

$^{208}\text{Pb}(^{18}\text{O},\text{X}\gamma) \text{E}=85 \text{ MeV} \quad 2006\text{As07}$

Type	Author	History	
Modified	Balraj Singh	Citation	Literature Cutoff Date
		ENSDF	08-May-2015

2006As07: E=85 MeV. Measured E γ , I γ , $\gamma\gamma$, $\gamma\gamma(\theta)$ with the Euroball IV array consisting of 15 Cluster Ge detectors placed in the backward hemisphere, 26 Clover Ge detectors located around 90° and 30 tapered single-crystal Ge detectors located at forward angles.

[Additional information 1.](#) ^{85}Br Levels

E(level) ^{†‡}	J $^\pi$ #	E(level) ^{†‡}	J $^\pi$ #	E(level) ^{†‡}	J $^\pi$ #	E(level) ^{†‡}	J $^\pi$ #
0.0@	3/2 $^-$	2165.22@ 23	11/2 $^-$	3707.8& 4	15/2 $^{(-)}$	4657.2 4	(17/2 $^+$)
344.52@ 10	5/2 $^-$	2991.0 4	11/2 $^{(+)}$	3855.6 4	(15/2 $^+$)	4678.2 4	(17/2 $^+$)
1426.74@ 17	7/2 $^-$	3325.7& 4	13/2 $^{(-)}$	3955.2 5	(15/2)	4906.9 4	(19/2 $^+$)
1571.86@ 19	9/2 $^-$	3421.1 4	(13/2 $^+$)	4341.4& 5	(17/2 $^-$)	5113.7& 7	(19/2 $^-$)
1858.75 24	9/2 $^+$	3684.8 4	(13/2 $^+$)	4439.7 4	(17/2 $^+$)	5389.9 11	(21/2)

[†] From least-squares fit to E γ 's.

[‡] Search for isomers having T_{1/2} within the range 10-300 ns, based upon time distributions between emissions of γ -rays, conducted by [2006As07](#) yielded no evidence for isomerism in ^{85}Br , as suggested in [2005Fo05](#).

Spin-parity assignments to excited states made by [2006As07](#) based upon experimentally-determined multipole orders of de-exciting transitions and the lack or the existence of several linking transitions between excited states.

@ Band(A): γ cascade based on g.s.

& Band(B): Band based on 13/2 $^{(-)}$.

 $\gamma(^{85}\text{Br})$

J ₁ -J ₂ -J ₃	R(22°)	R(46°)
6-4-2	1.13	1.06
5-4-3	1.06	1.03
5-4-2	0.92	0.96

R(θ)=coincidence rates between γ -rays as a function of their relative angle of detection, divided by the ones obtained around 75°.

E γ	I γ	E _i (level)	J $^\pi_i$	E _f	J $^\pi_f$	Mult. [†]	Comments
217.0 3	2.9 12	4657.2	(17/2 $^+$)	4439.7	(17/2 $^+$)	D	
228.7 3	1.6 8	4906.9	(19/2 $^+$)	4678.2	(17/2 $^+$)	D	
249.5 2	5.0 15	4906.9	(19/2 $^+$)	4657.2	(17/2 $^+$)	D	
344.5 1	100	344.52	5/2 $^-$	0.0	3/2 $^-$	D	
382.1 2	13 3	3707.8	15/2 $^{(-)}$	3325.7	13/2 $^{(-)}$	D	R _{382\gamma-1161\gamma} (22°)=1.08 6; R _{382\gamma-1161\gamma} (46°)=1.05 4.
432.0 2	39 4	1858.75	9/2 $^+$	1426.74	7/2 $^-$	D	R _{432\gamma-1427\gamma} (22°)=0.93 6; R _{432\gamma-1427\gamma} (46°)=0.92 4.
434.3 3	3.3 13	3855.6	(15/2 $^+$)	3421.1	(13/2 $^+$)		
468.0 4	1.1 5	4906.9	(19/2 $^+$)	4439.7	(17/2 $^+$)		
483 1		5389.9	(21/2)	4906.9	(19/2 $^+$)		I γ : weak γ ray.

Continued on next page (footnotes at end of table)

$^{208}\text{Pb}(^{18}\text{O},\text{X}\gamma)$ E=85 MeV 2006As07 (continued) $\gamma(^{85}\text{Br})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	Comments
583.9 3	4.2 13	4439.7	(17/2 ⁺)	3855.6	(15/2 ⁺)		
593.3 2	31 3	2165.22	11/2 ⁻	1571.86	9/2 ⁻	D	$R_{593\gamma-1227\gamma}(22^\circ)=0.95$ 5; $R_{593\gamma-1227\gamma}(46^\circ)=0.97$ 4. 15/2 ⁻ for final level given in table 3 of 2006As07 is a misprint.
633.6 3	8.0 24	4341.4	(17/2 ⁻)	3707.8	15/2 ⁽⁻⁾		
702 1		4657.2	(17/2 ⁺)	3955.2	(15/2)		I_γ : weak γ ray.
738.6 3	9 3	2165.22	11/2 ⁻	1426.74	7/2 ⁻		
772.2 5	2 1	5113.7	(19/2 ⁻)	4341.4	(17/2 ⁻)		
864.6 4	9 3	3855.6	(15/2 ⁺)	2991.0	11/2 ⁽⁺⁾		
949.3 5	3 1	4657.2	(17/2 ⁺)	3707.8	15/2 ⁽⁻⁾		
972.5 5	2.5 10	4657.2	(17/2 ⁺)	3684.8	(13/2 ⁺)		
993.2 5	1.3 6	4678.2	(17/2 ⁺)	3684.8	(13/2 ⁺)		
1018.8 3	2.2 [‡] 9	4439.7	(17/2 ⁺)	3421.1	(13/2 ⁺)		
1082.1 4	16 [‡] 3	1426.74	7/2 ⁻	344.52	5/2 ⁻		
1132.2 4	5.0 15	2991.0	11/2 ⁽⁺⁾	1858.75	9/2 ⁺		
1160.5 3	22 3	3325.7	13/2 ⁽⁻⁾	2165.22	11/2 ⁻	D	$R_{1161\gamma-593\gamma}(22^\circ)=1.07$ 6; $R_{1161\gamma-593\gamma}(46^\circ)=1.06$ 4.
1227.3 2	60 6	1571.86	9/2 ⁻	344.52	5/2 ⁻	Q	$R_{1227\gamma-345\gamma}(22^\circ)=0.94$ 5; $R_{1227\gamma-345\gamma}(46^\circ)=0.98$ 3.
1257.2 5	1.2 6	4678.2	(17/2 ⁺)	3421.1	(13/2 ⁺)		
1419.3 5	3 1	2991.0	11/2 ⁽⁺⁾	1571.86	9/2 ⁻		
1426.8 2	42 4	1426.74	7/2 ⁻	0.0	3/2 ⁻	Q	
1514 [#] 1	<1	1858.75	9/2 ⁺	344.52	5/2 ⁻		
1562.3 3	10 3	3421.1	(13/2 ⁺)	1858.75	9/2 ⁺		
1790.0 5	2 1	3955.2	(15/2)	2165.22	11/2 ⁻		
1826.0 5	5 2	3684.8	(13/2 ⁺)	1858.75	9/2 ⁺		

[†] Coincidence rates between γ -rays as a function of their relative angle of detection ($R(\theta)$), divided by the ones obtained around 75° , are provided in comments on the relevant transitions. Theoretical values of $R(\theta)$ at $\theta = 22^\circ$ and 46° for several combinations of spin sequences are given, respectively, as follows:

[‡] $I\gamma=2.2$ 9 for 1082.1γ and 16 3 for 1018.8γ listed in table 3 of 2006As07 seem reversed as judged from authors' figure 5.

[#] Placement of transition in the level scheme is uncertain.

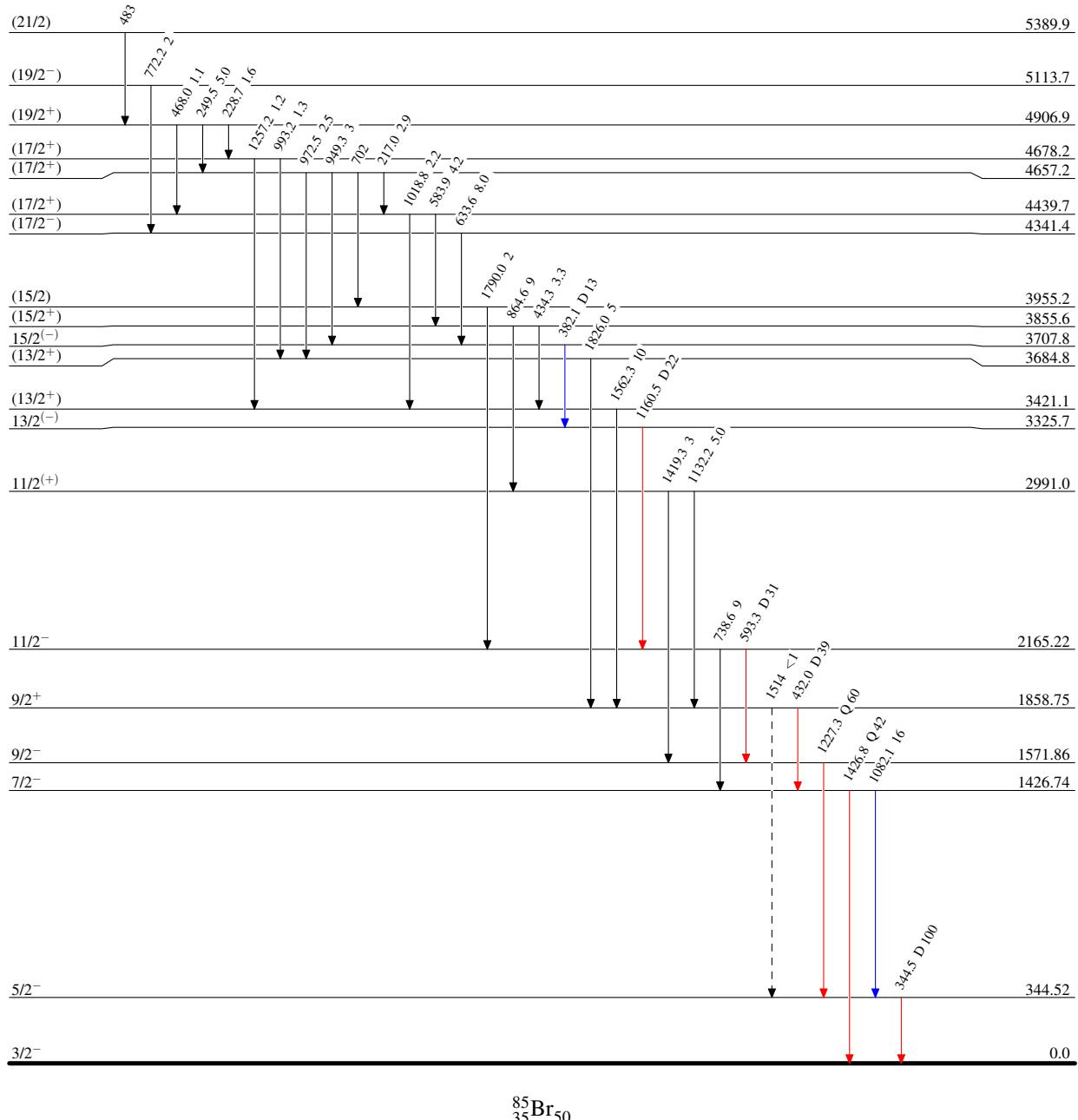
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Legend

Level Scheme

Intensities: Relative I_γ

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



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