

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen		NDS 116, 1 (2014)	31-Dec-2013

$Q(\beta^-) = -11480$ SY; $S(n) = 11080$ SY; $S(p) = 3780$ SY; $Q(\alpha) = -1.54 \times 10^3$ 17 [2012Wa38](#)

Estimated uncertainties ([2012Wa38](#)): $\Delta Q(\beta^-) = \Delta S(n) = 400$, $\Delta S(p) = 300$.

$Q(\epsilon p) = 6622$ 17, $S(2n) = 26970$ 400 (syst), $S(2p) = 6177$ 17 ([2012Wa38](#)).

[1976HaXI](#): measurement of delayed protons from ^{85}Mo . Measured half-life of ^{85}Mo .

[1992Ye04](#): Identification of ^{85}Mo in $^{58}\text{Ni}(^{92}\text{Mo}, X)$ reaction at 70 MeV/nucleon; measured fragment mass, charge, time-of-flight, A1200 beam analysis device.

[1997Hu15](#), [1999Hu05](#): ^{85}Mo formed in $^{58}\text{Ni}(^{32}\text{S}, X)$ at 170 MeV. Delayed proton spectra measured using surface-barrier detectors. Measured half-life, deduced delayed proton branching.

[2000WeZZ](#): Fragmentation of ^{112}Sn beam at 1 GeV/nucleon with a beryllium target, FRS spectrometer at GSI facility, measured half-life.

Mass measurement: [2011Ha08](#) (Penning-trap mass spectrometer SHIPTRAP).

[Additional information 1](#).

 ^{85}Mo LevelsCross Reference (XREF) Flags

A $^{58}\text{Ni}(^{32}\text{S}, \alpha n \gamma)$

E(level) [‡]	J ^π [†]	T _{1/2}	XREF	Comments
0.0	(1/2 ⁻)	3.2 s 2		$\% \epsilon + \% \beta^+ = 100$; $\% \epsilon p \approx 0.14$ 2 (1999Hu05) $\% \epsilon p$ estimated from measured half-life and predicted half-life for delayed proton decay. T _{1/2} : from timing of 540γ in ^{84}Zr populated in ϵp decay of ^{85}Mo (1999Hu05 , also 1997Hu15 , 2005Xu04). Others: 5.6 s (1976HaXI) in delayed proton study, 6.3 s +13-10 from β events correlated with ^{85}Mo fragments (2000WeZZ). Additional information 2 . J ^π : 1/2 ⁻ suggested by 1999Hu05 from comparison of measured delayed proton spectrum and statistical calculations, but 1/2 ⁺ is also shown in authors' later paper: 2005Xu04 . Others: 1/2 ⁻ (systematics, 2002Ma11), 3/2 ⁺ (predicted, 1997Mo25).
0+x ^{&}	(5/2 ⁻)		A	E(level): x ≈ 30 to 40 keV (from systematics).
0+y [#]	(9/2 ⁺)		A	E(level): y ≈ 150 (from systematics).
306.70+x [@] 24	(7/2 ⁻)		A	
667.20+x ^{&} 24	(9/2 ⁻)		A	
754.8+y [#] 3	(13/2 ⁺)		A	
1030.1+x [@] 3	(11/2 ⁻)		A	
1528.8+x ^{&} 4	(13/2 ⁻)		A	
1707.1+y [#] 5	(17/2 ⁺)		A	
1925.6+x [@] 4	(15/2 ⁻)		A	
2541.7+x ^{&} 5	(17/2 ⁻)		A	
2808.9+y [#] 6	(21/2 ⁺)		A	
2947.5+x [@] 5	(19/2 ⁻)		A	
3332.3+x 5			A	
3651.3+y [#] 6	(25/2 ⁺)		A	
4026.9+x [@] 6	(23/2 ⁻)		A	
4197.3+x 6			A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) ^{85}Mo Levels (continued)

<u>E(level)[‡]</u>	<u>J^π[†]</u>	<u>XREF</u>
4530.4+y [#] 7	(29/2 ⁺)	A
5599.6+y [#] 8	(33/2 ⁺)	A

[†] Assignments are from 2002Ma11 and are based on observed $\gamma\gamma$ -cascades and the systematic behavior of the band structures of known N=43 isotopes.

[‡] From least-squares fit to E γ data, assuming $\Delta(E\gamma)=0.3$ keV for each γ ray.

[#] Band(A): $\nu 5/2[422]$, $\alpha=+1/2$. Backbend at $\hbar\omega\approx 0.50$ MeV due to the alignment of $\pi g_{9/2}$ pair.

@ Band(B): $\nu 5/2[303]$, $\alpha=-1/2$. Backbend at $\hbar\omega\approx 0.5$ MeV due to the alignment of $\pi g_{9/2}$ pair.

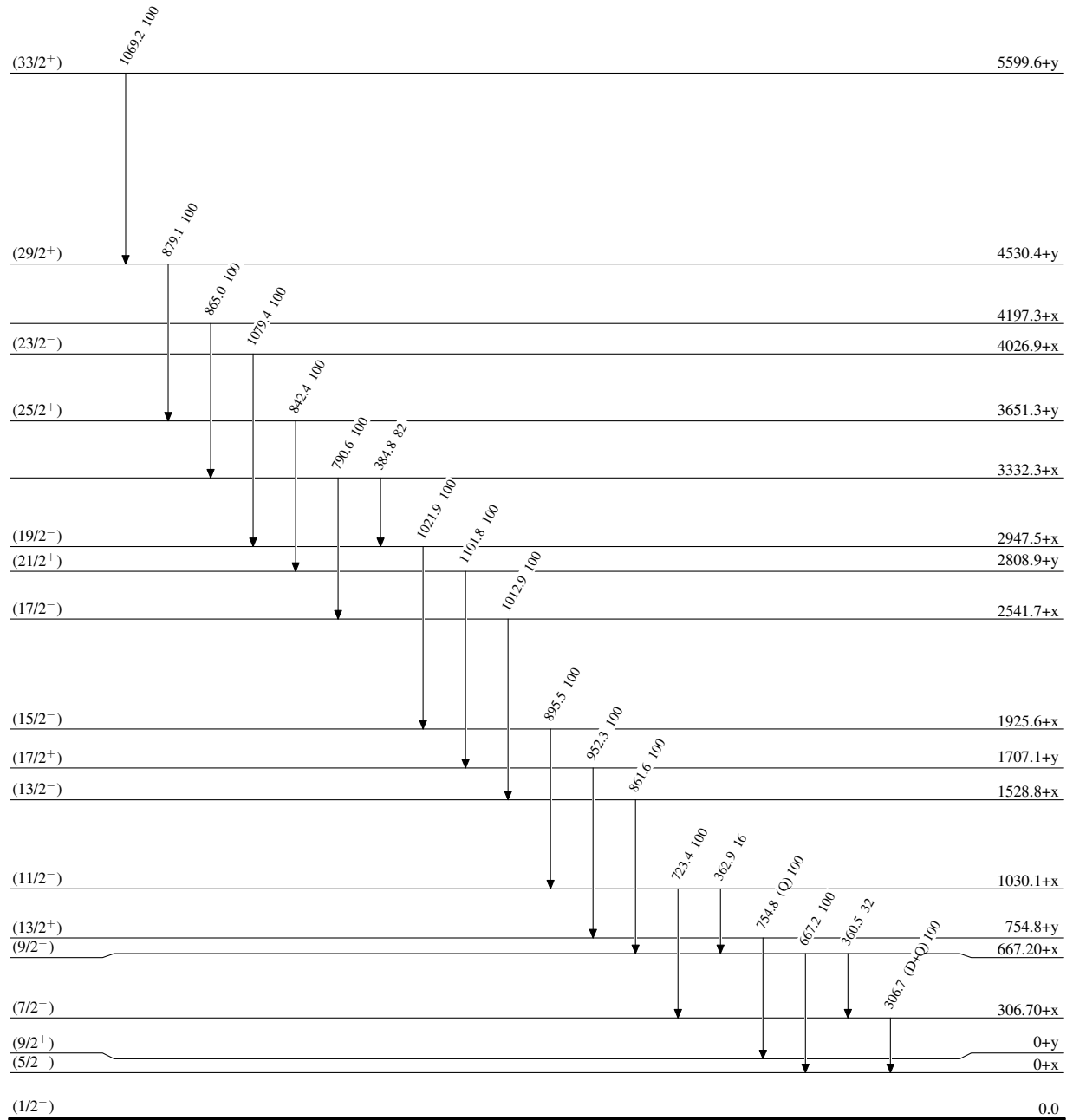
& Band(b): $\nu 5/2[303]$, $\alpha=+1/2$.

<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_γ</u>	<u>I_γ</u>	<u>E_f</u>	<u>J_f^π</u>	<u>γ(⁸⁵Mo)</u>
						<u>Mult.[†]</u>
306.70+x	(7/2 ⁻)	306.7	100	0+x	(5/2 ⁻)	(D+Q)
667.20+x	(9/2 ⁻)	360.5	32 12	306.70+x	(7/2 ⁻)	
		667.2	100 18	0+x	(5/2 ⁻)	
754.8+y	(13/2 ⁺)	754.8	100	0+y	(9/2 ⁺)	(Q)
1030.1+x	(11/2 ⁻)	362.9	16 4	667.20+x	(9/2 ⁻)	
		723.4	100 12	306.70+x	(7/2 ⁻)	
1528.8+x	(13/2 ⁻)	861.6	100	667.20+x	(9/2 ⁻)	
1707.1+y	(17/2 ⁺)	952.3	100	754.8+y	(13/2 ⁺)	
1925.6+x	(15/2 ⁻)	895.5	100	1030.1+x	(11/2 ⁻)	
2541.7+x	(17/2 ⁻)	1012.9	100	1528.8+x	(13/2 ⁻)	
2808.9+y	(21/2 ⁺)	1101.8	100	1707.1+y	(17/2 ⁺)	
2947.5+x	(19/2 ⁻)	1021.9	100	1925.6+x	(15/2 ⁻)	
3332.3+x		384.8	82 18	2947.5+x	(19/2 ⁻)	
		790.6	100 27	2541.7+x	(17/2 ⁻)	
3651.3+y	(25/2 ⁺)	842.4	100	2808.9+y	(21/2 ⁺)	
4026.9+x	(23/2 ⁻)	1079.4	100	2947.5+x	(19/2 ⁻)	
4197.3+x		865.0	100	3332.3+x		
4530.4+y	(29/2 ⁺)	879.1	100	3651.3+y	(25/2 ⁺)	
5599.6+y	(33/2 ⁺)	1069.2	100	4530.4+y	(29/2 ⁺)	

[†] From $\gamma(\text{ADO})$ ratios in (³²S, $\alpha\text{n}\gamma$).

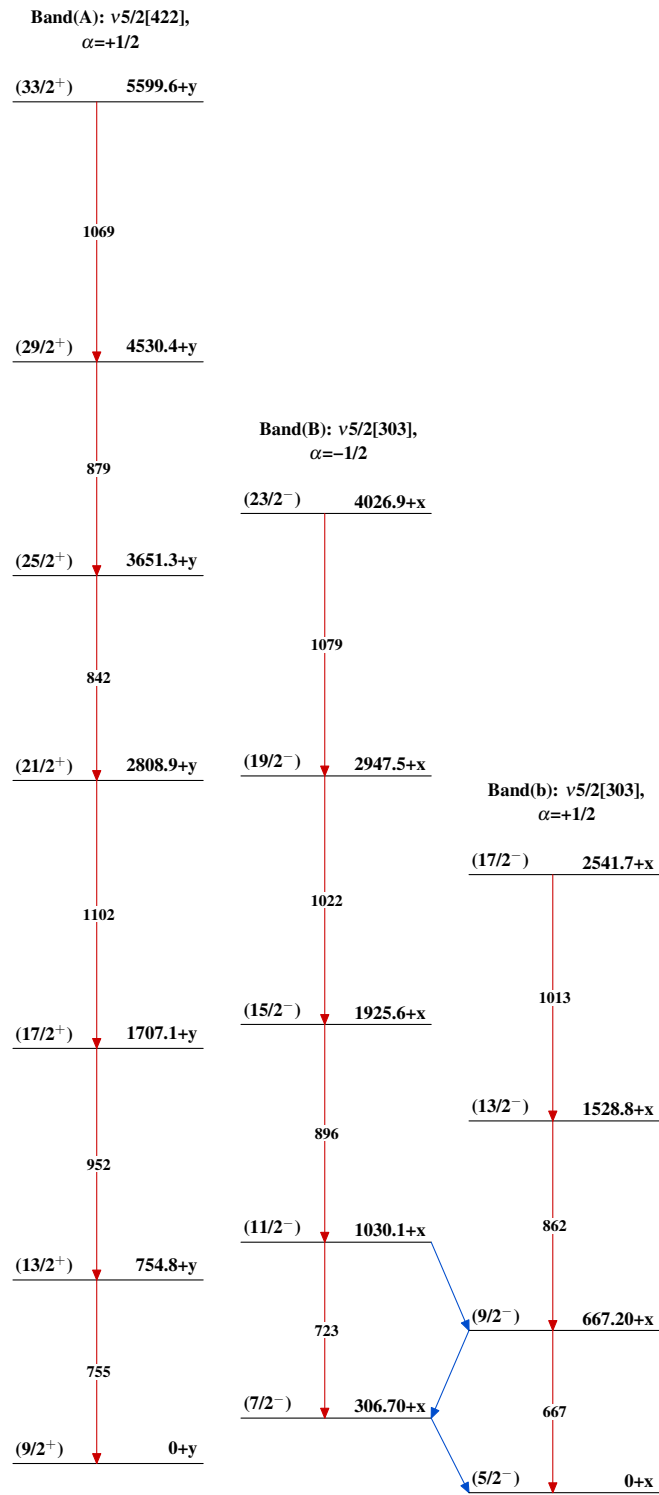
Adopted Levels, GammasLevel Scheme

Intensities: Relative photon branching from each level



3.2 s 2

 $^{85}_{42}\text{Mo}_{43}$

Adopted Levels, Gammas $^{85}_{42}\text{Mo}_{43}$