## $^{92}$Mo(n,n′), (n,n′γ) 2010Go15,2000Ga30,1975Sm04

| Type | Author | History Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | Coral M. Baglin | NDS 113, 2187 (2012) | 15-Sep-2012 |

Others: 1972Ad01 (n,n′γ); 1974Mc02 (n,n′); 1979Ra02 (n,n), E(n)=7-26 MeV; 1979Ha60 (n,n′γ), E(n)=14 MeV; 2000Sm10 (n,n′); 2000Ga46 (n,n′γ); 2009GoZZ (n,n′γ).

1972Ad01: E(n)=14.7 MeV; $T_{1/2}$(2761 level) from n′-(1509γ)(t) in (n,n′γ).

1974Mc02: E(n)=1.4-3.5 MeV, pulsed beam, tof; n′(θ) in (n,n′); Eγ, 90° γ-excitation functions in (n,n′γ), 1008γ(θ).

1975Sm04: E(n)=1.8-4.0 MeV, tof; σ(θ) in (n,n′), θ=20°−155°; optical- and statistical-model analyses.

2000Ga30: spallation neutrons from 800 MeV pulsed p bombardment of natural W; 99% enriched $^{92}$Mo metal target; GEANIE spectrometer (11 Compton-suppressed planar detectors at extreme forward and backward angles (Eγ<1 MeV events)); 15 HPGe detectors, 9 with Compton suppression shields, clustered around θ=90° ± 40° (Eγ<4 MeV events); measured excitation functions, Eγ, Iγ, γγ coin, beam-γ(t). See also 2000Ga46 for 244γ, 773γ, 1010γ, 1509γ, 1340γ, 2032γ excitation functions for E(n)≈2-200 MeV.

2000Sm10: E(n)=4.5-10 MeV, 0.5 MeV steps, FWHM≤500 keV; elemental Mo targets; θ(lab)≈17° to 160° (≥40 angles); measured elastic cross sections, observed inelastic scattering for several E(n) values (1510, 2282, 2519+2527, 2612, 2761+2850 and 3007+3064+3091 levels).

2010Go15, 2009GoZZ: (n,n′γ), fast reactor neutrons; 92.2% enriched $^{92}$Mo target; HPGe detector (FWHM=2.3 keV At 1.3 MeV); measured Eγ, Iγ, γ(θ) (7 angles, θ=90° −150°).

### $^{92}$Mo Levels

| E(level)[†] | Jπ[‡] | $T_{1/2}$ | Comments |
|---|---|---|---|
| 0.0 | $0^+$ | | |
| 1509.51 *3* | $2^+$ | | E(level): 1510 keV *10* in (n,n′). |
| 2282.61 *4* | $4^+$ | | E(level): 2280 keV *10* in (n,n′). |
| 2519.34 *5* | $0^+$[#] | | E(level): Probable unresolved doublet at 2520 keV *20* in (n,n′), dominated by $0^+$ level (1975Sm04). |
| 2526.93 *5* | | | |
| 2612.42 *7* | $6^+$ | | E(level): 2610 *20* from (n,n′) of 1975Sm04. |
| 2760.56 *15* | | 185 ns *5* | E(level): from Adopted Levels. Adopted $J^\pi=8^+$. $T_{1/2}$: from time distribution of 1509γ measured using a pulsed-beam technique. Weighted average of 184 ns *5* (1972Ad01) and 195 ns *13* (1979Ha60). |
| 2849.80 *5* | $3^-$ | | E(level): 2850 *20* from (n,n′). |
| 3006.92 *8* | | | |
| 3063.62 *6* | | | |
| 3091.35 *6* | $2^+$ | | E(level): probable unresolved triplet at 3050 keV *50* in (n,n′) with $2^+$ component dominant. |
| 3368.66 *6* | $(4^+)$ | | |
| 3542.32 *7* | | | |
| 3579.80 *6* | | | |
| 3621.07 *7* | | | |
| 3624.04 *17* | | | |
| 3688.77 *7* | | | |
| 3757.22 *10* | | | |
| 3814.58 *8* | | | |
| 3841.87 *12* | | | |
| 3876.62 *9* | | | |
| 3926.31 *9* | | | |
| 3944.92 *13* | | | |
| 3953.2 *4* | | | |
| 3963.19 *16* | | | |
| 4019.28 *11* | | | |
| 4115.81 *10* | | | |
| 4148.08 *15* | | | |
| 4150.36 *9* | | | |
| 4159.44 *15* | | | |

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## $^{92}$Mo(n,n′), (n,n′γ) 2010Go15,2000Ga30,1975Sm04 (continued)

### $^{92}$Mo Levels (continued)

| E(level)† | Jπ‡ | Comments |
|---|---|---|
| 4187.20 *18* | | |
| 4241.31 *16* | | |
| 4252.29? *20* | | |
| 4280.72 *13* | | |
| 4307.44 *10* | | |
| 4315.2 *4* | | |
| 4329.5? *13* | 7,8 | Jπ: favored by level population In (n,n′γ). |
| 4345.78 *19* | | |
| 4429.51 *12* | | |
| 4436.06 *13* | | |
| 4436.38 *16* | | |
| 4455.01 *14* | | |
| 4477.81 *18* | | |
| 4483.33 *22* | | |
| 4493.85 *17* | | |
| 4544.40 *17* | | |
| 4573.3 *3* | | |
| 4589.64 *23* | | |
| 4630.65 *19* | | |
| 4634.2 *8* | $1^{(-)}$ | |
| 4652.7 *3* | | |
| 4685.0 *3* | | |
| 4702.73 *24* | | |
| 4725.2 *3* | | |
| 4734.3? *3* | | |
| 4781.51 *21* | | |
| 4893.3 *3* | | |
| 4948.7 *3* | | |
| 4970.9 *7* | | |
| 5003.2 *3* | | |
| 5076.6 *3* | | |

† From least-squares fit to Eγ from (n,n′γ).
‡ The Jπ values shown here are values from Adopted Levels that are substantiated by comparison of measured and calculated (statistical model) (n,n′) cross sections (1975Sm04). see Adopted Levels for Jπ values for many more of the levels listed here.
# From 1974Mc02, based on near isotropy of 1008γ and strong anisotropy of n′(θ).

### γ($^{92}$Mo)

| Eγ† | Iγ‡ | Ei(level) | $J_i^\pi$ | Ef | $J_f^\pi$ | Comments |
|---|---|---|---|---|---|---|
| 85.25@ *20* | | 2612.42 | $6^+$ | 2526.93 | | |
| 148.14@ *13* | 0.24 *6* | 2760.56 | | 2612.42 | $6^+$ | |
| 157.03@ *11* | 0.034 *18* | 3006.92 | | 2849.80 | $3^-$ | absent In 2010Go15. Iγ from I(480γ)=3.4 *2* from 2010Go15 and I(157γ):I(480γ)=1.0 *5*:99.0 *5* (2000Ga30), allowing an additional 15% uncertainty In Iγ data from 2000Ga30. |
| 213.85@ *11* | 0.30 *3* | 3063.62 | | 2849.80 | $3^-$ | other Eγ: 214.3 *3* (2010Go15). I(214γ):I(537γ)=5 *1*:95 *1* (2000Ga30). Mult.: $A_2$=−0.2 *3*, $A_4$=+0.2 *3* (2010Go15). |
| 234.83@ *13* | 0.30 *3* | 3814.58 | | 3579.80 | | Eγ: 235.4 *4* from 2010Go15. Iγ: I(235γ):I(965γ)=21 *1*:43 *1* (2000Ga30). |

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## $^{92}$Mo(n,n′), (n,n′γ) 2010Go15,2000Ga30,1975Sm04 (continued)

### γ($^{92}$Mo) (continued)

| $E_\gamma$[†] | $I_\gamma$[‡] | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ | Mult.[#] | δ[#] | Comments |
|---|---|---|---|---|---|---|---|---|
| 244.30 *5* | 13.3 *6* | 2526.93 | | 2282.61 | $4^+$ | D(+Q) | <0.05 | Mult.: $A_2$=−0.175 *13*, $A_4$=+0.002 *17* (2010Go15). |
| 305.06 *3* | 1.42 *7* | 3368.66 | $(4^+)$ | 3063.62 | | D+Q | −0.73 *10* | other Eγ: 304.80 *10* (2000Ga30). Mult.: $A_2$=−0.05 *3*, $A_4$=+0.03 *6* (2010Go15). |
| 329.83 *5* | 1.53 *7* | 2612.42 | $6^+$ | 2282.61 | $4^+$ | (Q) | | Mult.: $A_2$=+0.42 *3*, $A_4$=−0.06 *4* (2010Go15). |
| 361.65[@] *11* | 0.39 *3* | 3368.66 | $(4^+)$ | 3006.92 | | D+Q | −0.44 *15* | I(362γ):I(305γ)=18 *1*:67 *1* (2000Ga30). Mult.: $A_2$=+0.06 *6*, $A_4$=+0.01 *9* (2010Go15). |
| 479.95[@] *11* | 3.4 *2* | 3006.92 | | 2526.93 | | D+Q | −0.10 *4* | other Eγ: 480.54 *2* (2010Go15); this fits placement poorly. Mult.: $A_2$=−0.01 *4*, $A_4$=0.00 *6* (2010Go15). |
| 536.69 *2* | 4.1 *3* | 3063.62 | | 2526.93 | | D+Q | +14 *3* | other Eγ: 536.85 *10* (2000Ga30). Mult.: $A_2$=−0.295 *15*, $A_4$=+0.094 *24* (2010Go15). |
| 567.3 *2* | 0.21 *3* | 2849.80 | $3^-$ | 2282.61 | $4^+$ | | | |
| 628.25[&] *11* | | 4252.29? | | 3624.04 | | | | γ absent In 2010Go15 so placement shown As uncertain here. |
| [x]729.2 *5* | 0.097 *14* | | | | | | | |
| 747.7 *9* | 0.074 *20* | 4115.81 | | 3368.66 | $(4^+)$ | | | |
| 773.09 *3* | 24.9 *11* | 2282.61 | $4^+$ | 1509.51 | $2^+$ | | | |
| [x]807.7 *3* | 0.119 *14* | | | | | | | tentatively placed from 3815 level In (p,p′γ). |
| 838.9 *2* | 0.155 *15* | 3688.77 | | 2849.80 | $3^-$ | | | |
| [x]857.0 *8* | 0.023 *19* | | | | | | | |
| [x]894.7 *13* | 0.039 *22* | | | | | | | |
| [x]898.5 *3* | 0.18 *2* | | | | | | | $E_\gamma$,$I_\gamma$: contaminated by γ from Pb. |
| 899.3[@] *5* | | 3963.19 | | 3063.62 | | | | May be the same As the unplaced contaminated Eγ=898.5 *3* line reported by 2010Go15. |
| 912.04[@] *12* | 0.232 *19* | 4280.72 | | 3368.66 | $(4^+)$ | | | |
| 964.59[@] *11* | 0.31 *3* | 3814.58 | | 2849.80 | $3^-$ | D(+Q) | | Mult.: $A_2$=−0.08 *8*, $A_4$=−0.05 *12* (2010Go15). δ: 0.00 *12* or −6 *+2−15* if J(3815)=2 (2010Go15). |
| 1009.82 *3* | 2.60 *11* | 2519.34 | $0^+$ | 1509.51 | $2^+$ | | | |
| [x]1031.6 *7* | 0.036 *17* | | | | | | | |
| 1052.88 *8* | 0.60 *3* | 3579.80 | | 2526.93 | | Q | | Mult.: $A_2$=+0.17 *5*, $A_4$=−0.01 *7* (2010Go15). |
| 1085.88[@] *11* | 0.33 *3* | 3368.66 | $(4^+)$ | 2282.61 | $4^+$ | D+Q | | $I_\gamma$: I(1086γ):I(305γ)=15 *1*:67 *1* (2000Ga30). Mult.: $A_2$=−0.04 *7*, $A_4$=−0.01 *11* (2010Go15). δ: −0.6 *2* or possibly +4 *+4−2* (2010Go15). |
| 1097.10 *16* | <0.49 | 3624.04 | | 2526.93 | | | | other Eγ: 1097.59 *16* (2000Ga30). Mult.: $A_2$=+0.2 *2*, $A_4$=−0.1 *2* (2010Go15). |
| 1113.2[@] *3* | | 3963.19 | | 2849.80 | $3^-$ | | | absent from 2010Go15. |
| 1122.9 *9* | 0.055 *23* | 4187.20 | | 3063.62 | | | | $E_\gamma$: 2000Ga30 report Eγ=1123.24 *15* for line with much stronger branch than this γ which 2010Go15 did not place. $I_\gamma$: I(1123γ):I(1905)=47 *1*:53 *1* (2000Ga30). |
| 1215.8 *7* | 0.067 *19* | 4307.44 | | 3091.35 | $2^+$ | | | |
| 1230.28 *8* | 0.28 *3* | 3757.22 | | 2526.93 | | | | |

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## $^{92}$Mo(n,n′), (n,n′γ) 2010Go15,2000Ga30,1975Sm04 (continued)

### γ($^{92}$Mo) (continued)

| $E_\gamma$ [†] | $I_\gamma$ [‡] | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ | Mult.[#] | δ[#] | Comments |
|---|---|---|---|---|---|---|---|---|
| 1266.06 *13* | 0.40 *3* | 4115.81 | | 2849.80 | 3⁻ | D+Q | +0.07 *4* | Mult.: $A_2$=−0.13 *5*, $A_4$=+0.05 *7* (2010Go15). |
| 1297.22 *9* | 0.52 *3* | 3579.80 | | 2282.61 | 4⁺ | D(+Q) | 0.00 *6* | $I_\gamma$: I(1297γ):I(1053γ)=39 *1*:47 *2* (2000Ga30). Mult.: $A_2$=−0.08 *5*, $A_4$=0.00 *8* (2010Go15). |
| 1300.91[@] *14* | 0.071 *15* | 4150.36 | | 2849.80 | 3⁻ | | | placement from 2010Go15; 2000Ga30 placed γ from 4308 level instead. $I_\gamma$: I(1301γ):I(2798)=22 *1*:43 *1* (2000Ga30) cf. 28 *6*:100 *12* here. |
| 1309.7 *8* | 0.036 *12* | 4159.44 | | 2849.80 | 3⁻ | | | |
| 1339.1[@] *5* | | 4345.78 | | 3006.92 | | | | not reported by 2010Go15; possibly unresolved from strong 1340γ. |
| 1340.26 *4* | 6.4 *3* | 2849.80 | 3⁻ | 1509.51 | 2⁺ | D+Q | −0.015 *10* | May include Eγ=1340.8 *4* placed by 2000Ga30 from 3943 level. Mult.: $A_2$=−0.235 *10*, $A_4$=−0.008 *16* (2010Go15). |
| 1340.8[@] *4* | | 3953.2 | | 2612.42 | 6⁺ | | | not reported by 2010Go15, but May not have been resolved from 1340.26γ In that study. |
| [x]1343.6 *2* | 0.20 *3* | | | | | | | |
| 1365.6[@&] *3* | | 4734.3? | | 3368.66 | (4⁺) | | | absent In 2010Go15 so placement shown As uncertain here. |
| 1371.91[@] *24* | 0.08 *2* | 4436.06 | | 3063.62 | | | | $I_\gamma$: I(1372γ):I(2154)=13 *1*:45 *1* (2000Ga30). |
| 1391.31[@] *16* | 0.11 *2* | 4455.01 | | 3063.62 | | | | |
| 1429.45[@] *14* | 0.26 *2* | 4436.38 | | 3006.92 | | | | $I_\gamma$: I(1429γ):I(2154)=42 *1*:45 *1* (2000Ga30). Mult.: $A_2$=+0.08 *15*, $A_4$=+0.09 *23* (2010Go15). |
| 1457.57 *13* | ≈0.24 | 4307.44 | | 2849.80 | 3⁻ | D(+Q) | | $I_\gamma$: I(1457γ):I(2798)=35 *1*:43 *1* (2000Ga30). Mult.: $A_2$=−0.09 *6*, $A_4$=−0.08 *8* (2010Go15). δ: −0.02 *+9−11* or −5 *+2−5* if J(4308)=2; +0.14 *5* if J(4308)=4 (2010Go15). |
| 1492.33 *9* | <0.76 | 4019.28 | | 2526.93 | | | | Mult.: $A_2$=+0.15 *4*, $A_4$=+0.03 *7* (2010Go15). |
| [x]1503.30 *5* | ≤1.09 | | | | | | | |
| 1509.50 *3* | 100 | 1509.51 | 2⁺ | 0.0 | 0⁺ | Q | | Mult.: $A_2$=+0.284 *12*, $A_4$=−0.031 *17* (2010Go15). |
| [x]1565.6 *8* | 0.030 *15* | | | | | | | |
| 1568.9[&] *13* | 0.034 *15* | 4329.5? | 7,8 | 2760.56 | | | | |
| 1574.6 *6* | 0.048 *15* | 4187.20 | | 2612.42 | 6⁺ | | | |
| 1579.27[@] *22* | 0.142 *17* | 4429.51 | | 2849.80 | 3⁻ | D(+Q) | +0.3 *+1−4* | $I_\gamma$: I(1579γ):I(2147)=36 *1*:45 *1* (2000Ga30). Mult.: $A_2$=+0.41 *19*, $A_4$=−0.02 *25* (2010Go15). |
| 1581.83 *7* | 0.73 *4* | 3091.35 | 2⁺ | 1509.51 | 2⁺ | D(+Q) | | I(1582γ):I(3091γ)=21 *3*:79 *3* (2000Ga30). Mult.: $A_2$=+0.14 *5*, $A_4$=−0.11 *7* (2010Go15). δ: +2.5 *+6−4* or possibly −0.04 *+7−6* (2010Go15). |
| 1589.00[@] *19* | 0.090 *16* | 4115.81 | | 2526.93 | | | | $I_\gamma$: I(1589γ):I(1833γ)=38 *1*:62 *1* (2000Ga30). |
| 1593.76[@] *13* | 0.23 *2* | 3876.62 | | 2282.61 | 4⁺ | | | other Eγ: 1594.1 *2* from 2010Go15. |

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## $^{92}$Mo(n,n′), (n,n′γ) 2010Go15,2000Ga30,1975Sm04 (continued)

### γ($^{92}$Mo) (continued)

| $E_\gamma$ [†] | $I_\gamma$ [‡] | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ | Mult.[#] | δ[#] | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | $I_\gamma$: I(1594γ):I(2367γ)=27 *1*:73 *1* (2000Ga30). |
| [x]1599.8 *8* | 0.087 *15* | | | | | | | |
| 1612.5 *11* | 0.040 *17* | 4702.73 | | 3091.35 | $2^+$ | | | |
| [x]1619.2 *5* | 0.105 *17* | | | | | | | |
| 1623.15[@] *17* | 0.16 *2* | 4150.36 | | 2526.93 | | D+Q | −0.9 *+4−8* | $I_\gamma$: I(1623γ):I(1868)=20 *1*:80 *1* (2000Ga30). Mult.: $A_2$=+0.45 *22*, $A_4$=−0.04 *28* (2010Go15). |
| 1628.87[@] *14* | 0.21 *2* | 4241.31 | | 2612.42 | $6^+$ | D(+Q) | | Mult.: $A_2$=−0.13 *11*, $A_4$=0.00 *17* (2010Go15). |
| 1632.49[@] *14* | 0.22 *2* | 4159.44 | | 2526.93 | | D(+Q) | +0.3 *+4−3* | Mult.: $A_2$=+0.47 *14*, $A_4$=−0.09 *18* (2010Go15). |
| 1643.9 *5* | 0.114 *11* | 3926.31 | | 2282.61 | $4^+$ | | | Mult.: $A_2$=+0.1 *2*, $A_4$=0.0 *3* (2010Go15). |
| [x]1660.1 *4* | 0.133 *18* | | | | | | | |
| 1661.4[@] *3* | ≤0.163 | 4725.2 | | 3063.62 | | | | |
| [x]1669.5 *5* | 0.118 *18* | | | | | | | |
| 1677.5 *13* | 0.069 *17* | 4685.0 | | 3006.92 | | | | |
| 1703.3 *4* | 0.149 *12* | 4315.2 | | 2612.42 | $6^+$ | | | $E_\gamma$: weighted average of 1703.47 *28* (2000Ga30) and 1702.3 *6* (2010Go15). Unweighted average is 1702.9 *6*. |
| [x]1717.3 *9* | 0.052 *10* | | | | | | | |
| [x]1733.6 *16* | 0.032 *18* | | | | | | | |
| [x]1739.2 *6* | 0.128 *19* | | | | | | | |
| [x]1761.7 *8* | 0.083 *12* | | | | | | | |
| 1787.3 *5* | 0.128 *14* | 4315.2 | | 2526.93 | | | | |
| 1802.8 *6* | 0.023 *11* | 4652.7 | | 2849.80 | $3^-$ | | | |
| [x]1819.9 *3* | 0.119 *14* | | | | | | | |
| 1832.99[@] *15* | 0.179 *18* | 4115.81 | | 2282.61 | $4^+$ | D(+Q) | +0.4 *5* | Mult.: $A_2$=+0.51 *10*, $A_4$=+0.01 *12* (2010Go15). |
| [x]1837.6 *8* | 0.036 *16* | | | | | | | |
| 1858.5 *7* | 0.068 *17* | 3368.66 | $(4^+)$ | 1509.51 | $2^+$ | Q | | Mult.: $A_2$=+0.3 *2*, $A_4$=−0.1 *3* (2010Go15). |
| [x]1863.8 *5* | 0.126 *17* | | | | | | | May be the same As Eγ=1864.86 *25* line reported by 2000Ga30, but energy match is poor. |
| [x]1864.86[@] *25* | | | | | | | | placed from 4148 level by 2000Ga30 but placement not adopted by 2010Go15. |
| 1864.86 *23* | 0.14 *3* | 4148.08 | | 2282.61 | $4^+$ | | | $I_\gamma$: from I(2639γ)=0.168 *17* In 2010Go15 and I(1865γ):I(2639γ)=46 *1*:54 *1* (2000Ga30) At 90°, allowing additional 15% uncertainty In data from 2000Ga30. Iγ consistent with Iγ=0.126 *17* from 2010Go15 for unplaced Eγ=1863.8 *5* line, but energy match is poor. |
| 1867.58 *12* | 0.53 *3* | 4150.36 | | 2282.61 | $4^+$ | D(+Q) | −0.08 *12* | Mult.: $A_2$=+0.27 *5*, $A_4$=+0.01 *8* (2010Go15). |
| 1904.61[@] *18* | 0.201 *15* | 4187.20 | | 2282.61 | $4^+$ | Q | | Mult.: $A_2$=+0.41 *9*, $A_4$=−0.06 *11* (2010Go15). |
| [x]1928.4 *6* | 0.045 *12* | | | | | | | |
| 1940.8 *6* | 0.085 *18* | 4948.7 | | 3006.92 | | | | |
| [x]1944.6 *6* | 0.065 *17* | | | | | | | |
| 1951.4 *10* | 0.039 *17* | 4477.81 | | 2526.93 | | | | |
| 1956.37[@] *21* | 0.088 *17* | 4483.33 | | 2526.93 | | | | |
| [x]1963.0 *6* | 0.059 *17* | | | | | | | |

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## $^{92}$Mo(n,n′), (n,n′γ) 2010Go15,2000Ga30,1975Sm04 (continued)

### γ($^{92}$Mo) (continued)

| $E_\gamma$ [†] | $I_\gamma$ [‡] | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ | Mult. [#] | Comments |
|---|---|---|---|---|---|---|---|
| 1998.3 *5* | 0.035 *11* | 4280.72 | | 2282.61 | $4^+$ | | Mult.: $A_2$=+0.10 *10*, $A_4$=+0.03 *14* (2010Go15). |
| [x]2009.0 *8* | 0.069 *10* | | | | | | |
| [x]2016.7 *15* | 0.047 *9* | | | | | | |
| [x]2023.9 *5* | 0.044 *9* | | | | | | |
| 2032.80 *6* | 2.06 *9* | 3542.32 | | 1509.51 | $2^+$ | D+Q | Mult.: $A_2$=−0.187 *16*, $A_4$=+0.015 *26* (2010Go15).<br>δ: −0.80 *7* or possibly −3.7 *7* (2010Go15). |
| [x]2039.9 *7* | 0.083 *11* | | | | | | |
| [x]2048.3 *7* | 0.030 *10* | | | | | | |
| 2063.1 *2* | 0.170 *17* | 4345.78 | | 2282.61 | $4^+$ | | |
| 2070.21 *9* | ≈0.20 | 3579.80 | | 1509.51 | $2^+$ | | other Eγ: 2070.43 *13* (2000Ga30).<br>$I_\gamma$: I(2070γ):I(1053γ)=14 *1*:47 *2* (2000Ga30). |
| [x]2075.0 *5* | 0.100 *17* | | | | | | |
| 2111.53 *6* | 1.32 *6* | 3621.07 | | 1509.51 | $2^+$ | D(+Q) | Mult.: $A_2$=+0.36 *3*, $A_4$=−0.09 *4* (2010Go15).<br>δ: +0.3<δ<+1.3 if J(3621 level)=2 (2010Go15). |
| 2147.08[@] *14* | 0.150 *16* | 4429.51 | | 2282.61 | $4^+$ | D+Q | Mult.: $A_2$=−0.34 *11*, $A_4$=−0.08 *18* (2010Go15).<br>δ: +0.25 *14* or +8 *+70−4* (2010Go15). |
| 2153.59[@] *14* | 0.170 *17* | 4436.06 | | 2282.61 | $4^+$ | D+Q | Mult.: $A_2$=−0.45 *13*, $A_4$=+0.15 *17* (2010Go15). |
| 2158.1[@] *3* | 0.080 *16* | 4685.0 | | 2526.93 | | D+Q | Mult.: $A_2$=−0.4 *2*, $A_4$=0.0 *3* (2010Go15). |
| 2172.50[@] *23* | 0.083 *11* | 4455.01 | | 2282.61 | $4^+$ | | $I_\gamma$: I(2173γ):I(1391)=37 *1*:63 *1* (2000Ga30). |
| 2179.24 *6* | 0.98 *4* | 3688.77 | | 1509.51 | $2^+$ | D(+Q) | Mult.: $A_2$=+0.19 *3*, $A_4$=−0.01 *4* (2010Go15).<br>δ: −0.02 *6* or +2.5 *5* if J(3689)=2; +0.35 *4* if J(3689)=3 (2010Go15). |
| 2195.15 *17* | 0.206 *15* | 4477.81 | | 2282.61 | $4^+$ | D+Q | other Eγ: 2195.54 *14* from 2000Ga30).<br>Mult.: $A_2$=−0.10 *9*, $A_4$=−0.04 *15* (2010Go15). |
| [x]2233.8 *4* | 0.119 *10* | | | | | | |
| [x]2235.9 *17* | 0.031 *7* | | | | | | |
| 2261.76[@] *16* | 0.142 *15* | 4544.40 | | 2282.61 | $4^+$ | | Mult.: $A_2$=+0.14 *14*, $A_4$=−0.02 *19* (2010Go15). |
| [x]2268.3 *13* | 0.035 *15* | | | | | | |
| [x]2287.0 *10* | 0.064 *11* | | | | | | |
| 2305.20 *12* | 0.33 *2* | 3814.58 | | 1509.51 | $2^+$ | D(+Q) | $I_\gamma$: I(2305γ):I(965γ)=36 *1*:43 *1* (2000Ga30).<br>Mult.: $A_2$=+0.22 *6*, $A_4$=+0.01 *8* (2010Go15).<br>δ: −0.01 *+15−11* or +2.3 *+9−7* if J(3815)=2 (2010Go15). |
| 2332.33 *11* | 0.34 *2* | 3841.87 | | 1509.51 | $2^+$ | | Mult.: $A_2$=0.00 *5*, $A_4$=0.00 *8* (2010Go15). |
| [x]2341.4 *13* | 0.040 *10* | | | | | | |
| 2348.6 *11* | 0.024 *10* | 4630.65 | | 2282.61 | $4^+$ | | |
| 2367.22 *10* | 0.70 *3* | 3876.62 | | 1509.51 | $2^+$ | Q | Mult.: $A_2$=+0.37 *4*, $A_4$=−0.08 *5* (2010Go15). |
| 2416.76 *12* | 0.46 *2* | 3926.31 | | 1509.51 | $2^+$ | D+Q | Mult.: $A_2$=+0.37 *4*, $A_4$=−0.01 *6* (2010Go15).<br>δ: +0.30 *+17−10* or +1.15 *26* (2010Go15). |
| 2443.8 *10* | 0.056 *9* | 4725.2 | | 2282.61 | $4^+$ | | |
| 2453.77 *20* | 0.166 *13* | 3963.19 | | 1509.51 | $2^+$ | | Mult.: $A_2$=+0.02 *10*, $A_4$=+0.01 *14* (2010Go15). |
| [x]2569.4 *16* | 0.045 *11* | | | | | | |
| [x]2632.0 *10* | 0.048 *15* | | | | | | |
| 2638.53[@] *16* | 0.168 *17* | 4148.08 | | 1509.51 | $2^+$ | D | Mult.: $A_2$=−0.10 *10*, $A_4$=0.00 (2010Go15). |
| 2666.1[@] *5* | 0.035 *15* | 4948.7 | | 2282.61 | $4^+$ | | |
| [x]2753.4 *8* | 0.063 *18* | | | | | | |
| 2793.5 *18* | 0.027 *16* | 5076.6 | | 2282.61 | $4^+$ | | |
| 2797.94 *13* | 0.25 *3* | 4307.44 | | 1509.51 | $2^+$ | D(+Q) | Mult.: $A_2$=+0.27 *9*, $A_4$=+0.02 *10* (2010Go15).<br>δ: +0.1 *+4−2* or +1.7 *+11−9* if J(4308)=2 (2010Go15). |
| [x]2803.4 *6* | 0.094 *18* | | | | | | |
| [x]2831.6 *8* | 0.085 *13* | | | | | | |
| [x]2891.1 *10* | 0.062 *15* | | | | | | |
| 2919.84 *23* | 0.063 *14* | 4429.51 | | 1509.51 | $2^+$ | | $I_\gamma$: absent In 2010Go15. Iγ from I(2147) here and I(2920γ):I(2147)=19 *1*:45 *1* (2000Ga30), allowing additional 15% uncertainty In Iγ data from 2000Ga30. |
| [x]2925.2 *10* | 0.047 *18* | | | | | | |

Continued on next page (footnotes at end of table)

## $^{92}$Mo(n,n′), (n,n′γ) 2010Go15,2000Ga30,1975Sm04 (continued)

### γ($^{92}$Mo) (continued)

| $E_\gamma$ [†] | $I_\gamma$ [‡] | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ | Mult.[#] | Comments |
|---|---|---|---|---|---|---|---|
| 2984.29 *17* | 0.30 *3* | 4493.85 | | 1509.51 | $2^+$ | D+Q | Mult.: $A_2$=+0.31 *7*, $A_4$=0.00 *10* (2010Go15).<br>δ: +0.23 *+24−15* or +1.3 *+5−6* (2010Go15). |
| 3063.75[@] *25* | 0.085 *14* | 4573.3 | | 1509.51 | $2^+$ | | |
| 3080.05[@] *24* | 0.147 *20* | 4589.64 | | 1509.51 | $2^+$ | | Mult.: $A_2$=+0.08 *19*, $A_4$=+0.01 *24* (2010Go15).<br>δ: 0.0 +6+12 or 1/(+0.3 *+16−7*) (2010Go15). |
| 3091.30 *8* | 3.7 *4* | 3091.35 | $2^+$ | 0.0 | $0^+$ | Q | other Eγ: 3091.50 *13* (2000Ga30).<br>Mult.: $A_2$=+0.293 *12*, $A_4$=−0.028 *17* (2010Go15). |
| 3121.07[@] *19* | 0.19 *3* | 4630.65 | | 1509.51 | $2^+$ | | Mult.: $A_2$=+0.43 *19*, $A_4$=−0.08 *23* (2010Go15). |
| 3143.1[@] *3* | 0.078 *14* | 4652.7 | | 1509.51 | $2^+$ | | |
| 3193.11 *24* | 0.127 *18* | 4702.73 | | 1509.51 | $2^+$ | | |
| 3271.94[@] *20* | 0.22 *3* | 4781.51 | | 1509.51 | $2^+$ | | Mult.: $A_2$=+0.24 *11*, $A_4$=+0.06 *13* (2010Go15). |
| 3383.7[@] *3* | 0.118 *17* | 4893.3 | | 1509.51 | $2^+$ | | |
| [x]3406.6 *13* | 0.074 *14* | | | | | | |
| 3439.8[@] *5* | 0.019 *5* | 4948.7 | | 1509.51 | $2^+$ | | |
| 3461.3 *7* | 0.09 *2* | 4970.9 | | 1509.51 | $2^+$ | | Eγ: unweighted average of 3461.9 *4* (2000Ga30) and 3460.6 *8* (2010Go15). |
| 3493.6[@] *3* | 0.135 *19* | 5003.2 | | 1509.51 | $2^+$ | | |
| 3541.96[@] *24* | 0.29 *3* | 3542.32 | | 0.0 | $0^+$ | Q | Mult.: $A_2$=+0.30 *10*, $A_4$=−0.09 *12* (2010Go15). |
| 3567.0[@] *3* | ≈0.16 | 5076.6 | | 1509.51 | $2^+$ | | |
| [x]3663.0 *12* | 0.10 *2* | | | | | | |
| [x]3691.4 *12* | 0.07 *2* | | | | | | |
| 3926.22 *13* | 0.84 *9* | 3926.31 | | 0.0 | $0^+$ | Q | Mult.: $A_2$=+0.31 *3*, $A_4$=−0.06 *4* (2010Go15). |
| 3944.83 *13* | 0.60 *7* | 3944.92 | | 0.0 | $0^+$ | D | Mult.: $A_2$=−0.11 *3*, $A_4$=0.00 *5* (2010Go15). |
| 4148.0 *4* | 0.21 *3* | 4148.08 | | 0.0 | $0^+$ | D | Mult.: $A_2$=−0.10 *8*, $A_4$=0.00 *12* (2010Go15).<br>γ not reported by 2000Ga30 but Eγ probably exceeds E cutoff for that study. |
| 4493.7 *6* | ≤0.13 | 4493.85 | | 0.0 | $0^+$ | Q | Mult.: $A_2$=+0.28 *9*, $A_4$=−0.06 *12* (2010Go15). |
| 4589.7 *7* | 0.16 *3* | 4589.64 | | 0.0 | $0^+$ | Q | Mult.: $A_2$=+0.13 *18*, $A_4$=−0.09 *25* (2010Go15). |
| 4634.1 *8* | 0.23 *3* | 4634.2 | $1^{(-)}$ | 0.0 | $0^+$ | D | Mult.: $A_2$=−0.08 *14*, $A_4$=0.00 *20* (2010Go15). |
| 5003.3 *6* | ≤0.25 | 5003.2 | | 0.0 | $0^+$ | | |

[†] From 2010Go15, except As noted.
[‡] Iγ(125°) relative to I(1510γ)=100 from 2010Go15; corrected for self-absorption In target. 2000Ga30 report % photon branching from parent level obtained from the summed intensities from detectors grouped towards 90° and these are given In comments; their quoted uncertainties do not include a possible 15% uncertainty arising from angular distribution effects.
[#] From γ(θ) (2010Go15).
[@] From 2000Ga30; a systematic uncertainty of 0.1 keV has been combined In quadrature with the authors′ stated statistical uncertainty.
[&] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

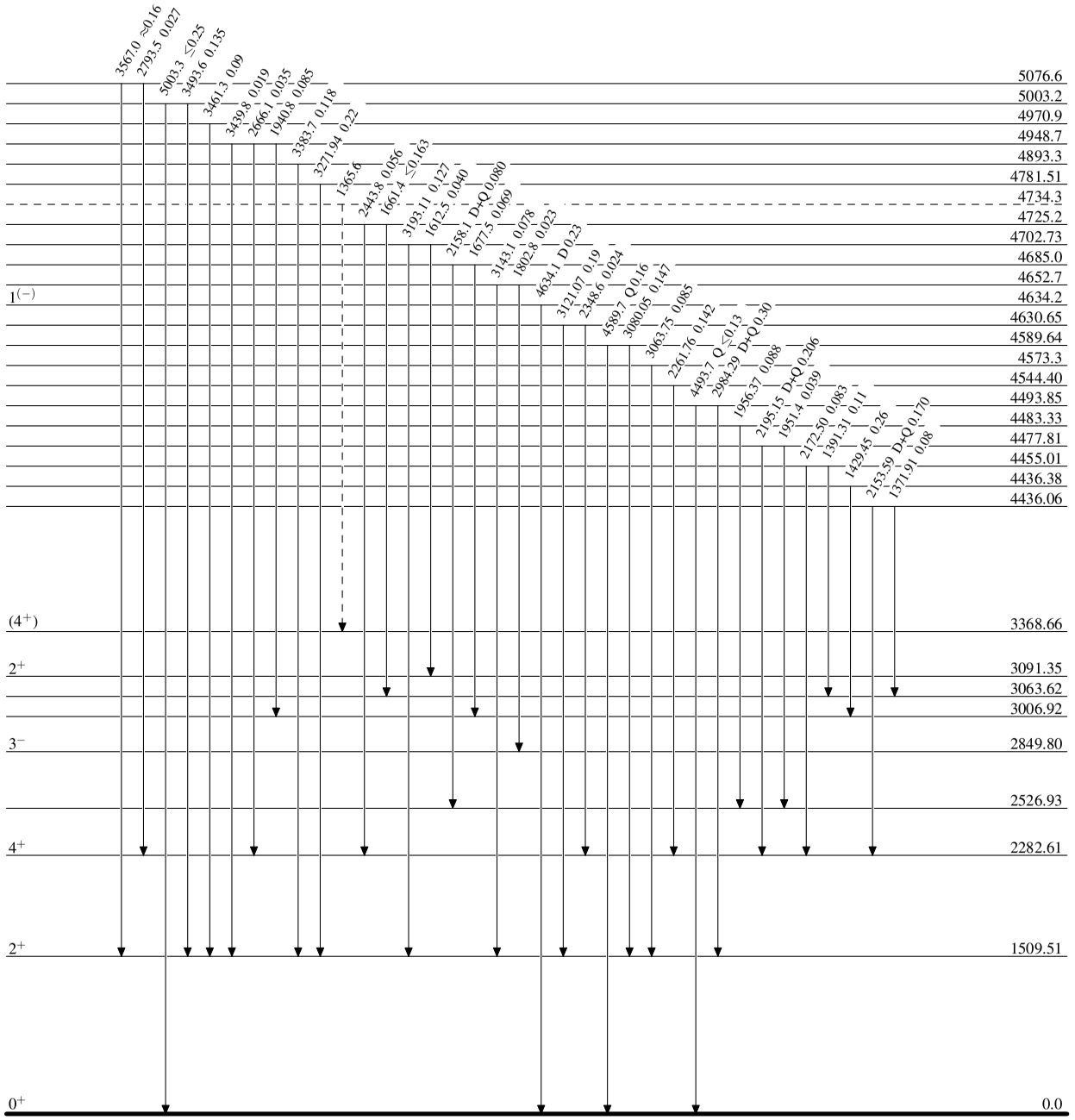
## $^{92}$Mo(n,n′), (n,n′γ) 2010Go15,2000Ga30,1975Sm04

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)

Level Scheme

Intensities: Relative $I_\gamma$




$^{92}_{42}Mo_{50}$

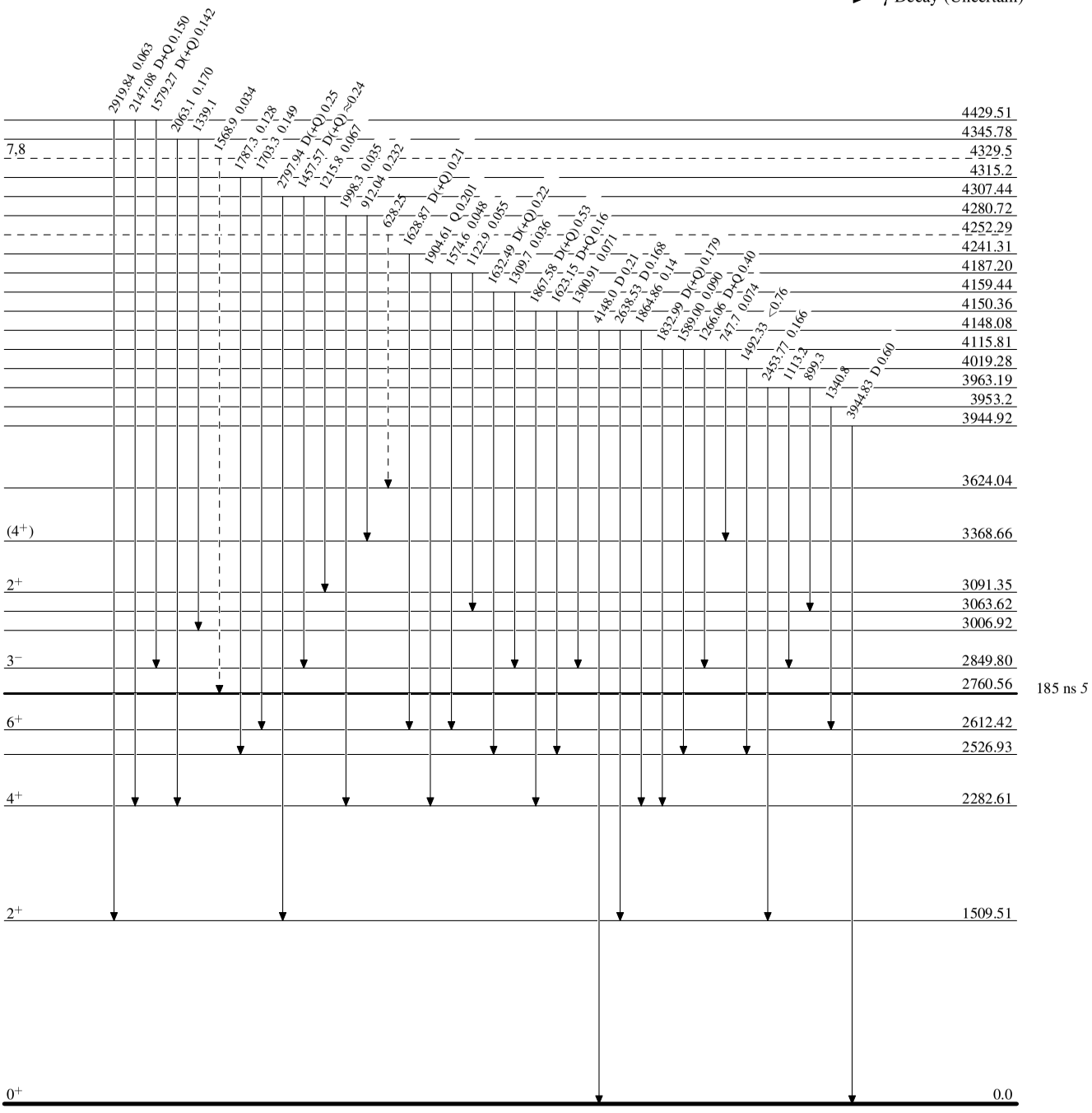
## $^{92}$Mo(n,n′), (n,n′γ) 2010Go15,2000Ga30,1975Sm04

Level Scheme (continued)

Intensities: Relative $I_\gamma$

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)

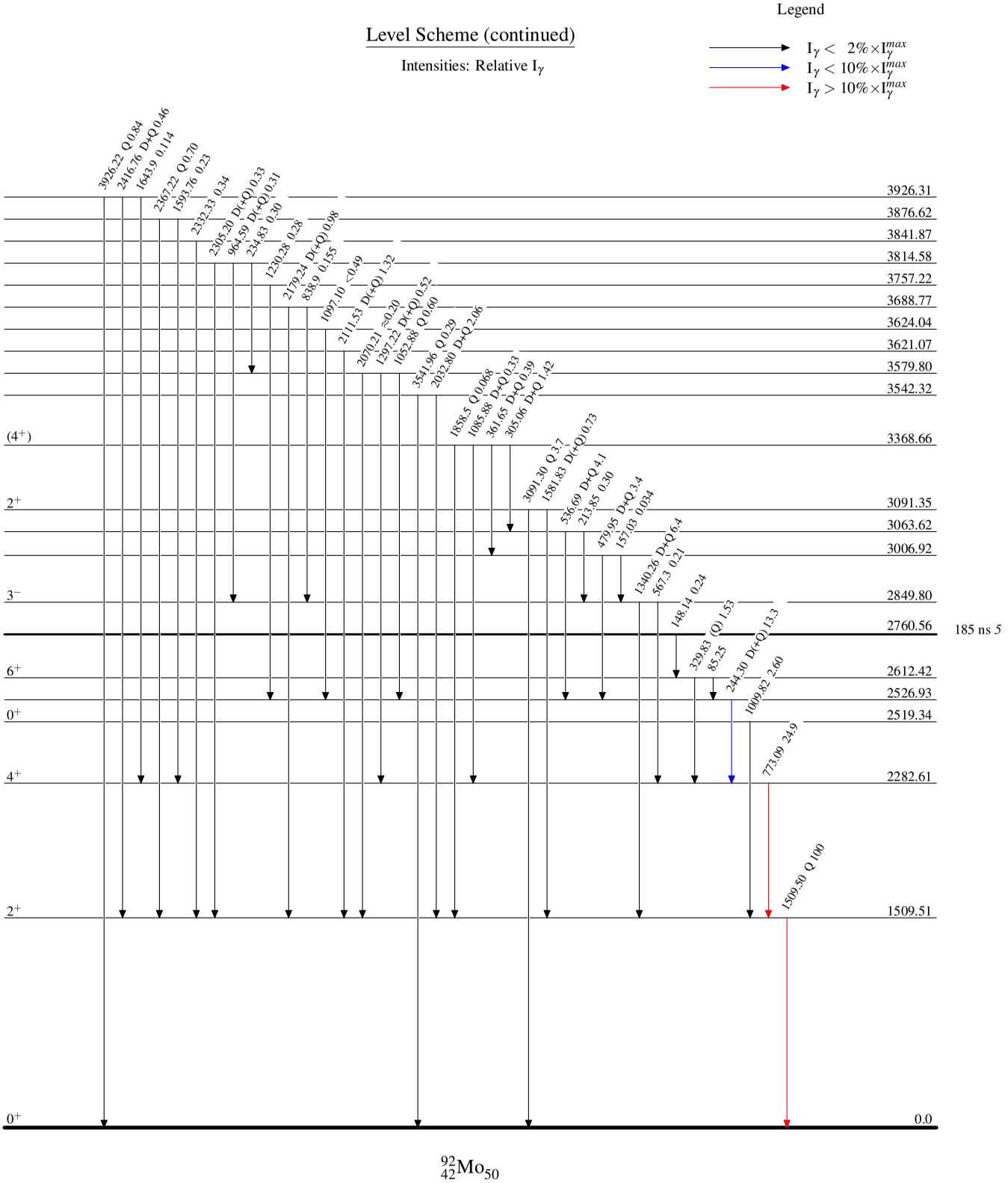



$^{92}_{42}Mo_{50}$

## $^{92}$Mo(n,n′), (n,n′γ) 2010Go15,2000Ga30,1975Sm04

### Level Scheme (continued)

Intensities: Relative $I_\gamma$




$^{92}_{42}Mo_{50}$