$^{16}O(^{82}Se,3n\gamma)$ 2009Zh11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, G. Mukherjee, A. A. Sonzogni	NDS 111, 2555 (2010)	30-Jun-2009

2009Zh11: $^{16}O(^{82}Se,3n\gamma)$,E=460 MeV; measured Eγ, Iγ, γγ; deduced angular distribution asymmetry ratios; GASP array consisting of 40 Compton-suppressed Ge detectors and a multiplicity filter of 80 BGO elements. Comparisons with shell-model calculations.

^{95}Mo Levels

E(level)†	Jπ	E(level)†	Jπ	E(level)†	Jπ	E(level)†	Jπ
0.0‡	5/2+	2232.2‡ 6	(15/2+)	4048.1# 8	(23/2−)	7451.2# 12	(37/2−)
765.9‡ 4	7/2+	2580.3‡ 6	(17/2+)	4140.0‡ 10	(29/2+)	7985.5# 12	(39/2−)
947.6‡ 4	9/2+	2611.4# 6	(15/2−)	5117.6# 9	(27/2−)	8424.7‡ 13	(37/2+)
1540.6‡ 5	11/2+	2618.4‡ 7	(19/2+)	5361.9‡ 11	(31/2+)	9654.8# 13	(41/2−)
1551.7 5	(9/2+)	2770.1‡ 8	(21/2+)	5760.6# 10	(31/2−)	10509.0# 14	(45/2−)
1937.6# 6	11/2−	3277.4# 8	(19/2−)	6327.6‡ 12	(35/2+)		
2058.3 6	(13/2+)	3672.5‡ 9	(25/2+)	6708.8# 11	(35/2−)		

† From least-squares fit to Eγ's.
‡ Band(A): γ cascade based on 5/2+.
# Band(B): γ cascade based on (11/2−).

γ(^{95}Mo)

Angular distribution asymmetry ratios R_{ADO} are Iγ(34°)/Iγ(90°); where Iγ were obtained from γγ coincidence spectra gated with any multipolarity. Typical values are significantly larger than 1 for ΔJ=2, quadrupole and <1 for ΔJ=1, dipole transitions. It should be noted that R_{ADO} value can be the same for ΔJ=0, dipole and for ΔJ=1, mixed transitions.

E_γ†	I_γ†	E_i(level)	J^π_i	E_f	J^π_f	Comments
38.0 5		2618.4	(19/2+)	2580.3	(17/2+)	
151.7 5	77 8	2770.1	(21/2+)	2618.4	(19/2+)	R_{ADO}=0.86 21.
174.0 5	≥3.0	2232.2	(15/2+)	2058.3	(13/2+)	
348.0 5	80 8	2580.3	(17/2+)	2232.2	(15/2+)	R_{ADO}=0.86 5.
386.0 5	≥8.0	1937.6	11/2−	1551.7	(9/2+)	R_{ADO}=0.85 12.
386.3 5	6.7 20	2618.4	(19/2+)	2232.2	(15/2+)	R_{ADO}=1.63 24.
467.5 5	30 3	4140.0	(29/2+)	3672.5	(25/2+)	R_{ADO}=1.65 18.
522.0 5	6.0 18	2580.3	(17/2+)	2058.3	(13/2+)	
534.5 5	8.5 26	7985.5	(39/2−)	7451.2	(37/2−)	R_{ADO}=0.54 10.
553.0 5	≥4.0	2611.4	(15/2−)	2058.3	(13/2+)	
593.2 5	55 6	1540.6	11/2+	947.6	9/2+	R_{ADO}=0.80 11.
604.0 5	≥5.0	1551.7	(9/2+)	947.6	9/2+	
643.0 5	39 4	5760.6	(31/2−)	5117.6	(27/2−)	R_{ADO}=1.92 16.
666.0 5	≥14.7	3277.4	(19/2−)	2611.4	(15/2−)	R_{ADO}=1.80 20.
673.8 5	≥7.2	2611.4	(15/2−)	1937.6	11/2−	R_{ADO}=2.07 25.
691.5 5	100 10	2232.2	(15/2+)	1540.6	11/2+	R_{ADO}=1.65 14.
742.6 5	11 3	7451.2	(37/2−)	6708.8	(35/2−)	R_{ADO}=1.12 13.
765.8 5	≥45	765.9	7/2+	0.0	5/2+	R_{ADO}=0.90 8.
770.6 5	≥12.8	4048.1	(23/2−)	3277.4	(19/2−)	R_{ADO}=1.90 35.
774.4 5	45 5	1540.6	11/2+	765.9	7/2+	R_{ADO}=1.60 13.
785.9 5		1551.7	(9/2+)	765.9	7/2+	

Continued on next page (footnotes at end of table)

$^{16}O(^{82}Se,3n\gamma)$ 2009Zh11 (continued)

$\gamma(^{95}Mo)$ (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
854.2 *5*	12 *4*	10509.0	$(45/2^-)$	9654.8	$(41/2^-)$	R_{ADO}=1.45 *15*.
902.5 *5*	73 *7*	3672.5	$(25/2^+)$	2770.1	$(21/2^+)$	R_{ADO}=1.70 *14*.
947.7 *5*	≥122	947.6	$9/2^+$	0.0	$5/2^+$	R_{ADO}=2.2 *4*.
948.2 *5*	39 *4*	6708.8	$(35/2^-)$	5760.6	$(31/2^-)$	R_{ADO}=1.6 *4*.
965.7 *5*	13 *4*	6327.6	$(35/2^+)$	5361.9	$(31/2^+)$	R_{ADO}=1.7 *3*.
1069.5 *5*	13 *4*	5117.6	$(27/2^-)$	4048.1	$(23/2^-)$	R_{ADO}=1.60 *15*.
1110.8 *5*	≥9.0	2058.3	$(13/2^+)$	947.6	$9/2^+$	R_{ADO}=1.7 *3*.
1221.9 *5*	25.8 *26*	5361.9	$(31/2^+)$	4140.0	$(29/2^+)$	R_{ADO}=0.65 *10*.
1276.5 *5*	13 *4*	7985.5	$(39/2^-)$	6708.8	$(35/2^-)$	R_{ADO}=1.78 *20*.
1445.1 *5*	22.7 *23*	5117.6	$(27/2^-)$	3672.5	$(25/2^+)$	R_{ADO}=0.85 *8*.
1669.3 *5*	16 *5*	9654.8	$(41/2^-)$	7985.5	$(39/2^-)$	R_{ADO}=1.15 *18*.
2097.0 *5*	6.5 *20*	8424.7	$(37/2^+)$	6327.6	$(35/2^+)$	R_{ADO}=1.4 *3*.

† 2009Zh11 state that energy uncertainties are within 0.5 keV and the intensity uncertainties within 30%. A general energy uncertainty of 0.5 keV for all γ rays, 10% intensity uncertainty for Iγ>20 and 30% for others have been assumed.

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Level Scheme

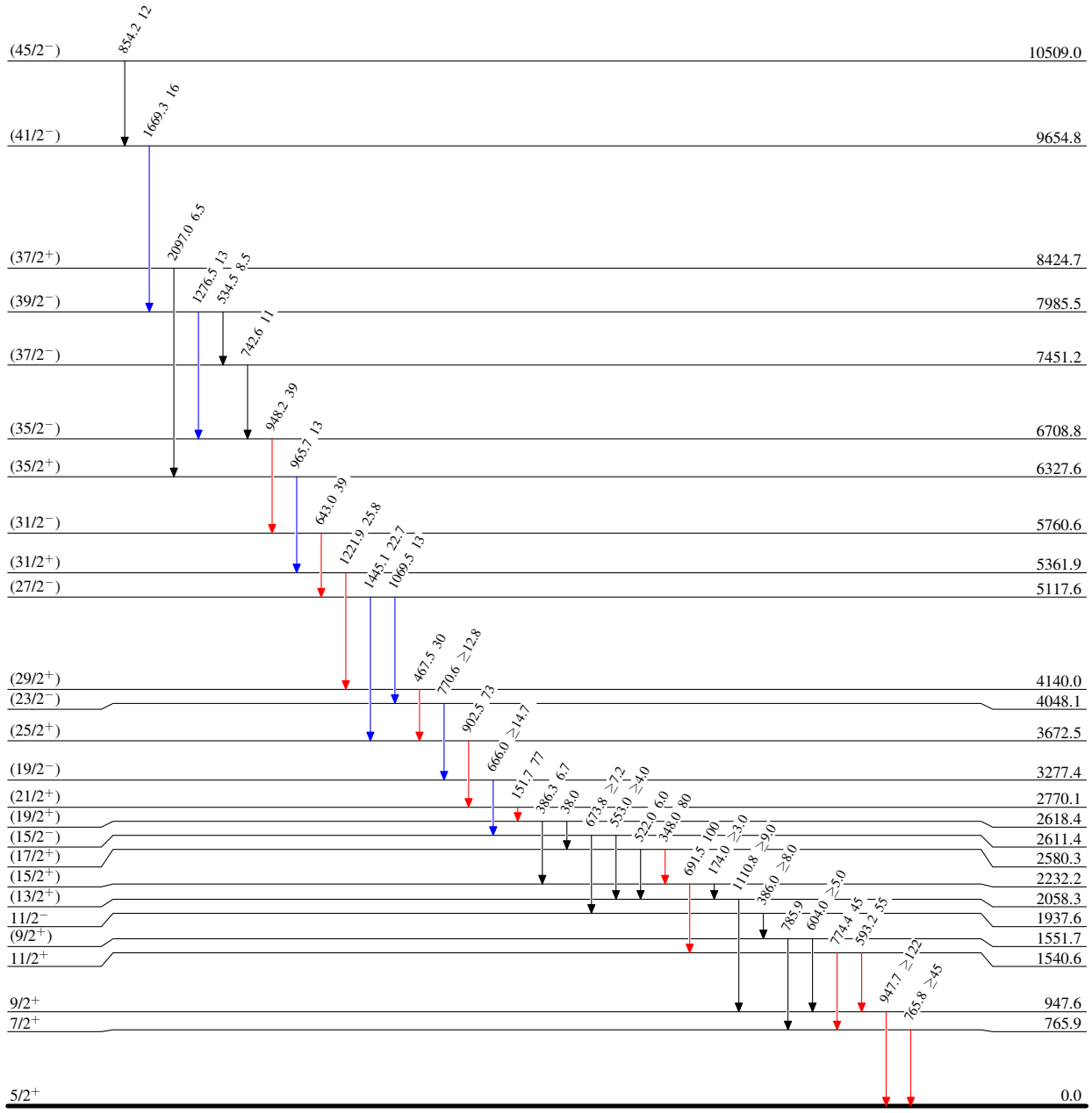
Intensities: Relative I_γ

Legend

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

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

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



$^{95}_{42}Mo_{53}$

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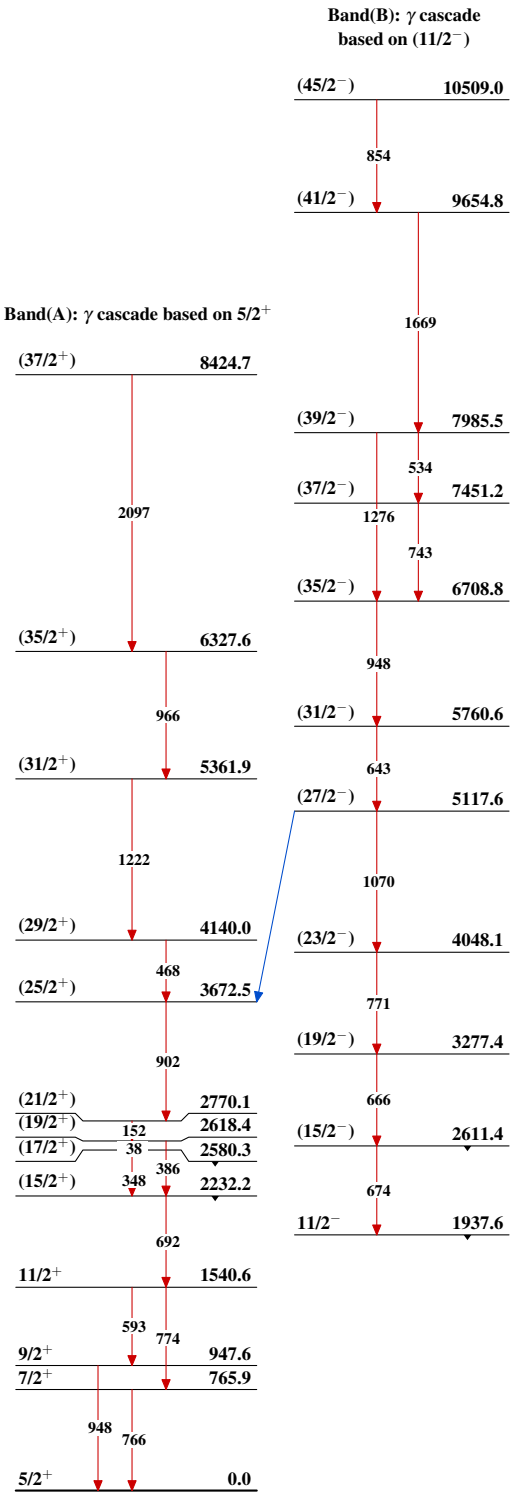

$^{95}_{42}Mo_{53}$