^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 105, 223 (2005)	22-Jun-2005

1984Do02: E=6.7 MeV. Measured γ.
1977Do08 (and 1977DoZP): E=2.95-3.60 MeV. Measured γ, $\gamma\gamma$, $\gamma\gamma$(t), $\gamma(\theta)$, excitation functions. J^{π}'s and δ's deduced by comparing $\gamma(\theta)$ and excitation data with statistical model calculations using Hauser-Feshbach theory.
1977DaZS: E=2.6-3.6 MeV. Measured γ, $\gamma\gamma$, excitation functions.
Others:
1984Fe05: E=th−3 MeV, γ, $\gamma(\theta)$, $\gamma\gamma$ data. No details are available.
1973MeZM: E=2.6-3.2 MeV. Measured γ, $\gamma(\theta)$, excitation functions. Results compared with statistical model calculations using Hauser-Feshbach theory.
1973Pl07: $\gamma(\theta$,H), PAD, measured μ.
1973DuZY: measured γ. No details of this work are available.
1958Ch34: E=3.7 MeV. Measured γ.
The level scheme is primarily from 1984Do02 and 1977Do08.

^{80}Br Levels

E(level)[†]	J^{π}[#]	$T_{1/2}$	Comments
0.0	1^+		
37.056 *18*	2^-	7.8 ns *5*	μ=−1.67 *12* (1973Pl07) $T_{1/2}$: (219γ)(37γ)(t) (1977Do08). μ: from differential PAD of 37γ in (p,nγ) E=5.9 MeV.
85.85 *3*	5^-		
256.44 *3*	$(2)^-$		
271.38 *3*	$(2)^+$		
281.29 *3*	$(3)^-$		
299.9? *1*			
309.50 *3*	$(4)^-$		
314.89 *6*	$(1)^+$		
331.05 *4*	5^+		
331.41 *3*	$(3)^-$		
357.23 *5*	(6^+)		
366.63 *3*	$(1,2)^-$		
379.92 *4*	(6^-)		
380.47 *3*	$(3)^-$		
385.72 *4*	(4^-)		
390.54 *5*	$(4)^-$		
447.87 *5*	(7^+)		
456.40 *3*	$(4)^-$		
469.01 *3*	$(2)^+$		
469.30 *4*	$(3)^-$		
492.90 *3*	$(2)^-$		
500.20 *5*	$(4)^-$		
523.31 *4*	(5^-)		
549.59 *4*	$(3)^+$		
572.95 *4*	$(3,4,5)^-$		
586.14 *5*	(3^+)		
615.32 *6*	(8^+)		
646.45 *8*			
660.66 *14*	$(2)^+$		
682.93 *4*	$(3,4^-,5^-)$		
685.29 *10*	(3^-)		
717.58 *10*	$(3,4^-,5)$		
724.03 *6*	(1,2)		

Continued on next page (footnotes at end of table)

^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS (continued)

^{80}Br Levels (continued)

E(level)[†]	Jπ[#]	Comments
727.17 *9*	(1⁻,2,3)	
731.11 *9*	(2)⁺	
737.17? *5*		
766?		Level proposed by 1977DaZS. Seen in (n,γ) also.
771.22 *6*	(4⁻,5⁻,6⁻)	
805.13[‡] *10*	(1,2,3)	
813.97[‡] *10*	(2,3)⁺	
825.26 *6*	(6,7⁺)	
830.87 *7*	(2)⁺	
852.47 *7*	(3)⁺	
860.66 *6*	(2⁺)	
883.59? *9*	(≤3)	E(level): proposed by 1977DaZS.
914.62 *9*	(0⁺,1,2)	
958.61 *9*	(1,2,3)⁺	
971.79[‡] *9*		
997.25 *9*	(2,3)⁺	
1021.20 *23*	(≤4)	
1022.37 *7*	(1⁻,2,3⁺)	
1032.97? *12*	(8⁺)	
1051.3?[‡] *4*	(≤3)	
1116.85?[‡] *11*	(1,2,3)⁺	
1148.14?[‡] *9*	(1⁻,2,3⁺)	
1203.1?[‡] *3*	(1⁻,2,3⁺)	

[†] From least-squares fit to Eγ′s.

[‡] Proposed by the evaluator on the basis of ^{79}Br(n,γ).

[#] From γ(θ) and excitation function data 1977Do08 and 1973MeZM deduce J^{π}′s for many levels. However, their interpretations disagree for several cases. The evaluator has carried out a separate analysis and found several inconsistencies in J^{π} assignments. Thus the assignments proposed by 1977Do08 and 1973MeZM should be considered tentative. For final spin and parity assignments see 'Adopted Levels'.

^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS (continued)

γ(^{80}Br)

A_2 and A_4 coefficients are from 1977Do08 and 1973MeZM. E(p)=2.95-3.60 MeV (1977Do08), E(p)=3.10 MeV (1973MeZM).
γγ information is primarily from 1977DaZS. Only for the γ rays in coincidence with 37γ, results are from 1977Do08.

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#@]	α[d]	Comments
26.18[&b] *3*	1.8[b] *2*	357.23	(6$^+$)	331.05	5$^+$			
37.05 *2*	102 *3*	37.056	2$^-$	0.0	1$^+$	E1	1.56	A_2=−0.030 *15*, A_4=−0.027 *18* (1973MeZM); A_2=−0.03 *1* in differential PAD (1973Pl07). Mult.: from 'adopted gammas'.
48.76 *4*	0.3 *1*	85.85	5$^-$	37.056	2$^-$	M3	308	Mult.: from 'adopted gammas'.
50.12 *3*	2.6 *1*	331.41	(3)$^-$	281.29	(3)$^-$			
59.48 *2*	38 *2*	390.54	(4)$^-$	331.05	5$^+$			
74.97 *3*	1.6 *1*	331.41	(3)$^-$	256.44	(2)$^-$			
75.93 *3*	0.5 *1*	456.40	(4)$^-$	380.47	(3)$^-$			
80.60 *4*	0.6 *1*	549.59	(3)$^+$	469.01	(2)$^+$			
90.64 *2*	3.0 *1*	447.87	(7$^+$)	357.23	(6$^+$)			
99.17 *3*	1.0 *1*	380.47	(3)$^-$	281.29	(3)$^-$			
104.43 *4*	0.5 *1*	385.72	(4$^-$)	281.29	(3)$^-$			
110.25[b] *17*	[b]	366.63	(1,2)$^-$	256.44	(2)$^-$			I_γ: 0.75 *15* (1977Do08). Iγ(110γ)/Iγ(367γ) is high by a factor of 5 as compared to that in (n,γ).
112.4 *1*	0.4 *1*	492.90	(2)$^-$	380.47	(3)$^-$			
124.03 *2*	3.8 *1*	380.47	(3)$^-$	256.44	(2)$^-$			
126.28 *3*	2.2 *1*	492.90	(2)$^-$	366.63	(1,2)$^-$			
137.5 *1*	0.7 *1*	523.31	(5$^-$)	385.72	(4$^-$)			
x139.69[b] *10*	[b]							I_γ: 1.3 *2*.
143.40 *3*	0.4 *1*	523.31	(5$^-$)	379.92	(6$^-$)			
146.89 *2*	3.7 *1*	456.40	(4)$^-$	309.50	(4)$^-$			
x155.0[a] *4*								
159.0 *1*	2.0 *1*	549.59	(3)$^+$	390.54	(4)$^-$			
159.8 *1*	3.1 *1*	469.30	(3)$^-$	309.50	(4)$^-$			
167.45 *2*	0.4 *1*	615.32	(8$^+$)	447.87	(7$^+$)			
175.11 *2*	3.5 *1*	456.40	(4)$^-$	281.29	(3)$^-$			
x180.1[b] *5*	[b]							I_γ: 0.4 *2*.
182.8 *1*	≈0.1	682.93	(3,4$^-$,5$^-$)	500.20	(4)$^-$			
187.24 *4*	0.3 *1*	572.95	(3,4,5)$^-$	385.72	(4$^-$)			
190.6 *2*	0.7 *2*	500.20	(4)$^-$	309.50	(4)$^-$			
195.60 *2*	39 *1*	586.14	(3$^+$)	390.54	(4)$^-$			
197.70[b] *20*	[b]	469.01	(2)$^+$	271.38	(2)$^+$			I_γ: 0.4 *2* (1977Do08).
207.7 *1*	<0.1	1032.97?	(8$^+$)	825.26	(6,7$^+$)			
211.6 *1*	5.3 *3*	492.90	(2)$^-$	281.29	(3)$^-$			A_2=−0.01 *4*, A_4=−0.02 *4* (1977Do08).
213.81 *2*	2.3 *1*	523.31	(5$^-$)	309.50	(4)$^-$			
218.9 *1*	3[c] *1*	500.20	(4)$^-$	281.29	(3)$^-$			I_γ: 51 *2* for 218.9γ+219.4γ.

$^{80}_{35}Br_{45}$-3

^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS (continued)

γ(^{80}Br) (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.#@	δ@	Comments
219.4 *1*	48[c] *2*	256.44	(2)$^-$	37.056	2$^-$	D+Q	+0.15 *10*	I_γ: for 218.9γ+219.4γ, Iγ=51 *2*. A_2=+0.092 *24*, A_4=+0.012 *25* (1977Do08). Other: 1973MeZM. δ: from 1977Do08. Other: +0.15 (1973MeZM). Additional information 1.
223.63 *2*	28 *1*	309.50	(4)$^-$	85.85	5$^-$	D+Q	+0.10 *4*	δ: from A_2=−0.27 *5*, A_4=−0.01 *5* (1977Do08).
226.51 *4*	0.7 *1*	682.93	(3,4$^-$,5$^-$)	456.40	(4)$^-$			
234.32 *2*	19 *1*	271.38	(2)$^+$	37.056	2$^-$	D		A_2=+0.045 *24*, A_4=+0.006 *25* (1977Do08); A_2=+0.237 *14*, A_4=−0.031 *19* (1973MeZM). δ: +0.015 *50* (1977Do08), +0.10 (1973MeZM).
236.44 *4*	4.4 *2*	492.90	(2)$^-$	256.44	(2)$^-$			
240.0[h] *1*	0.9 *2*	549.59	(3)$^+$	309.50	(4)$^-$			
244.24 *3*	45 *2*	281.29	(3)$^-$	37.056	2$^-$	D+Q	−0.03 *1*	A_2=−0.281 *29*, A_4=+0.015 *29* (1977Do08). Other: 1973MeZM. Additional information 3. δ: from 1977Do08. Other: −0.05 (1973MeZM).
245.20 *3*	100 *3*	331.05	5$^+$	85.85	5$^-$			
247.91 *4*	0.6 *1*	771.22	(4$^-$,5$^-$,6$^-$)	523.31	(5$^-$)			
263.44 *3*	3.1 *1*	572.95	(3,4,5)$^-$	309.50	(4)$^-$			
271.4[g] *1*	40[gc] *2*	271.38	(2)$^+$	0.0	1$^+$	D		I_γ: from branching in (n,γ). Iγ=42 *2* for doublet. A_2=+0.37 *4*, A_4=+0.04 *4* (1977Do08). Other: 1973MeZM. Additional information 2. δ: +0.8 to +3.0 (1977Do08); −0.10 (1973MeZM). Value from 1977Do08 disagrees with mult=M1 from ce data in (n,γ).
271.4[g] *1*	≈2[g]	357.23	(6$^+$)	85.85	5$^-$			I_γ: from Branching in (d,2nγ).
274.52 *3*	11 *1*	860.66	(2$^+$)	586.14	(3$^+$)			
278.2[h] *1*	1.2 *1*	549.59	(3)$^+$	271.38	(2)$^+$			
[x]290.15[b] *14*	[b]							I_γ: 1.0 *2*.
294.1 *1*	7[c]	379.92	(6$^-$)	85.85	5$^-$			I_γ: 19 *1* for 294.1γ+294.3γ.
294.3 *1*	12[c] *1*	331.41	(3)$^-$	37.056	2$^-$	D		I_γ: 19 *1* for 294.1γ+294.3γ. A_2=−0.10 *4*, A_4=+0.01 *4* (1977Do08). Other: 1973MeZM. Additional information 5. δ: +0.08 *5* if J(331)=3 (1977Do08).
299.5 *3*	6[c]	685.29	(3$^-$)	385.72	(4$^-$)			I_γ: 19 *1* for 299.5γ+299.9γ. Iγ should be ≈0.5 as compared to branching in (d,2nγ).
299.9[eh] *1*		299.9?		0.0	1$^+$			Placement based on (n,γ) results.
299.9[e] *1*	13[c] *3*	385.72	(4$^-$)	85.85	5$^-$			I_γ: 19 *1* for doublet.
302.99 *5*	0.6 *1*	682.93	(3,4$^-$,5$^-$)	379.92	(6$^-$)			
314.9 *1*	25 *2*	314.89	(1)$^+$	0.0	1$^+$	D+Q	+0.12	A_2=−0.03 *3*, A_4=+0.01 *3* (1977Do08). Other: 1973MeZM. Additional information 4. δ: from 1973MeZM.
315.4 *1*	10 *2*	646.45		331.05	5$^+$			
[x]321.9[b] *5*	[b]							I_γ: 1.4 *6*.
329.61[b] *24*	[b]	366.63	(1,2)$^-$	37.056	2$^-$	D		I_γ: 1.8 *3* (1977Do08). Iγ(330γ)/Iγ(367γ) is high by a factor of 5 as

^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS (continued)

γ(^{80}Br) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#@]	Comments
							compared to that in (n,γ). Placement suggested by 1977DaZS and 1973MeZM. A_2=−0.077 *15*, A_4=−0.13 *3* (1973MeZM). δ: −0.10 (1973MeZM) if J(366)=1.
331.8 *2*	0.2 *1*	717.58	(3,4⁻,5)	385.72	(4⁻)		
343.42 *3*	13 *1*	380.47	(3)⁻	37.056	2⁻	D+Q	A_2=−0.64 *5*, A_4=+0.14 *5* (1977Do08). Other: 1973MeZM. Additional information 7. δ: −1.6 *1* (1977Do08), +0.10 (1973MeZM).
346.6[g&b] *6*	*gb*	660.66	(2)⁺	314.89	(1)⁺		I_γ: 2.0 *3* as estimated from branching in (n,γ). Iγ(doublet)=2.4 *3* (1977Do08).
346.6[g&b] *6*	*gb*	727.17	(1⁻,2,3)	380.47	(3)⁻		I_γ: ≈0.4 as estimated from branching in (d,2nγ).
366.63 *3*	26 *1*	366.63	(1,2)⁻	0.0	1⁺	D	A_2=+0.02 *4*, A_4=−0.01 *4* (1977Do08). Other: 1973MeZM. Additional information 6. δ: +0.06 (1973MeZM) if J(366)=1.
370.56[g] *4*	3.1[g] *2*	456.40	(4)⁻	85.85	5⁻		1977Do08 place this γ with a 737 level.
370.56[gh] *4*	*g*	737.17?		366.63	(1,2)⁻		Placement suggested by 1977Do08. From (n,γ) results main placement is with 456 level.
373.6 *1*	1.6 *2*	682.93	(3,4⁻,5⁻)	309.50	(4)⁻		
375.8 *1*	0.7 *2*	685.29	(3⁻)	309.50	(4)⁻		
377.39 *3*	2.1 *2*	825.26	(6,7⁺)	447.87	(7⁺)		
385.7[&b] *6*	*b*	971.79		586.14	(3⁺)		I_γ: 0.9 *3* (1977Do08).
389.25[b] *18*	*b*	660.66	(2)⁺	271.38	(2)⁺		I_γ: 3.2 *4* (1977Do08). A_2=+0.13 *7*, A_4=−0.01 *7* (1977Do08).
408.1 *1*	0.6 *2*	717.58	(3,4⁻,5)	309.50	(4)⁻		
409.19[b] *7*	*b*	724.03	(1,2)	314.89	(1)⁺		I_γ: 2.8 *4* (1977Do08).
414.37 *4*	5.2 *3*	500.20	(4)⁻	85.85	5⁻		
422.20[fbh] *8*	*fb*	737.17?		314.89	(1)⁺		
422.20[f&b] *8*	*fb*	971.79		549.59	(3)⁺		I_γ: 1.1 *2* (1977Do08). Iγ is high as compared to Branching in (n,γ). Part of this intensity may belong with 737 level as suggested by 1977Do08.
432.24 *3*	9.7 *4*	469.30	(3)⁻	37.056	2⁻		A_2=−0.02 *5*, A_4=−0.01 *5* (1977Do08).
437.5 *1*	0.3 *2*	523.31	(5⁻)	85.85	5⁻		
438.50[&b] *9*	*b*	805.13	(1,2,3)	366.63	(1,2)⁻		I_γ: 2.5 *4* (1977Do08).
452.60[b] *7*	*b*	724.03	(1,2)	271.38	(2)⁺		I_γ: 13.1 *20* (1977Do08). Possible doublet, a weak component may be associated with 765 level. A_2=−0.03 *3*, A_4=−0.03 *3* (1977Do08).
455.9 *1*	3.9 *2*	492.90	(2)⁻	37.056	2⁻		
459.72[b] *9*	*b*	731.11	(2)⁺	271.38	(2)⁺		I_γ: 2.4 *4*.
469.02 *3*	21 *1*	469.01	(2)⁺	0.0	1⁺	D+Q	A_2=−0.31 *7*, A_4=+0.09 *7* (1977Do08). Other: 1973MeZM. Additional information 8. δ: −2.2 *5* (1977Do08), −0.01 (1973MeZM).
[x]484.26[b] *19*	*b*						I_γ: 3.5 *6*.

$^{80}_{35}Br_{45}$-5

^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS (continued)

γ(^{80}Br) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#@]	Comments
485.9[b] *4*	[b]	852.47	$(3)^+$	366.63	$(1,2)^-$		I_γ: 1.9 *5* (1977Do08).
493.0 *1*	2.7 *3*	492.90	$(2)^-$	0.0	1^+	D	A_2=−0.10 *6*, A_4=0.00 *6* (1977Do08).
494.2 *1*	1.0 *2*	825.26	$(6,7^+)$	331.05	5^+		
512.5 *2*	6 *1*	549.59	$(3)^+$	37.056	2^-		
x529.25[b] *10*	[b]						I_γ: 0.9 *3*.
542.59[&b] *9*	[b]	813.97	$(2,3)^+$	271.38	$(2)^+$		I_γ: 3.4 *5* (1977Do08).
549.6 *1*	5.7 *3*	549.59	$(3)^+$	0.0	1^+		
x559.19[b] *9*	[b]						I_γ: 2.6 *4*.
560.6 *1*	0.7 *2*	646.45		85.85	5^-		
x572.36[b] *11*	[b]						I_γ: 1.9 *5*. 1977DaZS place a 570.8γ with 852 level. Precise energy known from 1977Do08 and 1978Do06 does not permit such a placement.
x594.82[b] *20*	[b]						I_γ: 0.9 *6*.
596.10[b] *9*	[b]	852.47	$(3)^+$	256.44	$(2)^-$		I_γ: 1.6 *9* (1977Do08).
x599.01[b] *14*	[b]						I_γ: 1.5 *10*.
x604.8[b] *3*	[b]						I_γ: 0.7 *5*.
x606.4[b] *3*	[b]						I_γ: 0.5 *4*.
630.46[b] *17*	[b]	997.25	$(2,3)^+$	366.63	$(1,2)^-$		I_γ: 1.3 *2* (1977Do08). Iγ is high by a factor of ≈10 as compared to Branching in (n,γ).
x636.1[a] *4*							
x639.5[a] *4*							
x648.3[a] *4*							
660.6[b] *2*	[b]	660.66	$(2)^+$	0.0	1^+		I_γ: 6.5 *8* (1977Do08). A_2=−0.02 *7*, A_4=−0.03 *7* (1977Do08).
678.53[&bh] *21*	[b]	1148.14?	$(1^-,2,3^+)$	469.30	$(3)^-$		I_γ: 1.1 *4* (1977Do08).
684.7[&bh] *4*	[b]	1051.3?	(≤3)	366.63	$(1,2)^-$		I_γ: 0.9 *7* (1977Do08).
687.2[b] *4*	[b]	724.03	(1,2)	37.056	2^-		I_γ: 0.7 *6* (1977Do08).
690.11[b] *9*	[b]	727.17	$(1^-,2,3)$	37.056	2^-		I_γ: 10.0 *15* (1977Do08). A_2=+0.06 *4*, A_4=0.01 *5* (1977Do08).
x694.25[b] *12*	[b]						I_γ: 2.4 *4*. 1977Do08 place this with 731 level which is inconsistent with ^{79}Br(n,γ) results. This γ ray may be due to an impurity.
702.16[b] *8*	[b]	958.61	$(1,2,3)^+$	256.44	$(2)^-$		I_γ: 16.2 *20* (1977Do08). A_2=−0.02 *3*, A_4=−0.05 *4* (1977Do08). δ: −0.50 *15* if J(958)=3.
716.08[b] *12*	[b]	997.25	$(2,3)^+$	281.29	$(3)^-$		I_γ: 1.1 *3* (1977Do08).
721.30[b] *20*	[b]	1021.20	(≤4)	299.9?			I_γ: 7.7 *15* (1977Do08).
723.88[b] *22*	[b]	724.03	(1,2)	0.0	1^+		I_γ: 4.4 *12* (1977Do08).

^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS (continued)

γ(^{80}Br) (continued)

E_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
731.2[b] 3	731.11	(2)$^+$	0.0	1$^+$	I_γ: 0.2 *1* (1977Do08).
x738.6[a] 4					
751.05[b] 12	1022.37	(1$^-$,2,3$^+$)	271.38	(2)$^+$	I_γ: 2.4 *5* (1977Do08).
765.90[b] 8	1022.37	(1$^-$,2,3$^+$)	256.44	(2)$^-$	I_γ: 4.2 *6* (1977Do08).
x778.31[b] 16					I_γ: 1.2 *5*.
x784.96[b] 12					I_γ: 1.5 *3*.
794.28[&b] 15	830.87	(2)$^+$	37.056	2$^-$	I_γ: 1.0 *2*.
x803.3[a] 4					
815.33[b] 9	852.47	(3)$^+$	37.056	2$^-$	I_γ: 10.5 *15*. A_2=−0.09 *5*, A_4=0.00 *6* (1977Do08).
830.73[b] 8	830.87	(2)$^+$	0.0	1$^+$	I_γ: 11.5 *16* (1977Do08). A_2=−0.01 *5*, A_4=−0.03 *5* (1977Do08).
x850.1[b] 5					I_γ: 0.10 *6*.
860.4[&bh] 1	1116.85?	(1,2,3)$^+$	256.44	(2)$^-$	I_γ: 1.2 *3* (1977Do08).
x870.53[b] 14					I_γ: 0.4 *1*.
883.58[bh] 9	883.59?	(≤3)	0.0	1$^+$	I_γ: 7.7 *10* (1977Do08).
888.2[&bh] 3	1203.1?	(1$^-$,2,3$^+$)	314.89	(1)$^+$	I_γ: 0.4 *1* (1977Do08).
x906.31[b] 23					I_γ: 0.4 *1*.
x908.72[b] 25					I_γ: 0.4 *1*.
914.61[b] 9	914.62	(0$^+$,1,2)	0.0	1$^+$	I_γ: 7.6 *10* (1977Do08). A_2=−0.03 *7*, A_4=+0.01 *8* (1977Do08).
x934.0[b] 7					I_γ: 0.2 *1*.
960.09[b] 18	997.25	(2,3)$^+$	37.056	2$^-$	I_γ: 0.3 *1* (1977Do08).
x971.00[b] 22					I_γ: 0.2 *1*.
x974.1[b] 3					I_γ: 0.3 *1*. E_γ: may be the same as 973γ from 1984Do02.
1022.36[b] 16	1022.37	(1$^-$,2,3$^+$)	0.0	1$^+$	I_γ: 1.8 *5* (1977Do08).
x1034.17[b] 24					I_γ: 1.0 *3*.
x1055.50[b] 10					I_γ: 2.9 *5*.
x1074.5[b] 5					I_γ: 0.3 *1*.
x1079.04[b] 16					I_γ: 0.8 *2*.
x1108.15[b] 18					I_γ: 0.6 *2*.
1148.19[&bh] 9	1148.14?	(1$^-$,2,3$^+$)	0.0	1$^+$	I_γ: 1.1 *3* (1977Do08).
x1197.41[b] 15					I_γ: 0.3 *1*.

$^{80}_{35}Br_{45}$-7

^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS (continued)

$\gamma(^{80}Br)$ (continued)

† From 1984Do02, unless otherwise stated. The γ rays reported by 1977Do08 at E(p)=4 MeV are quite different from those reported by 1984Do02 at E(p)=6.7 MeV.

‡ At 6.7 MeV (1984Do02), unless otherwise stated. Values at E=4 MeV are available from 1977Do08 and 1977DoZP.

D(+Q) for transitions with negative A_2 (indicating $\Delta J=0,1$) and D,E2 for transitions with positive A_2 (indicating $\Delta J=0,1,2$). A_4 (≈ 0 for most γ rays) is not known accurately enough to distinguish $\Delta J=0$ or 2 from $\Delta J=1$.

@ Based on $\gamma(\theta)$ data (1977Do08,1973MeZM) and assigned J^{π}'s. Although the A_2 and A_4 coefficients given in these two studies agree fairly well, several disagreements exist as to the spin and parity assignments. The evaluator has carried out a separate analysis and has found that unique J^{π} assignments are difficult to make on the basis of present data, thus the mixing-ratios given here should be treated as tentative.

& See ^{79}Br(n,γ) for placement of this γ ray.

a Reported by 1977DaZS only.

b γ reported by 1977Do08 only, Iγ at E(p)=4 MeV (relative to 52.6 for 219γ) is given under comments. Note that Iγ(219γ)=51 in 1984Do02.

c Divided intensity deduced (evaluator) from (d,2nγ) data.

d Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

e Multiply placed.

f Multiply placed with undivided intensity.

g Multiply placed with intensity suitably divided.

h Placement of transition in the level scheme is uncertain.

x γ ray not placed in level scheme.

$^{80}_{35}Br_{45}$-8

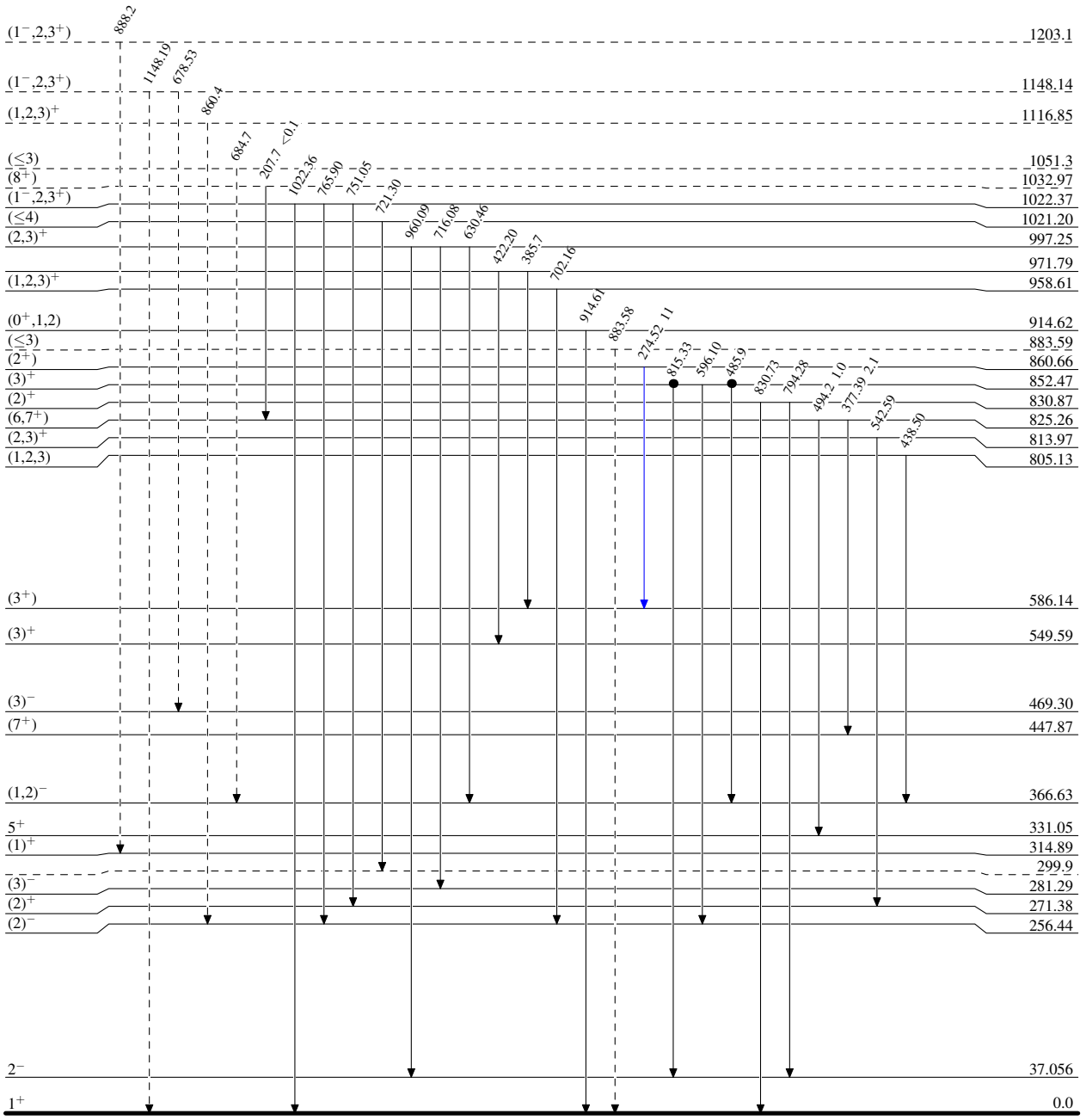
^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS

Level Scheme

Intensities: Relative I_γ

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)
- Coincidence

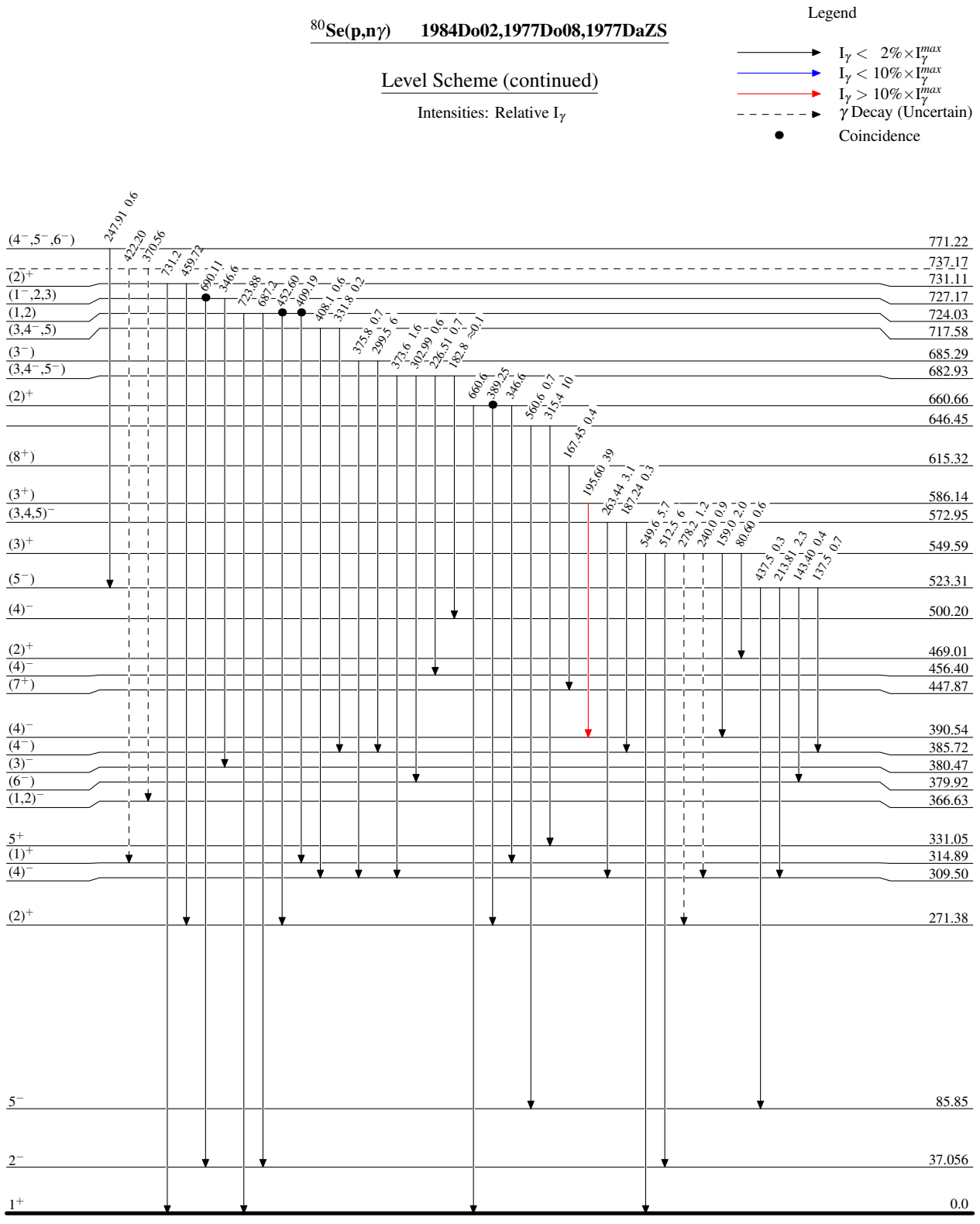


$^{80}_{35}Br_{45}$

^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS

Level Scheme (continued)

Intensities: Relative I_γ



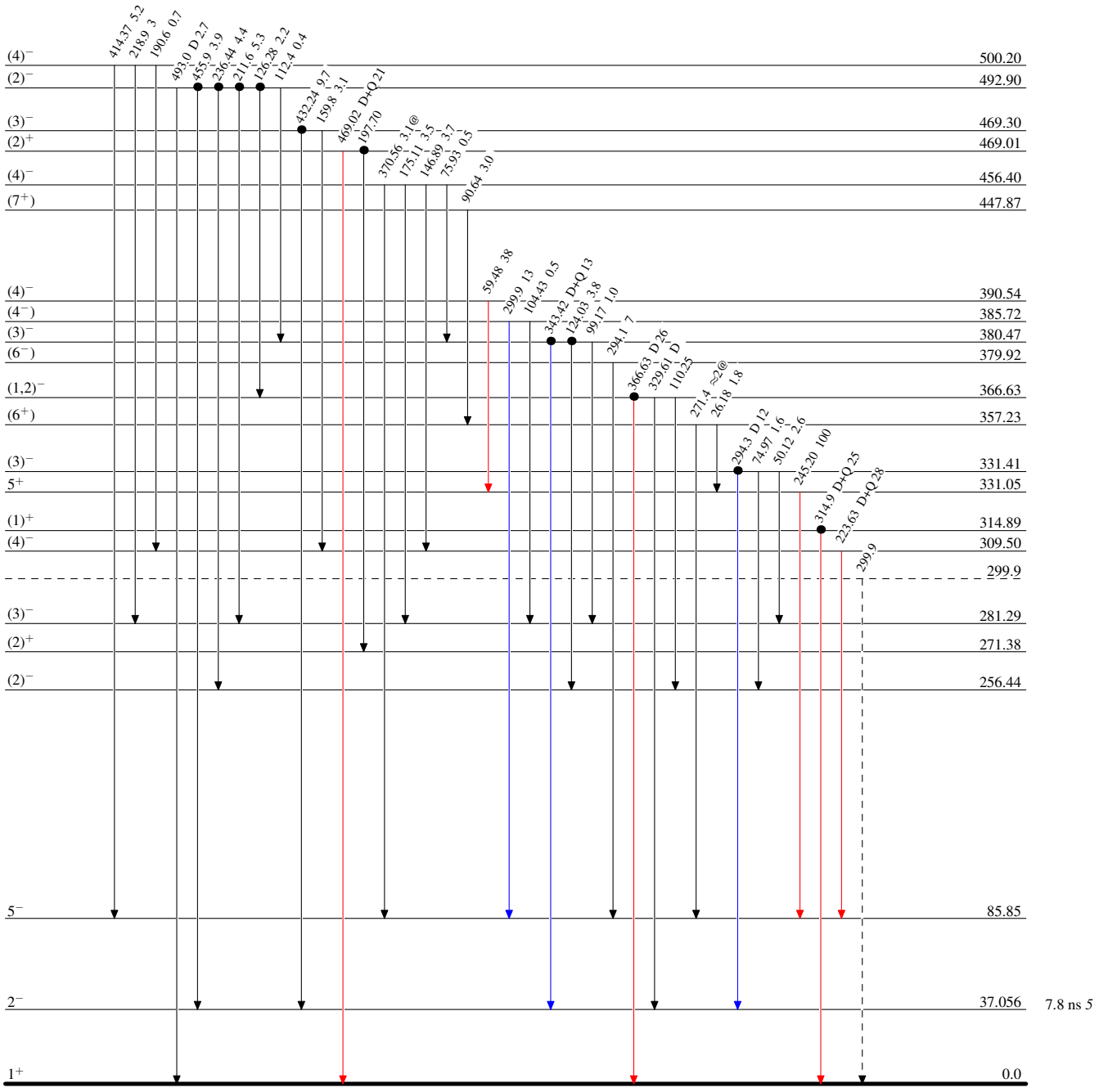
$^{80}_{35}Br_{45}$

^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS

Level Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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)
Coincidence



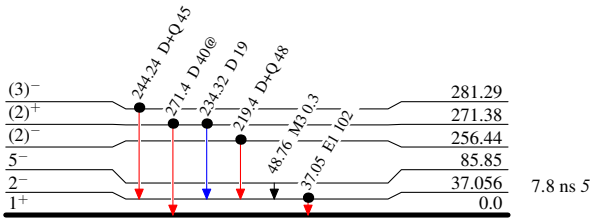
$^{80}_{35}Br_{45}$

^{80}Se(p,nγ) 1984Do02,1977Do08,1977DaZS

Level Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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



$^{80}_{35}Br_{45}$