

(HI,xnγ) 1992Pa08,1994Pa23

| Type | Author | History Citation | Literature Cutoff Date |
|-----------------|--------------|----------------------|------------------------|
| Full Evaluation | Jean Blachot | NDS 113, 2391 (2012) | 1-Sep-2012 |

1992Pa08: ⁹²Mo(²⁷Al,2p2nγ) E(²⁷Al)=125 MeV.

97% enriched target (1.2 or≈0.5 mg/cm²), “Daresbury Laboratory”.

Measured: γ, γγ, γ(θ),Ge(Li) detectors, DCO tessa3 spectrometer consisting of 16 escape suppressed HPGe detectors plus 50 element BGO inner ball. ΔEγ≈2.5 keV at 1 MeV.

Angular correlation at angles of 90° and 35° with respect to the beam axis. Measured angular correlation ratios

$$I_{\gamma}(35^{\circ}-35^{\circ})/I_{\gamma}(90^{\circ}-35^{\circ}).$$

1994Pa23: ⁶⁰Ni(⁵⁸Ni,3p) E=250 MeV, 480 mg/cm², “TASCC” Facility array of 20 escape suppressed HPGe detectors plus 71 element BGO inner ball.

This new work (1994Pa23) of the almost same team was concentrated on the assignment of six new bands of which only one is linked to previously known bands.

¹¹⁵I Levels

| E(level) [‡] | J ^π [†] | T _{1/2} | E(level) [‡] | J ^π [†] | E(level) [‡] |
|---------------------------|-----------------------------|------------------|-----------------------|-----------------------------|-----------------------|
| 0.0 | 5/2 ⁺ | 1.3 min 2 | 7516.6 [#] 7 | 47/2 ⁻ | 11183+y ^c |
| 56.86 15 | 7/2 ⁺ | | 7728 ^a | 47/2 ⁻ | 12888+y ^c |
| 564.83 [@] 16 | 9/2 ⁺ | | 8228.8 7 | 51/2 ⁻ | 14747+y ^c |
| 633.66 16 | 9/2 ⁺ | | 8570.4 7 | | 16772+y ^c |
| 731.55 18 | 9/2 ⁺ | | 8857 ^a | 51/2 ⁻ | 18962+y ^c |
| 837.51 [#] 20 | 11/2 ⁻ | | 8899 [#] | (51/2 ⁻) | 0.0+z |
| 878.54 [@] 23 | 11/2 ⁺ | | 9499 | (55/2 ⁻) | 923+z ^d |
| 1198.83 [@] 23 | 13/2 ⁺ | | 10069 ^a | 55/2 ⁻ | 1892+z ^d |
| 1248.5 [#] 3 | 15/2 ⁻ | | 11388 ^a | (59/2 ⁻) | 2909+z ^d |
| 1541.76 [@] 25 | 15/2 ⁺ | | 12852 ^a | (63/2 ⁻) | 3990+z ^d |
| 1765.0 [#] 4 | 19/2 ⁻ | | 0.0+x | | 5126+z ^d |
| 1899.8 [@] 3 | 17/2 ⁺ | | 1093+x ^b | | 6327+z ^d |
| 2274.6 [@] 4 | 19/2 ⁺ | | 2250+x | | 7610+z ^d |
| 2386.9 [#] 4 | 23/2 ⁻ | | 3476+x ^b | | 8975+z ^d |
| 2659.7 [@] 4 | 21/2 ⁺ | | 4787+x ^b | | 10426+z ^d |
| 2917.1 ^{&} 4 | | | 6197+x ^b | | 11959+z ^d |
| 3053.3 [@] 4 | 23/2 ⁺ | | 7704+x ^b | | 13590+z ^d |
| 3115.8 [#] 5 | 27/2 ⁻ | | 9315+x ^b | | 15350+z ^d |
| 3406.4 ^{&} 5 | (27/2 ⁻) | | 11043+x ^b | | 17275+z ^d |
| 3447.7 [@] 11 | 25/2 ⁺ | | 12913+x ^b | | 19391+z ^d |
| 3840.0 [@] 5 | 27/2 ⁺ | | 14932+x ^b | | 0.0+v |
| 3912.5 [#] 5 | 31/2 ⁻ | | 17110+x ^b | | 1146+v ^e |
| 4052.8 ^{&} 5 | (31/2 ⁻) | | 19449+x ^b | | 2350+v ^e |
| 4244.8 [@] 11 | 29/2 ⁺ | | 0.0+y | | 3642+v ^e |
| 4762.2 [#] 6 | 35/2 ⁻ | | 981+y ^c | | 5044+v ^e |
| 4798.9 ^{&} 5 | (35/2 ⁻) | | 2011+y ^c | | 6544+v ^e |
| 5083.1 6 | | | 3101+y ^c | | 8183+v ^e |
| 5619.5 ^{&} 6 | (39/2 ⁻) | | 4247+y ^c | | 9993+v ^e |
| 5656.3 [#] 6 | 39/2 ⁻ | | 5456+y ^c | | 11990+v ^e |
| 6484.4 [#] 6 | 43/2 ⁻ | | 6756+y ^c | | 14178+v ^e |
| 6543.1 ^{&} 6 | (43/2 ⁻) | | 8139+y ^c | | 0.0+w |
| 6671.6 ^a 6 | 43/2 ⁻ | | 9604+y ^c | | 1395+w ^f |

Continued on next page (footnotes at end of table)

(HI,xn γ) **1992Pa08,1994Pa23** (continued)

^{115}I Levels (continued)

E(level)[‡]

- 2912+w^f
- 4592+w^f
- 6471+w^f
- 8570+w^f

- † From the authors based on the γ 's multipolarities.
- ‡ Bands 5, 6, 7, 8, 9 are from 1994Pa23.
- # Band(A): (π h_{11/2}) decoupled band; $\Delta J=2$ sequence up to 51/2⁻.
- @ Band(B): 9/2(404) deformed proton-hole band; $\Delta J=1$ sequence up to 29/2⁺.
- & Band(C): negative parity band.
- ^a Band(D): $\pi=-$ band connected to the yrast band.
- ^b Band(E): band 5, J \approx 35/2 for the lowest level.
- ^c Band(F): band 6, J \approx 35/2 for the lowest level.
- ^d Band(G): band 7, J \approx 35/2 for the lowest level.
- ^e Band(H): band 8, J \approx 35/2 for the lowest level.
- ^f Band(I): band 9, J \approx 35/2 for the lowest level.

$\gamma(^{115}\text{I})$

| <u>Eγ</u> | <u>Iγ[†]</u> | <u>E_i(level)</u> | <u>J_i^{π}</u> | <u>E_f</u> | <u>J_f^{π}</u> | <u>Mult.[‡]</u> | <u>Comments</u> |
|-----------------------------|---|-----------------------------|---|----------------------|---|--------------------------|--------------------------------|
| 56.9 2 | ≈ 80 | 56.86 | 7/2 ⁺ | 0.0 | 5/2 ⁺ | | |
| 106.0 2 | | 837.51 | 11/2 ⁻ | 731.55 | 9/2 ⁺ | D | Mult.: DCO=0.42 2. |
| 203.8 2 | 44.3 8 | 837.51 | 11/2 ⁻ | 633.66 | 9/2 ⁺ | D | Mult.: DCO=0.67 1. |
| 313.7 2 | 29.1 12 | 878.54 | 11/2 ⁺ | 564.83 | 9/2 ⁺ | D | Mult.: DCO=0.67 5. |
| 320.2 2 | 22.6 14 | 1198.83 | 13/2 ⁺ | 878.54 | 11/2 ⁺ | D | Mult.: DCO=0.60 5. |
| 342.8 2 | 15.7 12 | 1541.76 | 15/2 ⁺ | 1198.83 | 13/2 ⁺ | D | Mult.: DCO=0.52 5. |
| 358.0 2 | 13.6 11 | 1899.8 | 17/2 ⁺ | 1541.76 | 15/2 ⁺ | D | Mult.: DCO=0.56 6. |
| 374.8 2 | 11.8 12 | 2274.6 | 19/2 ⁺ | 1899.8 | 17/2 ⁺ | D | Mult.: DCO=0.52 6. |
| 385.1 2 | 9.7 10 | 2659.7 | 21/2 ⁺ | 2274.6 | 19/2 ⁺ | D | Mult.: DCO=0.58 6. |
| 393 @ 1 | 22.5 @ 13 | 3053.3 | 23/2 ⁺ | 2659.7 | 21/2 ⁺ | | Mult.: DCO=0.52 6 for triplet. |
| 393 @ 1 | 22.5 @ 13 | 3840.0 | 27/2 ⁺ | 3447.7 | 25/2 ⁺ | | |
| 395 1 | 22.5 13 | 3447.7 | 25/2 ⁺ | 3053.3 | 23/2 ⁺ | | |
| 404 1 | 5.2 8 | 4244.8 | 29/2 ⁺ | 3840.0 | 27/2 ⁺ | | |
| 411.0 2 | 100 | 1248.5 | 15/2 ⁻ | 837.51 | 11/2 ⁻ | E2 | Mult.: DCO=1.17 2. |
| 508.0 2 | 14.6 8 | 564.83 | 9/2 ⁺ | 56.86 | 7/2 ⁺ | | |
| 516.5 2 | 91.5 8 | 1765.0 | 19/2 ⁻ | 1248.5 | 15/2 ⁻ | E2 | Mult.: DCO=1.08 3. |
| 564.8 2 | 29 1 | 564.83 | 9/2 ⁺ | 0.0 | 5/2 ⁺ | | |
| 576.8 2 | 42.2 4 | 633.66 | 9/2 ⁺ | 56.86 | 7/2 ⁺ | D | Mult.: DCO=0.44 2. |
| 621.9 2 | 73.2 8 | 2386.9 | 23/2 ⁻ | 1765.0 | 19/2 ⁻ | E2 | Mult.: DCO=0.97 3. |
| 633.6 2 | 10 1 | 633.66 | 9/2 ⁺ | 0.0 | 5/2 ⁺ | Q | Mult.: DCO=0.97 3. |
| 634.0 2 | 5.5 9 | 1198.83 | 13/2 ⁺ | 564.83 | 9/2 ⁺ | | |
| 646.5 2 | 3.4 8 | 4052.8 | (31/2 ⁻) | 3406.4 | (27/2 ⁻) | | |
| 663.3 2 | 7.2 10 | 1541.76 | 15/2 ⁺ | 878.54 | 11/2 ⁺ | Q | Mult.: DCO=1.4 3. |
| 701.0 2 | 10.3 11 | 1899.8 | 17/2 ⁺ | 1198.83 | 13/2 ⁺ | | |
| 712.2 2 | 5.7 4 | 8228.8 | 51/2 ⁻ | 7516.6 | 47/2 ⁻ | E2 | Mult.: DCO=1.13 10. |
| 728.8 2 | 49.5 8 | 3115.8 | 27/2 ⁻ | 2386.9 | 23/2 ⁻ | E2 | Mult.: DCO=1.11 3. |
| 731.6 2 | 38 3 | 731.55 | 9/2 ⁺ | 0.0 | 5/2 ⁺ | Q | Mult.: DCO=1.06 3. |
| 732.9 2 | 10.9 13 | 2274.6 | 19/2 ⁺ | 1541.76 | 15/2 ⁺ | (Q) | Mult.: DCO=0.9 3. |

Continued on next page (footnotes at end of table)

(HI,xn γ) **1992Pa08,1994Pa23** (continued)

$\gamma(^{115}\text{I})$ (continued)

| E_γ | I_γ^\dagger | $E_i(\text{level})$ | J_i^π | E_f | J_f^π | Mult. ‡ | Comments |
|---------------------|----------------------|---------------------|----------------------|--------|----------------------|-------------------|-------------------------------|
| 746.1 2 | 7.6 4 | 4798.9 | (35/2 ⁻) | 4052.8 | (31/2 ⁻) | | |
| 759.9 2 | 10.9 13 | 2659.7 | 21/2 ⁺ | 1899.8 | 17/2 ⁺ | (Q) | Mult.: DCO=0.9 3. |
| 778.7 2 | 9.2 10 | 3053.3 | 23/2 ⁺ | 2274.6 | 19/2 ⁺ | | |
| 788 [@] 1 | 17.2 [@] 15 | 3447.7 | 25/2 ⁺ | 2659.7 | 21/2 ⁺ | | Mult.: DCO=0.8 3 for doublet. |
| 788 [@] 1 | 17.2 [@] 15 | 3840.0 | 27/2 ⁺ | 3053.3 | 23/2 ⁺ | | |
| 796.7 2 | 36.9 8 | 3912.5 | 31/2 ⁻ | 3115.8 | 27/2 ⁻ | E2 | Mult.: DCO=0.95 3. |
| 797.1 2 | 5.4 9 | 4244.8 | 29/2 ⁺ | 3447.7 | 25/2 ⁺ | | |
| 820.6 2 | 4.9 4 | 5619.5 | (39/2 ⁻) | 4798.9 | (35/2 ⁻) | | |
| 828.1 2 | 13.7 6 | 6484.4 | 43/2 ⁻ | 5656.3 | 39/2 ⁻ | E2 | Mult.: DCO=1.02 5. |
| 849.7 2 | 27.4 7 | 4762.2 | 35/2 ⁻ | 3912.5 | 31/2 ⁻ | E2 | Mult.: DCO=0.89 4. |
| 894.1 2 | 23.3 8 | 5656.3 | 39/2 ⁻ | 4762.2 | 35/2 ⁻ | E2 | Mult.: DCO=1.02 4. |
| 923 [#] 1 | | 923+z | | 0.0+z | | | |
| 923.6 2 | 3.4 4 | 6543.1 | (43/2 ⁻) | 5619.5 | (39/2 ⁻) | | |
| 937.0 2 | 5.4 8 | 4052.8 | (31/2 ⁻) | 3115.8 | 27/2 ⁻ | | |
| 969 [#] 1 | | 1892+z | | 923+z | | | |
| 981 [#] 1 | | 981+y | | 0.0+y | | | |
| 1015.3 2 | 12.0 15 | 6671.6 | 43/2 ⁻ | 5656.3 | 39/2 ⁻ | | |
| 1017 [#] 1 | | 2909+z | | 1892+z | | | |
| 1019.5 2 | 6.6 3 | 3406.4 | (27/2 ⁻) | 2386.9 | 23/2 ⁻ | (Q) | |
| 1030 [#] 1 | | 2011+y | | 981+y | | | |
| 1032.2 2 | 9.5 6 | 7516.6 | 47/2 ⁻ | 6484.4 | 43/2 ⁻ | E2 | Mult.: DCO=0.93 7. |
| 1053.8 2 | 3.2 4 | 8570.4 | | 7516.6 | 47/2 ⁻ | | |
| 1057 [#] 1 | | 7728 | 47/2 ⁻ | 6671.6 | 43/2 ⁻ | | |
| 1081 [#] 1 | | 3990+z | | 2909+z | | | |
| 1090 [#] 1 | | 3101+y | | 2011+y | | | |
| 1093 [#] 1 | | 1093+x | | 0.0+x | | | |
| 1129 [#] 1 | | 8857 | 51/2 ⁻ | 7728 | 47/2 ⁻ | | |
| 1136 [#] 1 | | 5126+z | | 3990+z | | | |
| 1146 [#] 1 | | 4247+y | | 3101+y | | | |
| 1146 [#] 1 | | 1146+v | | 0.0+v | | | |
| 1152.1 2 | 3.8 4 | 2917.1 | | 1765.0 | 19/2 ⁻ | | |
| 1157 [#] 1 | | 2250+x | | 1093+x | | | |
| 1170.6 2 | 2.8 4 | 5083.1 | | 3912.5 | 31/2 ⁻ | | |
| 1201 [#] 1 | | 6327+z | | 5126+z | | | |
| 1204 [#] 1 | | 2350+v | | 1146+v | | | |
| 1209 [#] 1 | | 5456+y | | 4247+y | | | |
| 1212 [#] 1 | | 10069 | 55/2 ⁻ | 8857 | 51/2 ⁻ | | |
| 1226 1 | | 3476+x | | 2250+x | | | |
| 1245 1 | | 7728 | 47/2 ⁻ | 6484.4 | 43/2 ⁻ | | |
| 1270 1 | | 9499 | (55/2 ⁻) | 8228.8 | 51/2 ⁻ | | |
| 1283 1 | | 7610+z | | 6327+z | | | |
| 1292 1 | | 3642+v | | 2350+v | | | |
| 1300 1 | | 6756+y | | 5456+y | | | |
| 1311 1 | | 4787+x | | 3476+x | | | |
| 1319 1 | | 11388 | (59/2 ⁻) | 10069 | 55/2 ⁻ | | |
| 1365 1 | | 8975+z | | 7610+z | | | |
| 1383 1 | | 8139+y | | 6756+y | | | |
| 1383 1 | | 8899 | (51/2 ⁻) | 7516.6 | 47/2 ⁻ | | |
| 1395 1 | | 1395+w | | 0.0+w | | | |
| 1402 1 | | 5044+v | | 3642+v | | | |
| 1410 1 | | 6197+x | | 4787+x | | | |

Continued on next page (footnotes at end of table)

(HI,xn γ) 1992Pa08,1994Pa23 (continued) $\gamma(^{115}\text{I})$ (continued)

| E_γ | $E_i(\text{level})$ | J_i^π | E_f | J_f^π | E_γ | $E_i(\text{level})$ | E_f |
|---------------|---------------------|----------------------|---------|----------------------|--------------------------------|---------------------|---------|
| 1451 <i>I</i> | 10426+z | | 8975+z | | 1810 <i>I</i> | 9993+v | 8183+v |
| 1464 <i>I</i> | 12852 | (63/2 ⁻) | 11388 | (59/2 ⁻) | 1859 <i>I</i> | 14747+y | 12888+y |
| 1465 <i>I</i> | 9604+y | | 8139+y | | 1870 <i>I</i> | 12913+x | 11043+x |
| 1500 <i>I</i> | 6544+v | | 5044+v | | 1879 <i>I</i> | 6471+w | 4592+w |
| 1507 <i>I</i> | 7704+x | | 6197+x | | 1925 <i>I</i> | 17275+z | 15350+z |
| 1517 <i>I</i> | 2912+w | | 1395+w | | 1997 <i>I</i> | 11990+v | 9993+v |
| 1533 <i>I</i> | 11959+z | | 10426+z | | 2019 <i>I</i> | 14932+x | 12913+x |
| 1579 <i>I</i> | 11183+y | | 9604+y | | 2025 <i>I</i> | 16772+y | 14747+y |
| 1611 <i>I</i> | 9315+x | | 7704+x | | 2099 ^{&} <i>I</i> | 8570+w | 6471+w |
| 1631 <i>I</i> | 13590+z | | 11959+z | | 2116 | 19391+z | 17275+z |
| 1639 <i>I</i> | 8183+v | | 6544+v | | 2178 <i>I</i> | 17110+x | 14932+x |
| 1680 <i>I</i> | 4592+w | | 2912+w | | 2188 ^{&} <i>I</i> | 14178+v | 11990+v |
| 1705 <i>I</i> | 12888+y | | 11183+y | | 2190 ^{&} <i>I</i> | 18962+y | 16772+y |
| 1728 <i>I</i> | 11043+x | | 9315+x | | 2339 <i>I</i> | 19449+x | 17110+x |
| 1760 <i>I</i> | 15350+z | | 13590+z | | | | |

[†] Relative photon intensity from 1992Pa08, except as noted.

[‡] From $\gamma(\theta)$ and DCO.

[#] From 1994Pa23.

[@] Multiply placed with undivided intensity.

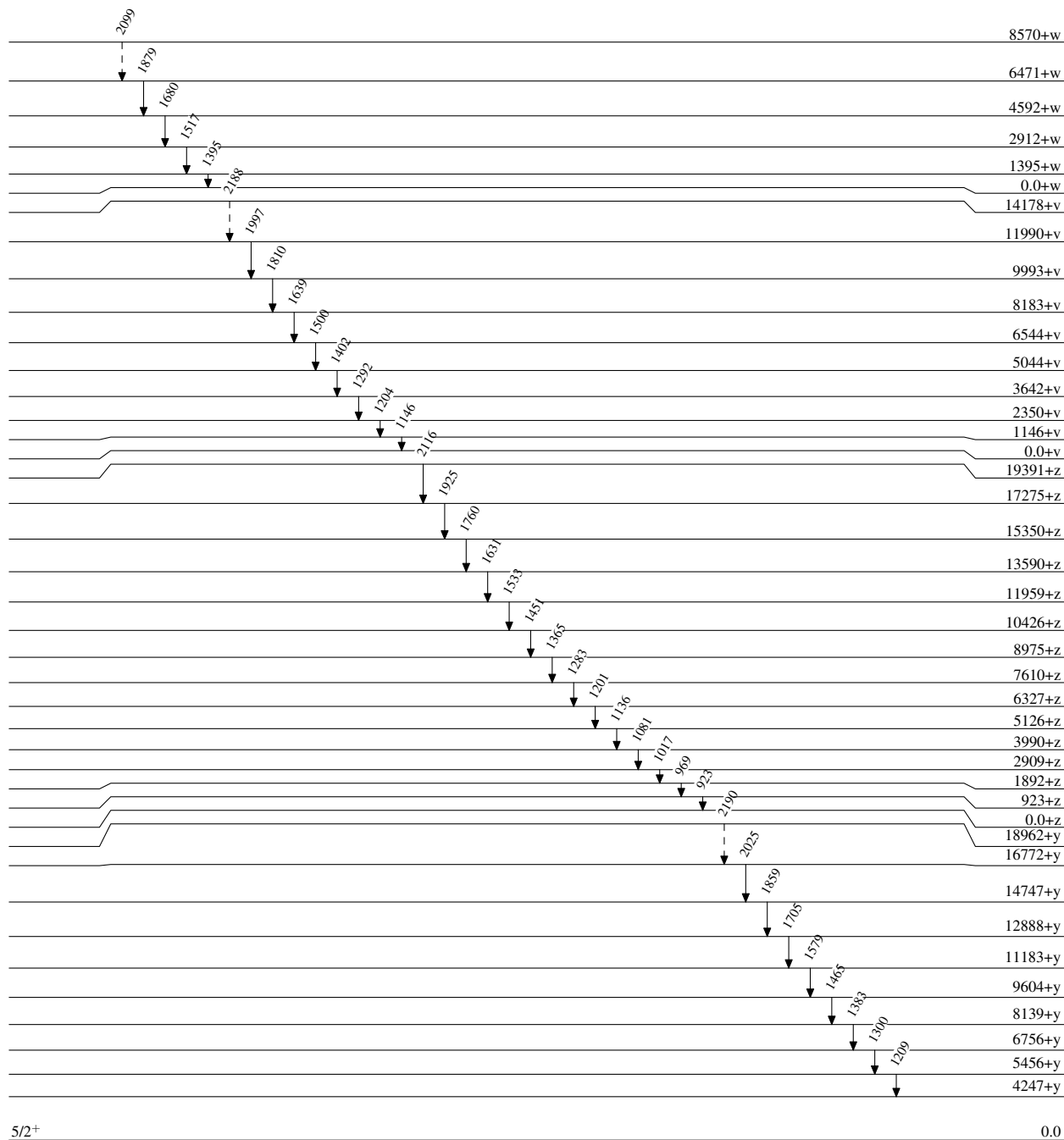
[&] Placement of transition in the level scheme is uncertain.

(HI,xn γ) 1992Pa08,1994Pa23

Legend

Level Scheme

Intensities: Type not specified

-----► γ Decay (Uncertain)5/2⁺

0.0

1.3 min 2

 $^{115}_{53}\text{I}_{62}$

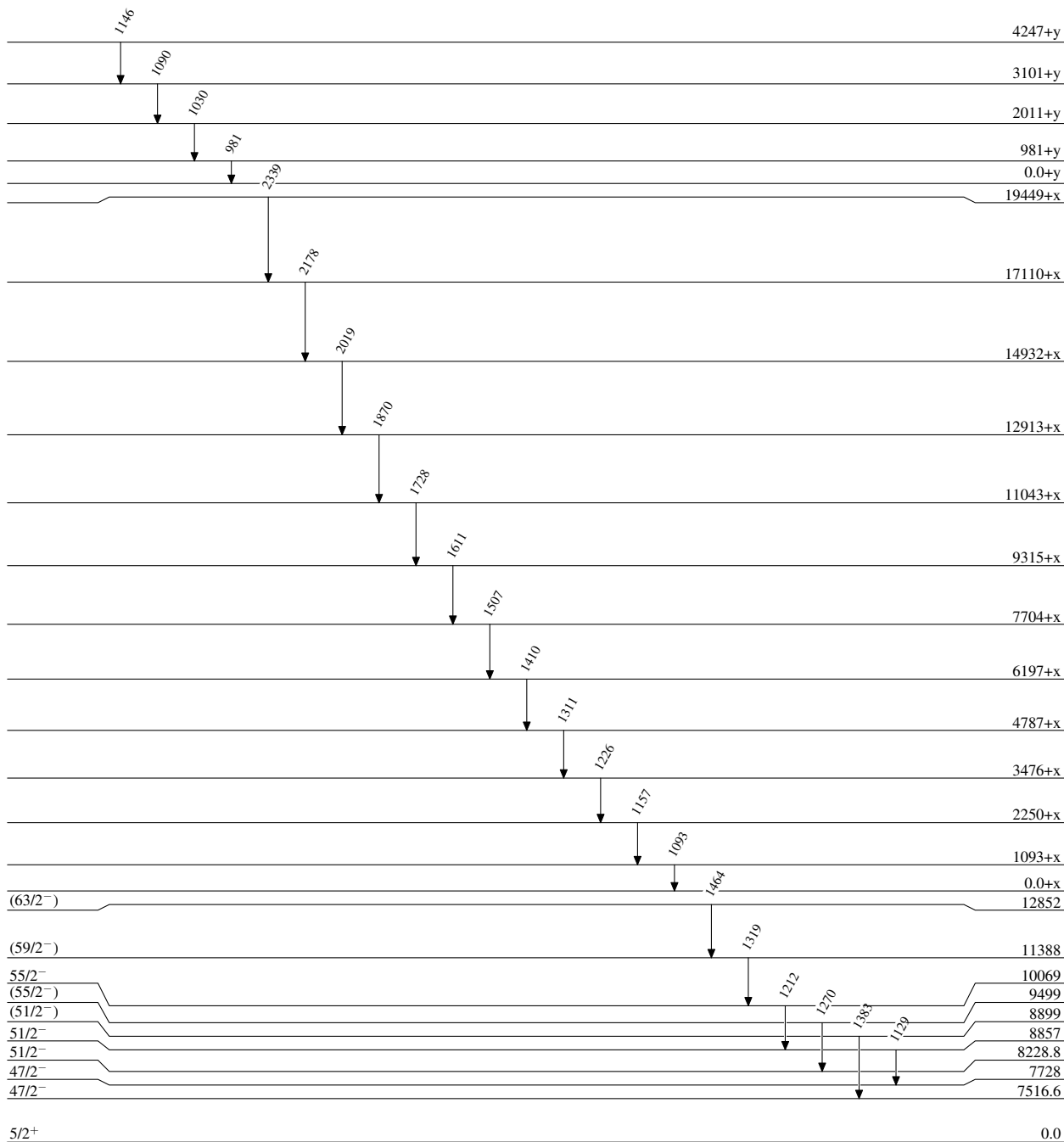
(HI,xn γ) 1992Pa08,1994Pa23

Level Scheme (continued)

Intensities: Type not specified

Legend

- $I_{\gamma} < 2\% \times I_{\gamma}^{max}$
- $I_{\gamma} < 10\% \times I_{\gamma}^{max}$
- $I_{\gamma} > 10\% \times I_{\gamma}^{max}$



1.3 min 2

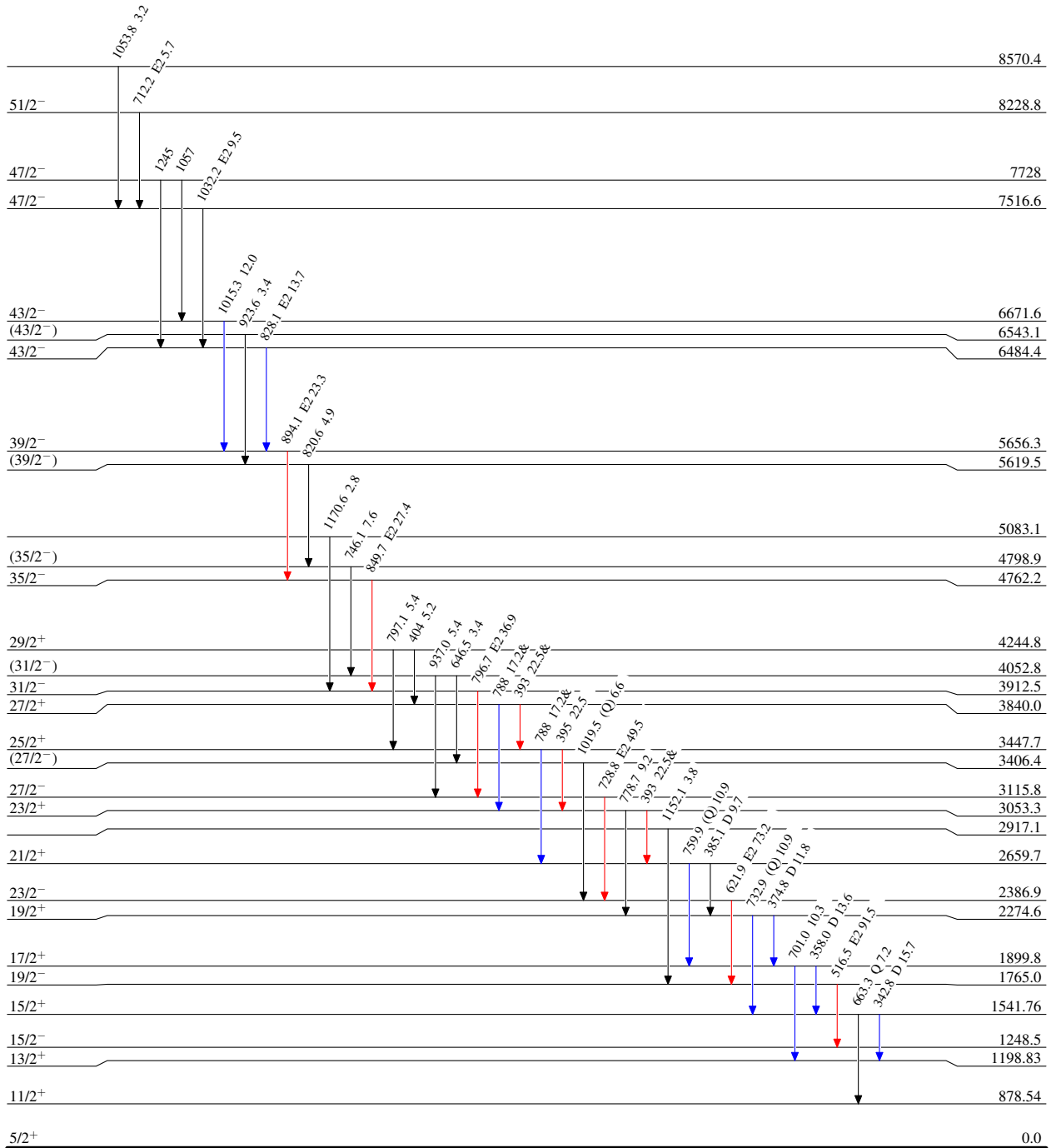
(HI,xn γ) 1992Pa08,1994Pa23

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$



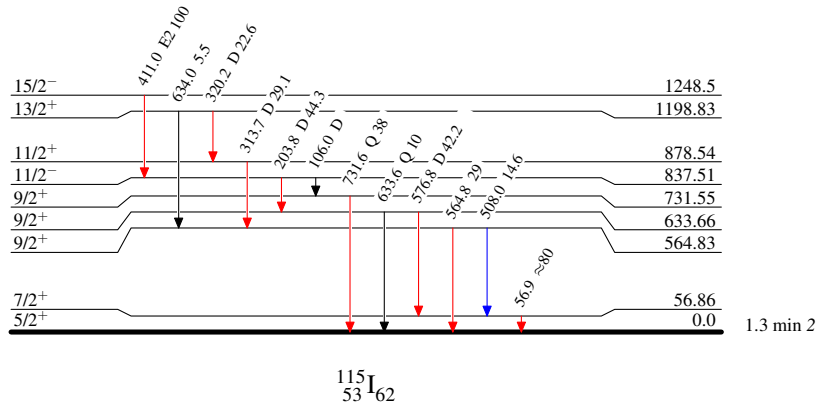
1.3 min 2

(HI,xn γ) 1992Pa08,1994Pa23**Level Scheme (continued)**

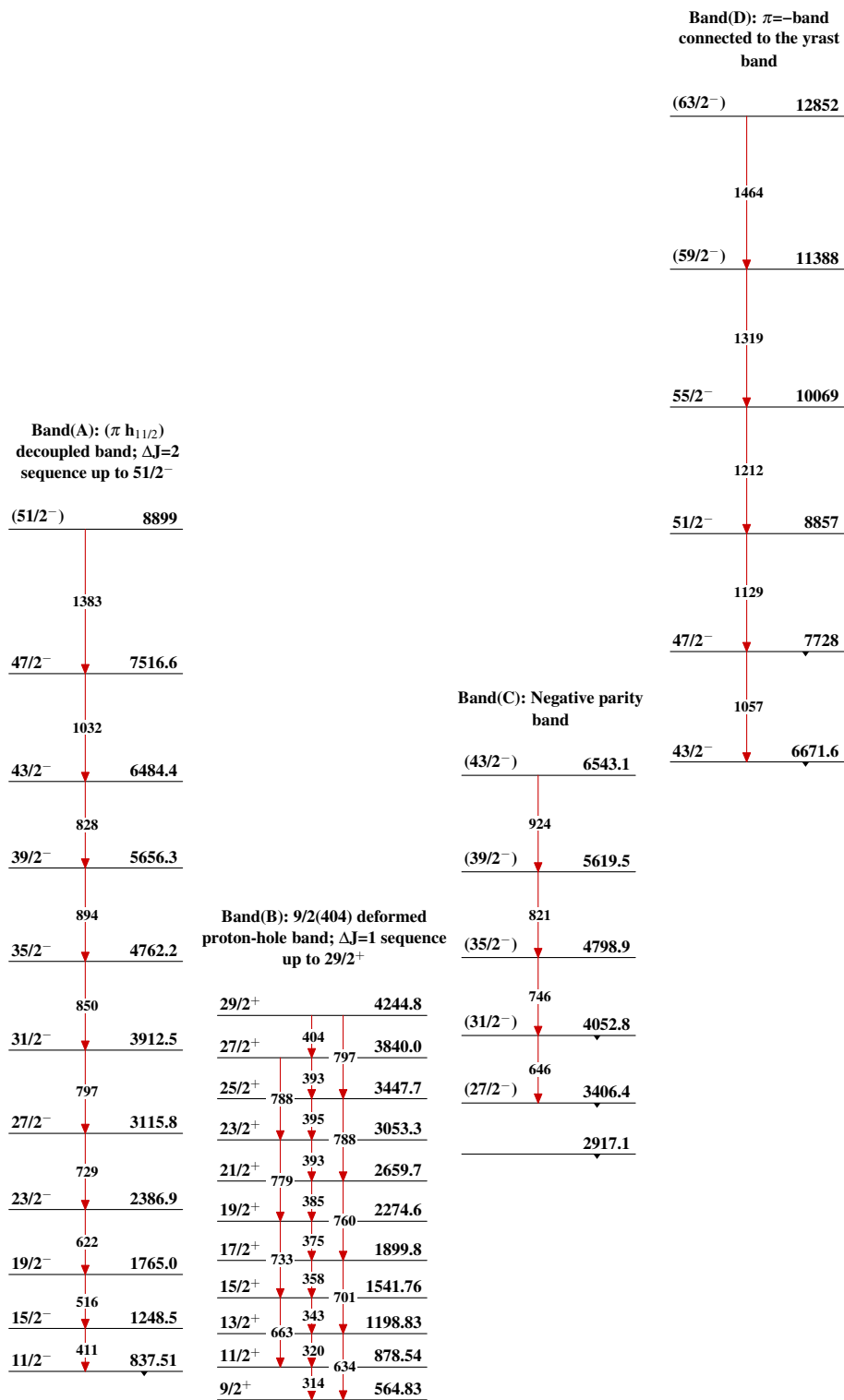
Intensities: Type not specified
& Multiplied: undivided intensity given

Legend

- \longrightarrow $I_{\gamma} < 2\% \times I_{\gamma}^{\max}$
- \longrightarrow $I_{\gamma} < 10\% \times I_{\gamma}^{\max}$
- \longrightarrow $I_{\gamma} > 10\% \times I_{\gamma}^{\max}$

 $^{115}_{53}\text{I}_{62}$

1.3 min 2

(HI,xn γ) 1992Pa08,1994Pa23

(HI,xn γ) 1992Pa08,1994Pa23 (continued)