$^{66}Zn(^{28}Si,2pn\gamma)$ 1993Si14

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 114, 1293 (2013)	1-Sep-2013

E(^{28}Si)=95-120 MeV; 5 HPGe detectors with BGO anti-Compton shields, 8 hexagonal NaI(Tl) detector multiplicity shield; θ=15°, 30°, 44°, 60°, 90°; measured Eγ, Iγ, $\gamma\gamma$ coin, $\gamma(\theta)$, γ anisotropy ratio, excit, $T_{1/2}$ (using recoil distance method).

^{91}Mo Levels

E(level)†	J$^{\pi}$‡	$T_{1/2}$#	Comments
0.0	9/2$^+$		
1414.3@ 3	13/2$^+$		
2068.3@ 5	17/2$^+$		
2267.8@ 6	21/2$^+$		
2940.3 6	23/2$^+$		
3545.4@ 7	25/2$^+$		
3810.3 7	25/2$^-$	17 ps 3	J$^{\pi}$: adopted π=(+).
4342.5 7	27/2$^-$	<1.4 ps	
4445.4& 6	25/2$^+$		
4952.8& 6	27/2$^+$		
4959.4 8	29/2$^-$	<1.4 ps	
5244.0 9	31/2$^-$		
5299.6? 9			
5488.4& 7	29/2$^+$		
5817.8? 7			
6232.7& 7	31/2$^+$		
6469.1& 8	33/2$^+$		

† From least-squares fit to Eγ.
‡ Authors′ values, based on measured $\gamma(\theta)$, γ anisotropy ratios and γ cascade patterns.
# From RDM (1993Si14).
@ Band(A): π=+, seniority=3 states (1993Si14).
& Band(B): π=+, seniority=5 states (1993Si14). The 25/2$^+$ state configuration includes a significant seniority=3 component.

$\gamma(^{91}$Mo)

E$_{\gamma}$†	I$_{\gamma}$†	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$	Mult.‡	Comments
199.5 3	99.9 3	2267.8	21/2$^+$	2068.3	17/2$^+$	Q	Mult.: anisotropy ratio=0.76 1, A$_2$=+0.33 2, A$_4$=−0.14 1 (1993Si14).
236.4 3	15.8 2	6469.1	33/2$^+$	6232.7	31/2$^+$	D+Q	Mult.: anisotropy ratio=1.37 2, A$_2$=−0.47 3, A$_4$=+0.06 1 (1993Si14).
265.1 3	3.2 2	3810.3	25/2$^-$	3545.4	25/2$^+$		Mult.: anisotropy ratio=0.83 1, A$_2$=+0.26 5, A$_4$=+0.01 2 (1993Si14). Interpreted by authors as a ΔJ=0, D transition.
284.6 3	12.6 2	5244.0	31/2$^-$	4959.4	29/2$^-$	D+Q	Mult.: anisotropy ratio=1.64 2, A$_2$=−0.33 3, A$_4$=+0.07 1 (1993Si14).
329.4# 3	8.2 2	5817.8?		5488.4	29/2$^+$		Mult.: anisotropy ratio=1.32 2, A$_2$=+0.07 3, A$_4$=+0.09 1 (1993Si14).
340.2# 3	11.1 2	5299.6?		4959.4	29/2$^-$	D+Q	Mult.: anisotropy ratio=1.52 3, A$_2$=−0.37 3, A$_4$=+0.16 1 (1993Si14).
507.6 3	19.2 3	4952.8	27/2$^+$	4445.4	25/2$^+$	D+Q	Mult.: anisotropy ratio=1.53 2, A$_2$=−0.54 3, A$_4$=+0.09 1 (1993Si14).

Continued on next page (footnotes at end of table)

^{66}Zn(^{28}Si,2pnγ) 1993Si14 (continued)

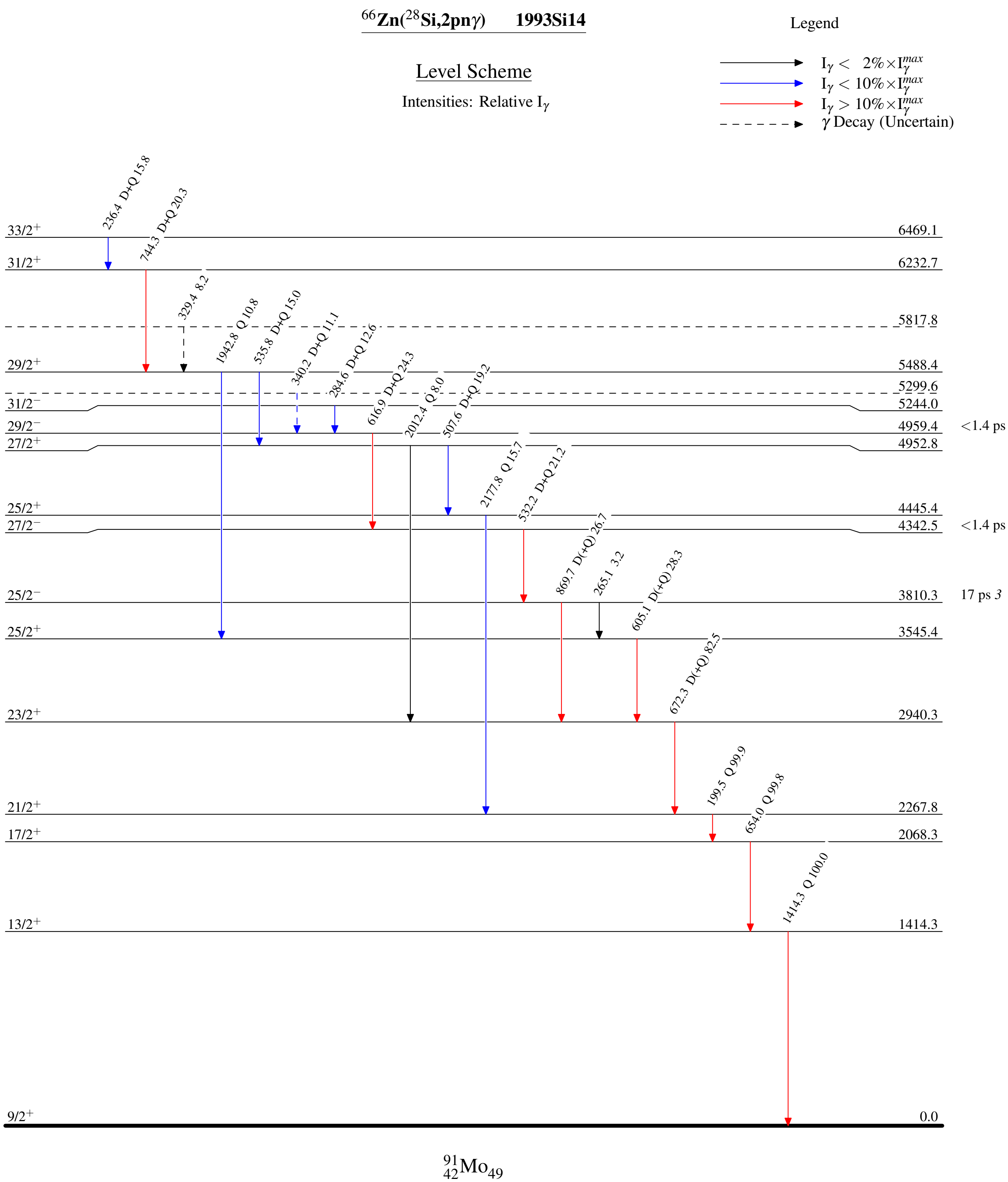
γ(^{91}Mo) (continued)

E_γ †	I_γ †	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	Comments
532.2 *3*	21.2 *3*	4342.5	27/2−	3810.3	25/2−	D+Q	Mult.: anisotropy ratio=1.66 *2*, A_2=−0.38 *3*, A_4=+0.09 *1* (1993Si14).
535.8 *3*	15.0 *4*	5488.4	29/2+	4952.8	27/2+	D+Q	Mult.: anisotropy ratio=1.76 *2*, A_2=−0.44 *4*, A_4=+0.14 *2* (1993Si14).
605.1 *3*	28.3 *6*	3545.4	25/2+	2940.3	23/2+	D(+Q)	Mult.: anisotropy ratio=1.48 *2*, A_2=−0.25 *3*, A_4=−0.02 *1* (1993Si14).
616.9 *3*	24.3 *4*	4959.4	29/2−	4342.5	27/2−	D+Q	Mult.: anisotropy ratio=1.54 *2*, A_2=−0.51 *5*, A_4=+0.14 *2* (1993Si14).
654.0 *3*	99.8 *13*	2068.3	17/2+	1414.3	13/2+	Q	Mult.: anisotropy ratio=0.84 *1*, A_2=+0.24 *2*, A_4=−0.19 *1* (1993Si14).
672.3 *3*	82.5 *12*	2940.3	23/2+	2267.8	21/2+	D(+Q)	Mult.: anisotropy ratio=1.59 *1*, A_2=−0.28 *2*, A_4=+0.01 *1* (1993Si14).
744.3 *3*	20.3 *5*	6232.7	31/2+	5488.4	29/2+	D+Q	Mult.: anisotropy ratio=1.45 *4*, A_2=−0.53 *3*, A_4=+0.13 *1* (1993Si14).
869.7 *3*	26.7 *8*	3810.3	25/2−	2940.3	23/2+	D(+Q)	Mult.: anisotropy ratio=1.51 *3*, A_2=−0.23 *3*, A_4=−0.04 *1* (1993Si14).
1414.3 *3*	100.0 *16*	1414.3	13/2+	0.0	9/2+	Q	Mult.: anisotropy ratio=0.76 *1*, A_2=+0.24 *3*, A_4=−0.07 *1* (1993Si14).
1942.8 *3*	10.8 *7*	5488.4	29/2+	3545.4	25/2+	Q	Mult.: anisotropy ratio=0.75 *3*, A_2=+0.17 *2*, A_4=−0.15 *6* (1993Si14).
2012.4 *3*	8.0 *9*	4952.8	27/2+	2940.3	23/2+	Q	Mult.: anisotropy ratio=0.73 *4*, A_2=+0.21 *9*, A_4=−0.13 *7* (1993Si14).
2177.8 *3*	15.7 *9*	4445.4	25/2+	2267.8	21/2+	Q	Mult.: anisotropy ratio=0.98 *7*, A_2=+0.28 *3*, A_4=−0.09 *6* (1993Si14).

† From 1993Si14. The authors give an upper limit of 0.3 keV for ΔE_γ; the evaluator has assigned 0.3 keV for all transitions.

‡ Based on measured γ(θ) and γ anisotropy ratio given in comments on relevant γ. The anisotropy ratio (akin to a DCO ratio) is I(γ_1(75 DEG) gated by γ_2(45 DEG))/I(γ_1(15 DEG) gated by γ_2(45 DEG)); expected values are≤0.9 for stretched Q (or D, ΔJ=0) transitions and≥1.1 for D transitions (1993Si14). The authors assume that all stretched Q transitions are stretched E2.

Placement of transition in the level scheme is uncertain.



66Zn(28Si,2pnγ) 1993Si14
Level Scheme
Intensities: Relative Iγ
Legend
Iγ < 2%×Iγmax
Iγ < 10%×Iγmax
Iγ > 10%×Iγmax
γ Decay (Uncertain)
33/2+ 6469.1
31/2+ 6232.7
5817.8
29/2+ 5488.4
5299.6
31/2− 5244.0
29/2− 4959.4 <1.4 ps
27/2+ 4952.8
25/2+ 4445.4
27/2− 4342.5 <1.4 ps
25/2− 3810.3 17 ps 3
25/2+ 3545.4
23/2+ 2940.3
21/2+ 2267.8
17/2+ 2068.3
13/2+ 1414.3
9/2+ 0.0
236.4 D+Q 15.8
744.3 D+Q 20.3
329.4 8.2
1942.8 Q 10.8
535.8 D+Q 15.0
340.2 D+Q 11.1
284.6 D+Q 12.6
616.9 D+Q 24.3
2012.4 Q 8.0
507.6 D+Q 19.2
2177.8 Q 15.7
532.2 D+Q 21.2
869.7 D(+Q) 26.7
265.1 3.2
605.1 D(+Q) 28.3
672.3 D(+Q) 82.5
199.5 Q 99.9
654.0 Q 99.8
1414.3 Q 100.0
91 42Mo49

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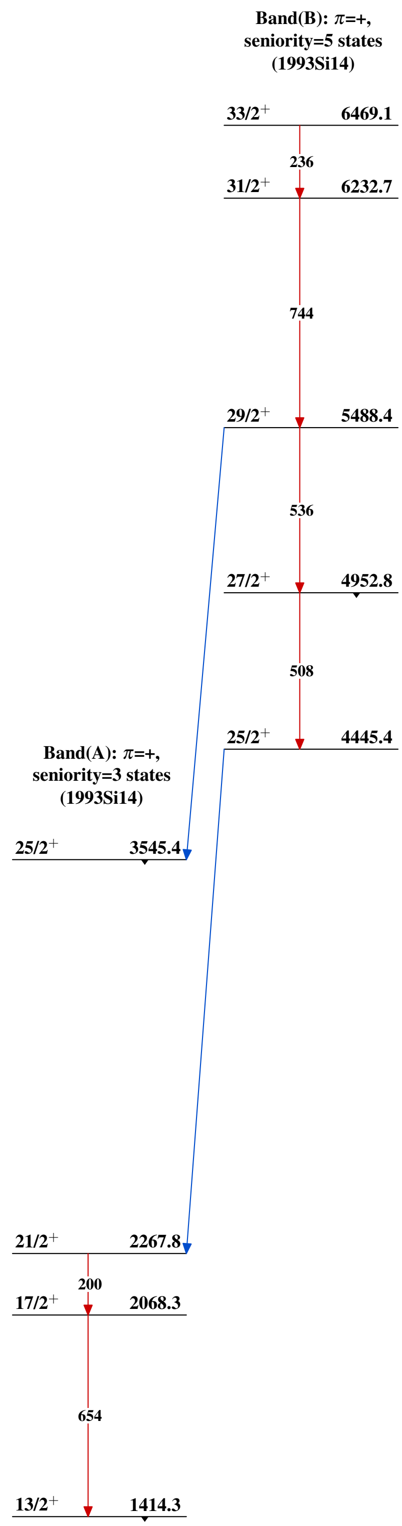

$^{91}_{42}Mo_{49}$