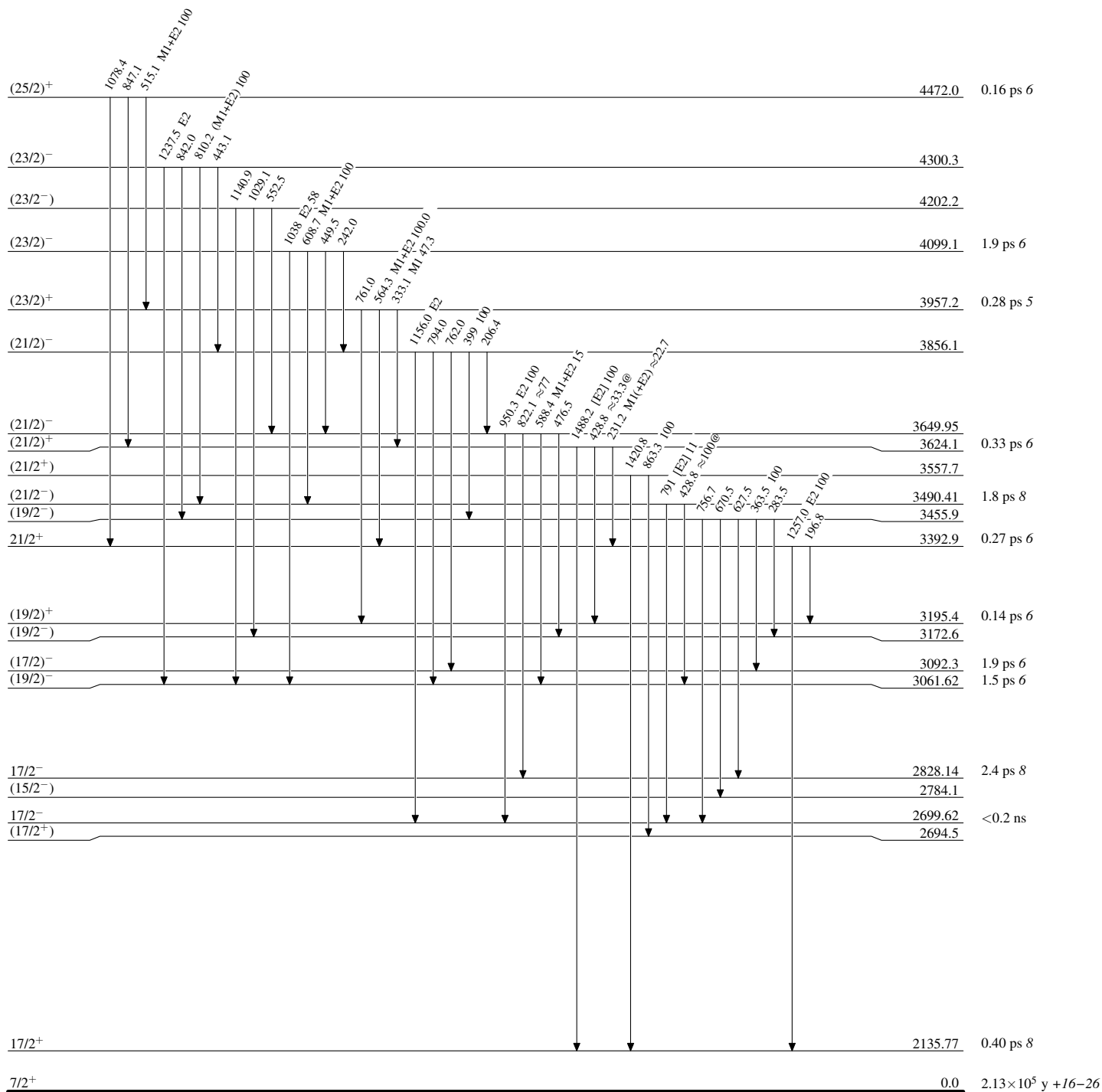
## Level Scheme

Intensities: Relative photon branching from each level

-----►  $\gamma$  Decay (Uncertain)


**Adopted Levels, Gammas****Level Scheme (continued)**

Intensities: Relative photon branching from each level  
 @ Multiply placed: intensity suitably divided



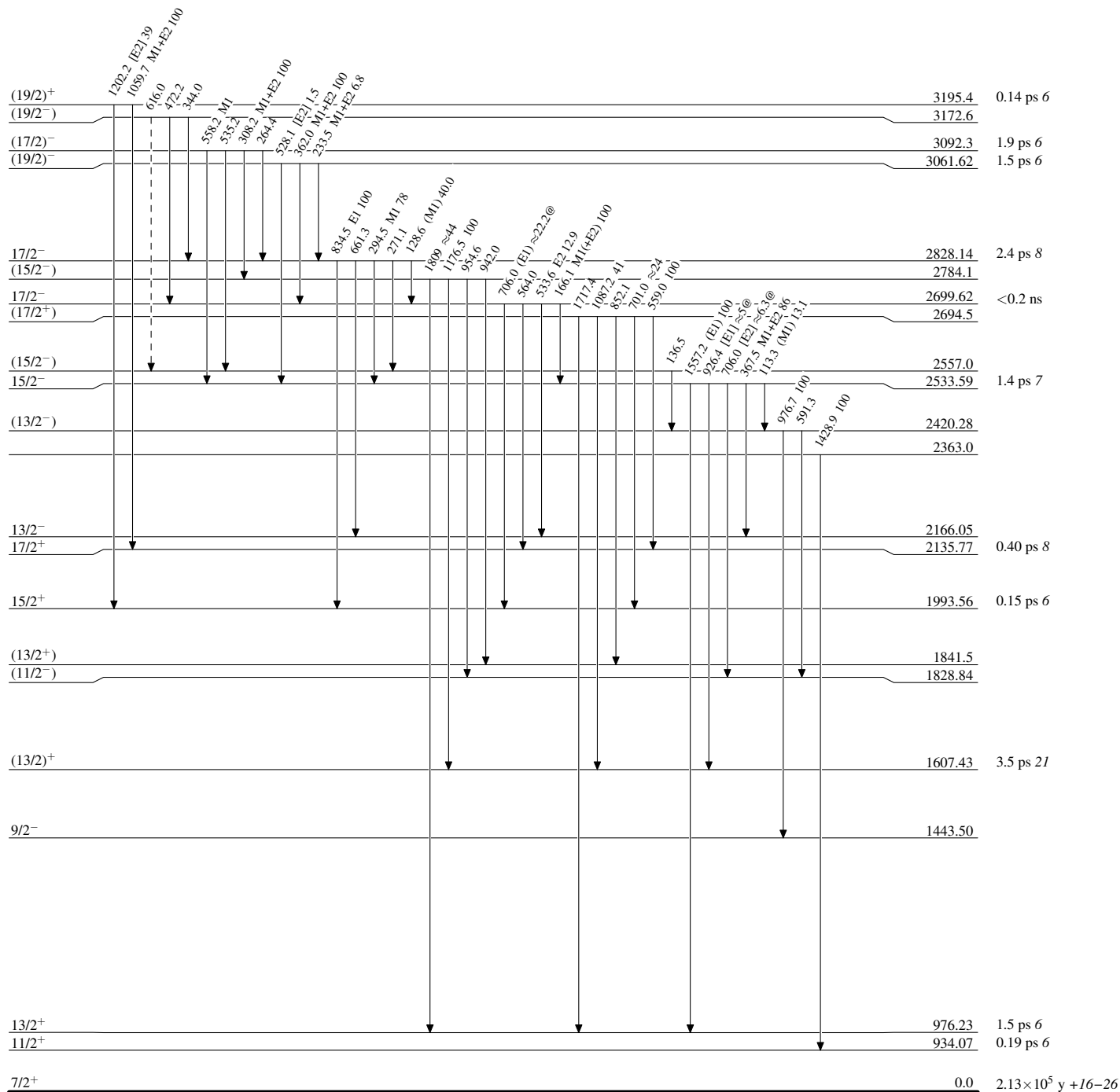
# Adopted Levels, Gammas

Legend

## Level Scheme (continued)

Intensities: Relative photon branching from each level  
@ Multiply placed: intensity suitably divided

-----►  $\gamma$  Decay (Uncertain)

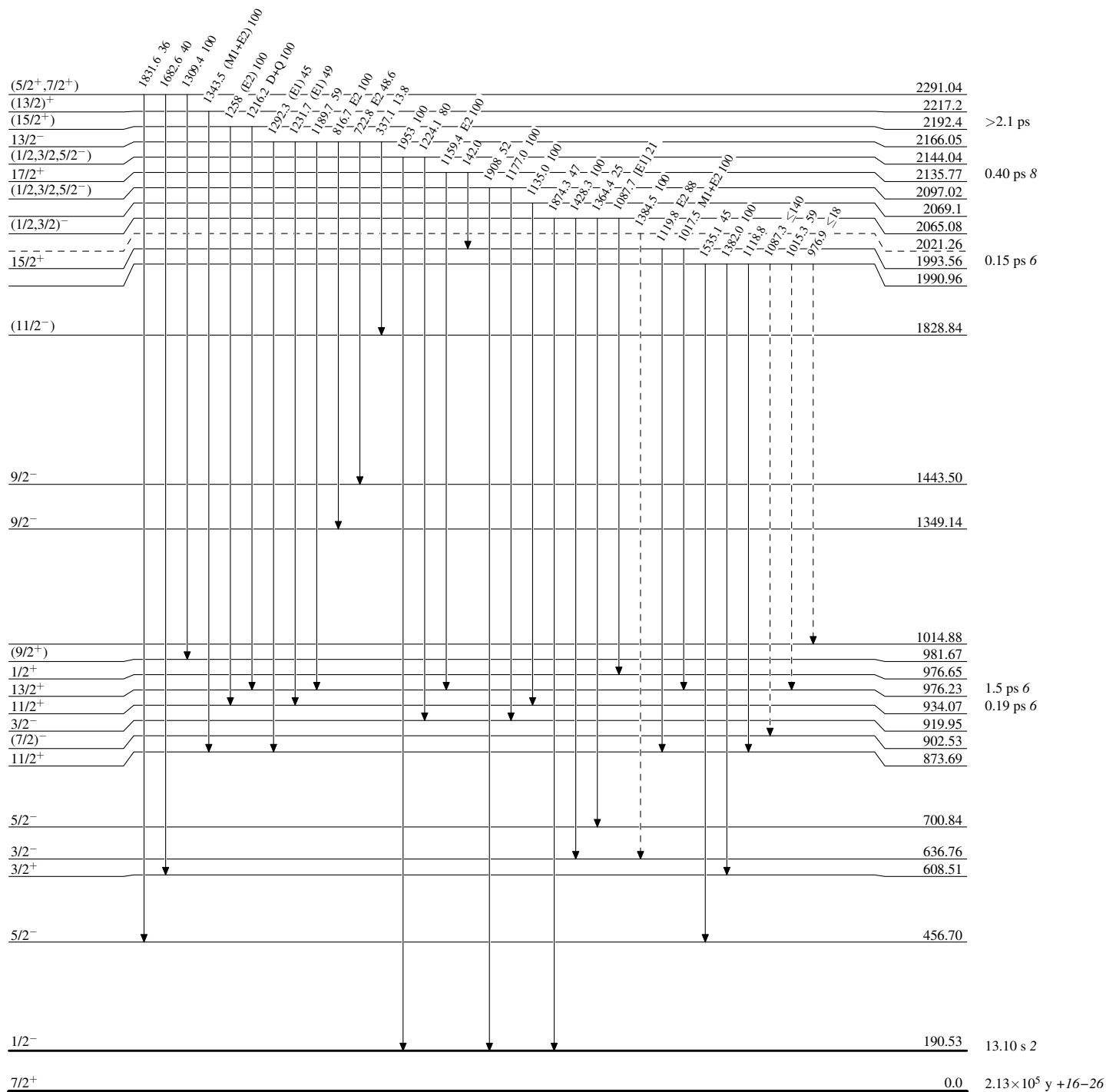


**Adopted Levels, Gammas**

Legend

**Level Scheme (continued)**

Intensities: Relative photon branching from each level  
 @ Multiply placed: intensity suitably divided

-----►  $\gamma$  Decay (Uncertain)

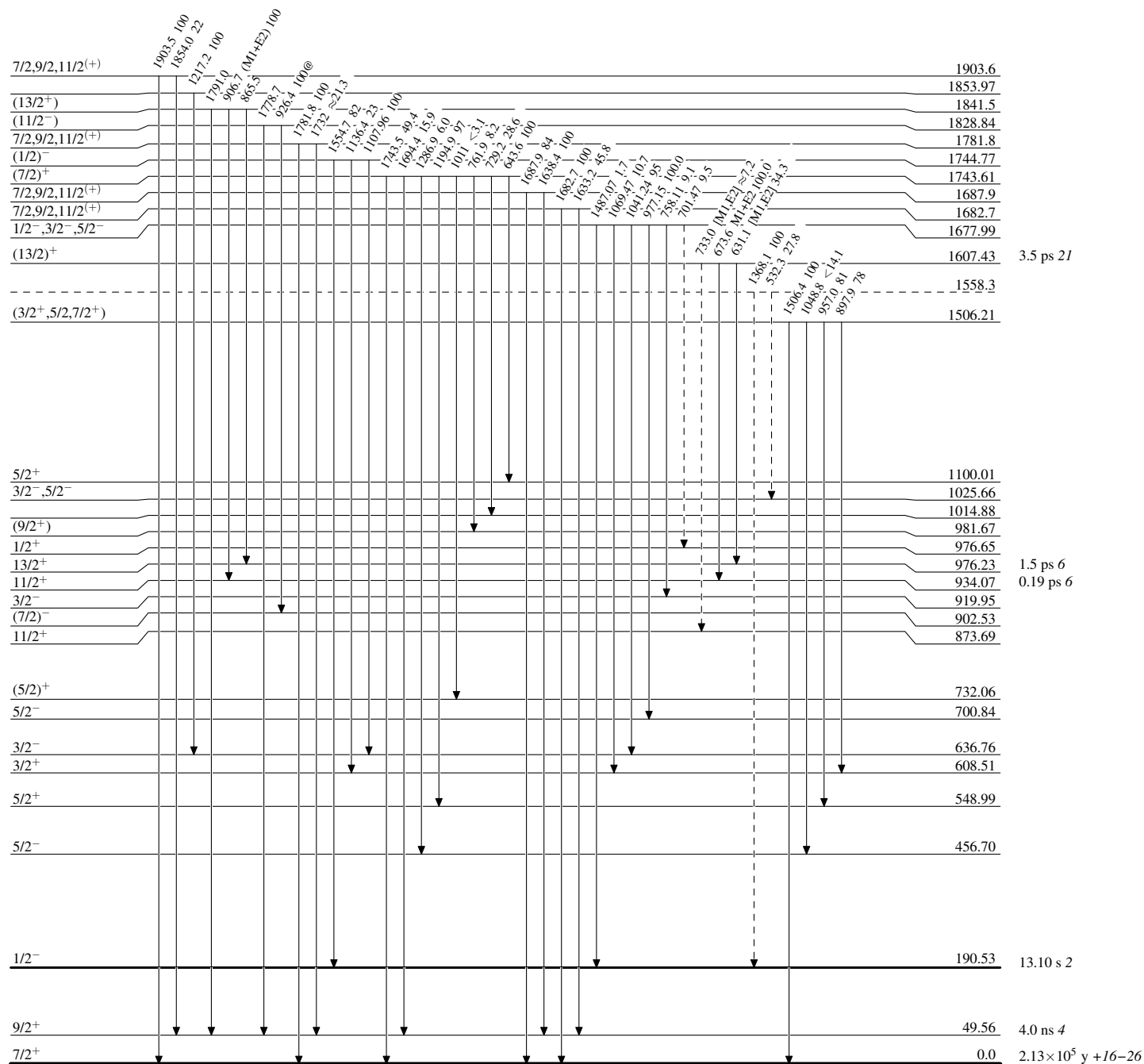
# Adopted Levels, Gammas

Legend

## Level Scheme (continued)

Intensities: Relative photon branching from each level  
@ Multiplied: intensity suitably divided

-----►  $\gamma$  Decay (Uncertain)

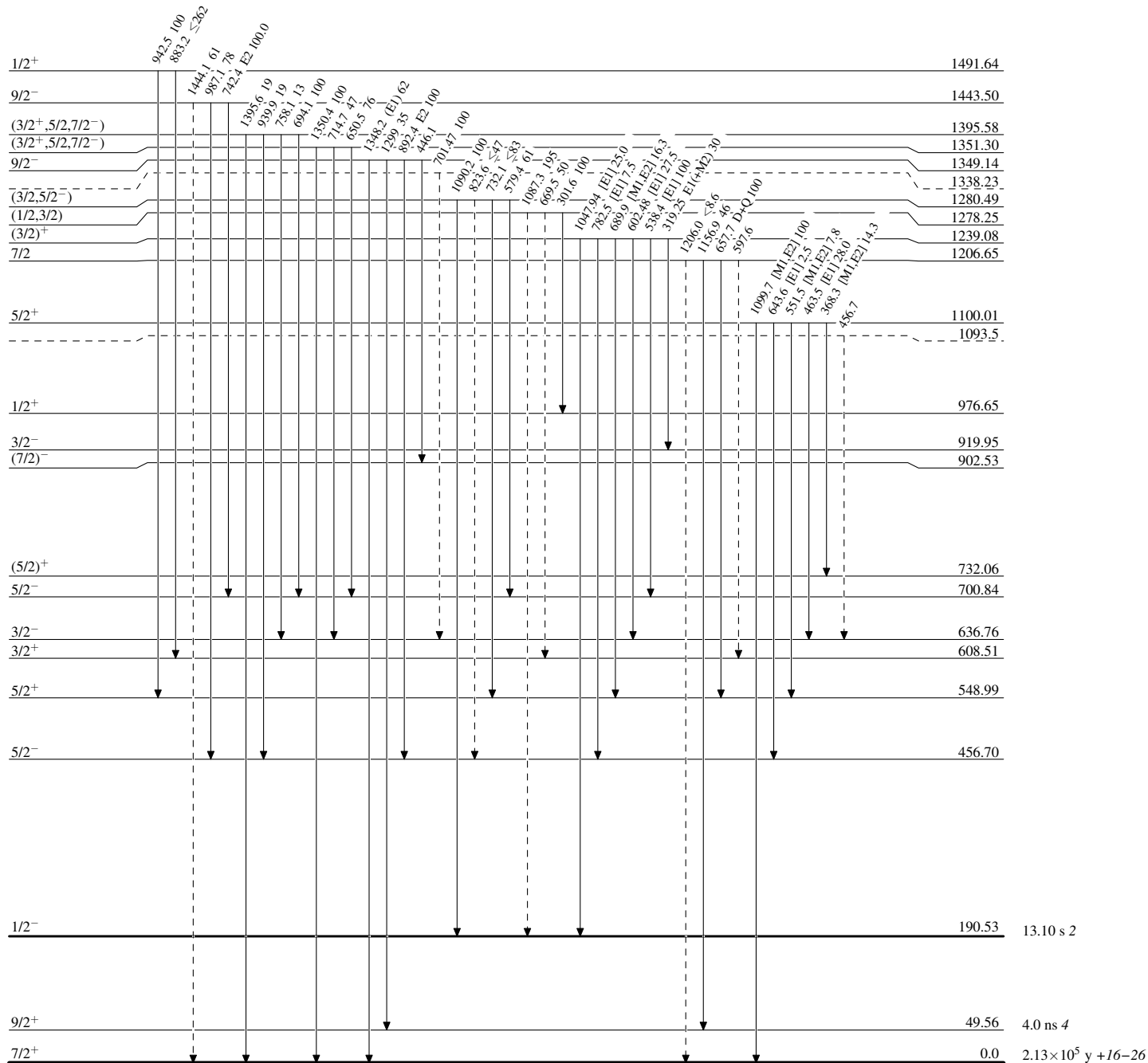


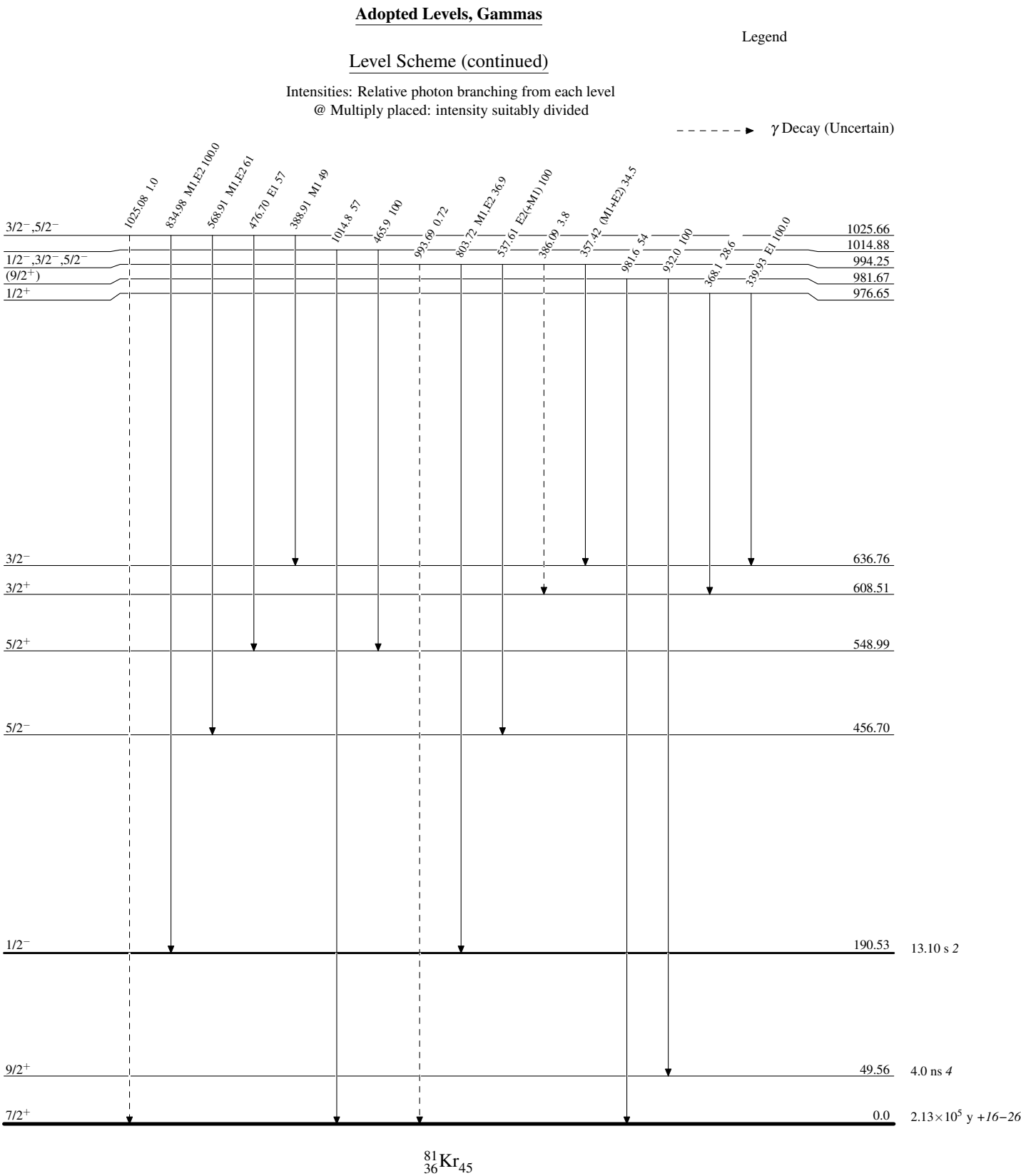
**Adopted Levels, Gammas**

Legend

**Level Scheme (continued)**

Intensities: Relative photon branching from each level  
 @ Multiply placed: intensity suitably divided

-----►  $\gamma$  Decay (Uncertain)



<sup>81</sup>Kr<sub>45</sub>

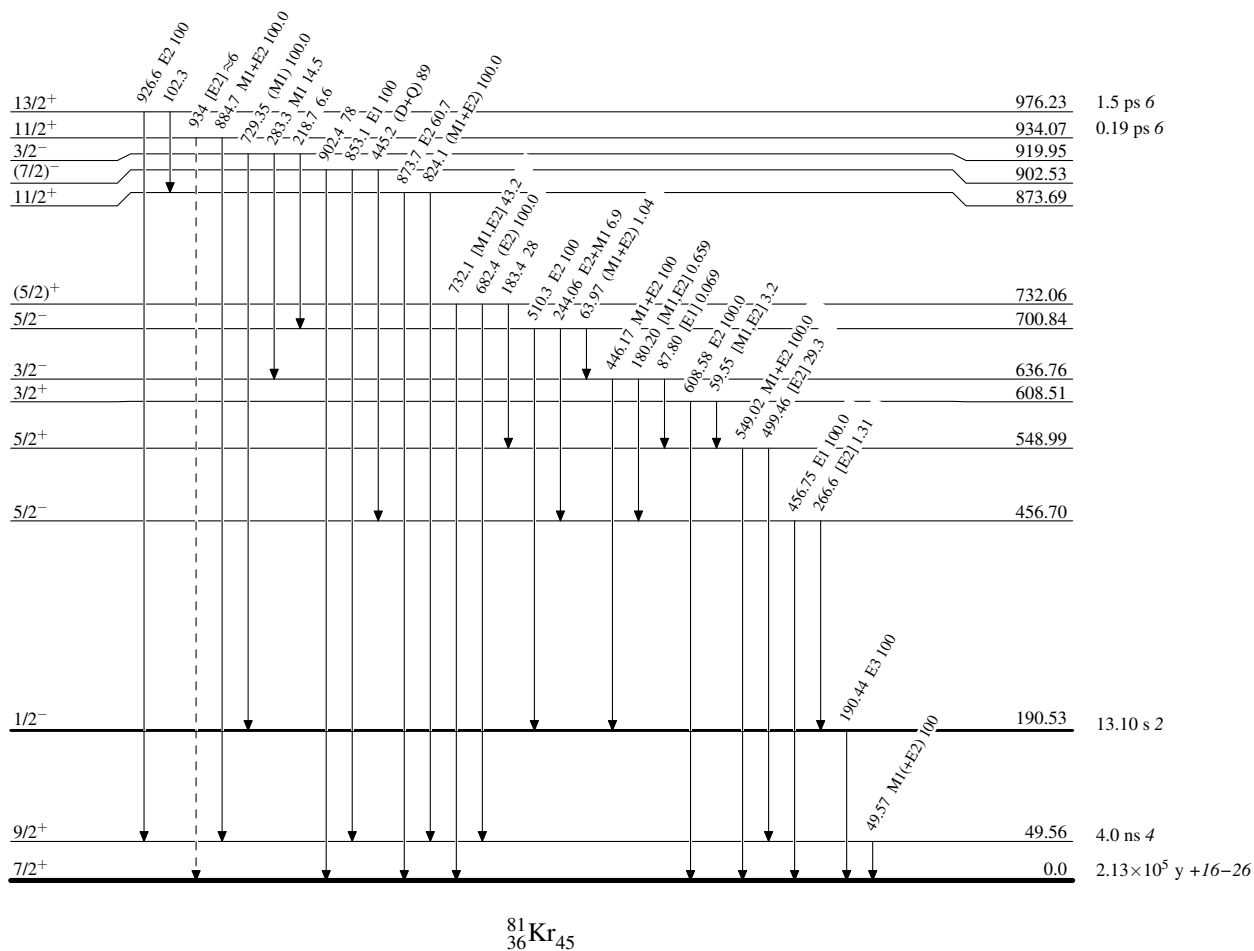
Adopted Levels, Gammas

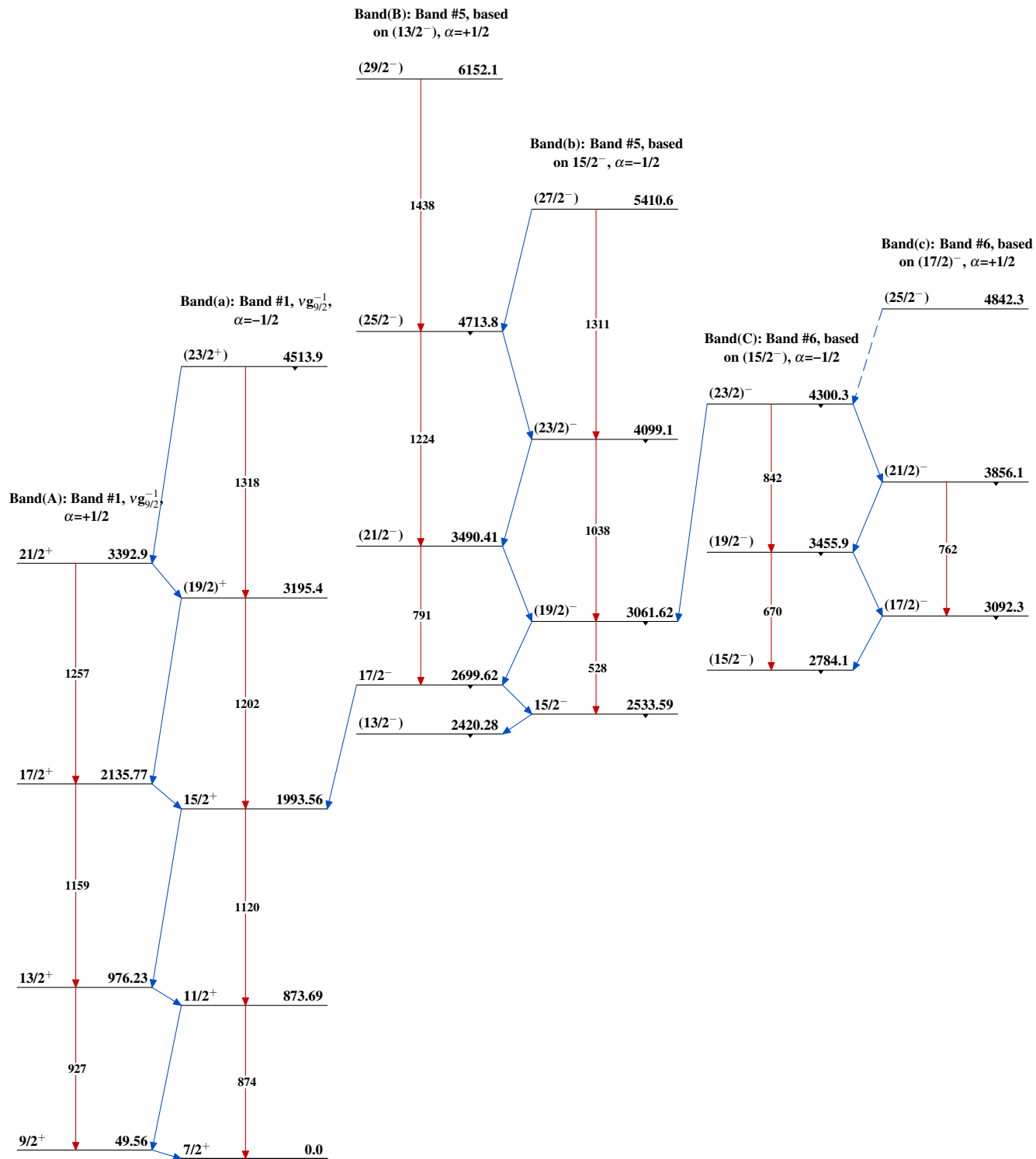
Legend

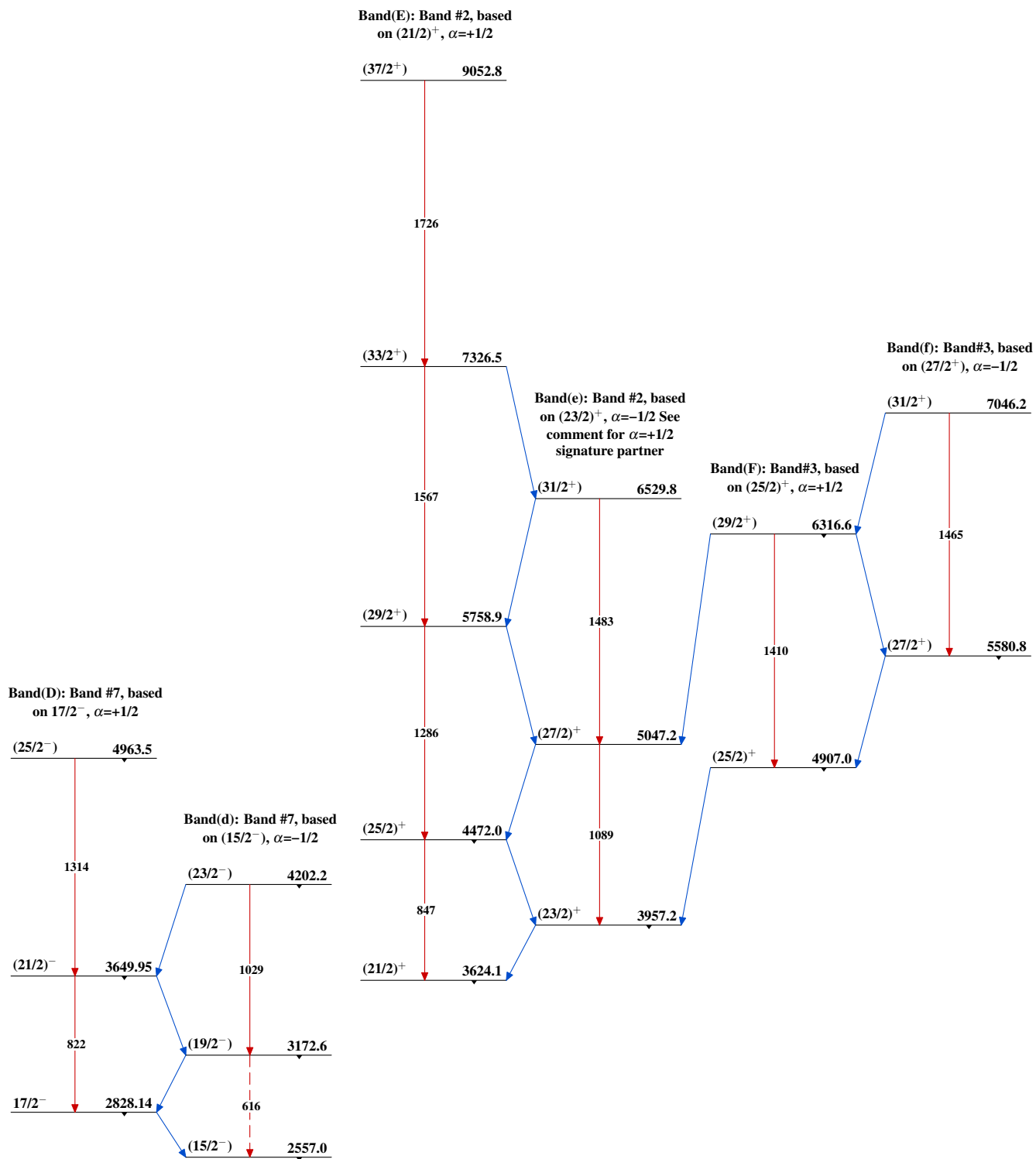
Level Scheme (continued)

Intensities: Relative photon branching from each level

@ Multiply placed: intensity suitably divided

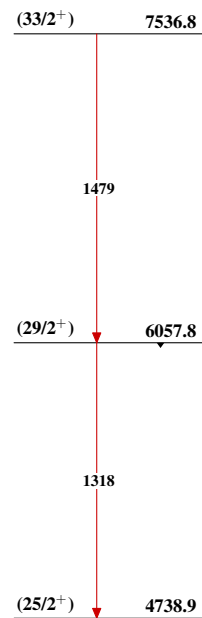
-----►  $\gamma$  Decay (Uncertain) $^{81}_{36}\text{Kr}_{45}$

Adopted Levels, Gammas

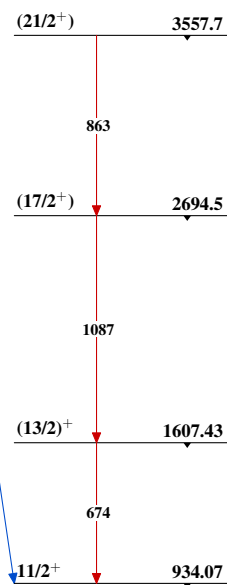
Adopted Levels, Gammas (continued) $^{81}_{36}\text{Kr}_{45}$

# Adopted Levels, Gammas (continued)

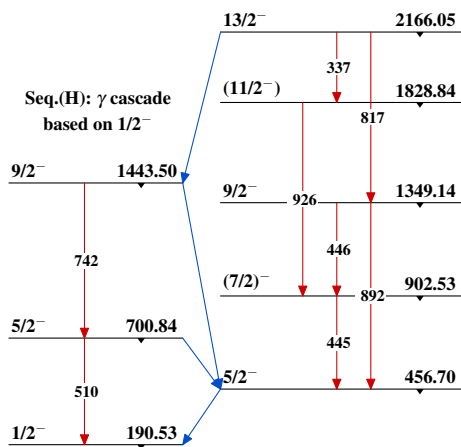
Band(G): Band based on  
(25/2<sup>+</sup>), 4738.9



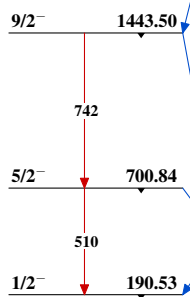
Seq.(J):  $\gamma$  cascade  
based on 11/2<sup>+</sup>



Seq.(I):  $\gamma$  cascade based on 5/2<sup>-</sup>



Seq.(H):  $\gamma$  cascade  
based on 1/2<sup>-</sup>



$^{81}_{36}\text{Kr}_{45}$