

<sup>248</sup>Cm(<sup>18</sup>O,<sup>16</sup>O $\gamma$ ) 2008Is05

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 195,718 (2024)	12-Oct-2023

2008Is05: E(<sup>13</sup>C)=162 MeV from the JAEA-Tokai tandem accelerator bombarded a 0.8 mg/cm<sup>2</sup> thick <sup>248</sup>Cm target to study the one-neutron stripping reaction. Measured E $\gamma$ , I $\gamma$ ,  $\gamma\gamma$ ,  $\gamma(\theta)$ , particles, and (particle)  $\gamma$  coin, using six Ge detectors for  $\gamma$  rays and four sets of Si  $\Delta E$ -E detectors for particles. Comparison with deformed shell model predictions.

<sup>249</sup>Cm Levels

E(level) <sup>†</sup>	J $\pi$	Comments
0.0 <sup>#</sup>	1/2 <sup>+</sup>	
26.2 <sup>‡</sup> 4	3/2 <sup>+</sup>	
48.203 <sup>#</sup> 9	5/2 <sup>+</sup>	
48.766 <sup>&amp;</sup> 15	7/2 <sup>+</sup>	Additional information 1.
109.57 <sup>&amp;</sup> 10	9/2 <sup>+</sup>	
110.153 <sup>‡</sup> 10	7/2 <sup>+</sup>	Additional information 2.
148.40 <sup>#</sup> 10	9/2 <sup>+</sup>	Additional information 3.
182.84 <sup>&amp;</sup> 16	11/2 <sup>+</sup>	
244.75 <sup>‡</sup> 10	11/2 <sup>+</sup>	
268.8 <sup>&amp;</sup> 3	13/2 <sup>+</sup>	
299.00 <sup>#</sup> 10	13/2 <sup>+</sup>	
375.30 <sup>a</sup> 14	11/2 <sup>-</sup>	
429.75 <sup>‡</sup> 14	15/2 <sup>+</sup>	
498.60 <sup>#</sup> 22	17/2 <sup>+</sup>	
663.45 <sup>‡</sup> 17	19/2 <sup>+</sup>	
699.10 <sup>@</sup> 14	15/2 <sup>-</sup>	
868.30 <sup>@</sup> 25	19/2 <sup>-</sup>	

<sup>†</sup> From least-squares fit to E $\gamma$  data by the evaluator. Energies of 48.766-keV, 110.153-keV, and 148.40-keV levels kept fixed in the fitting procedure.

<sup>‡</sup> Band(A): 1/2[620],  $\alpha=-1/2$ .

<sup>#</sup> Band(a): 1/2[620],  $\alpha=+1/2$ .

<sup>@</sup> Band(B): 1/2[750].

<sup>&</sup> Band(C): 7/2[613].

<sup>a</sup> Band(D): 11/2[725].

$\gamma(^{249}\text{Cm})$

E $\gamma$	I $\gamma$ <sup>†</sup>	E <sub>i</sub> (level)	J <sub>i</sub> $\pi$	E <sub>f</sub>	J <sub>f</sub> $\pi$	Mult.#	$\alpha$ <sup>@</sup>	Comments
60.8 1		109.57	9/2 <sup>+</sup>	48.766	7/2 <sup>+</sup>			
73.6 3		182.84	11/2 <sup>+</sup>	109.57	9/2 <sup>+</sup>	(M1)	16.89 31	$\alpha(L)=12.68$ 23; $\alpha(M)=3.10$ 6 $\alpha(N)=0.853$ 16; $\alpha(O)=0.217$ 4; $\alpha(P)=0.0428$ 8; $\alpha(Q)=0.00308$ 6
86.0 2		268.8	13/2 <sup>+</sup>	182.84	11/2 <sup>+</sup>			
134.6 1	14.6 19	244.75	11/2 <sup>+</sup>	110.153	7/2 <sup>+</sup>	(E2)	4.94 7	$\alpha(K)=0.1530$ 22; $\alpha(L)=3.46$ 5; $\alpha(M)=0.978$ 14 $\alpha(N)=0.272$ 4; $\alpha(O)=0.0660$ 10; $\alpha(P)=0.01106$ 16; $\alpha(Q)=6.08 \times 10^{-5}$ 9 I( $\gamma+ce$ )= 88 11.
150.6 1	12.6 22	299.00	13/2 <sup>+</sup>	148.40	9/2 <sup>+</sup>	(E2)	3.07 4	$\alpha(K)=0.1733$ 24; $\alpha(L)=2.094$ 30; $\alpha(M)=0.590$ 8

Continued on next page (footnotes at end of table)

$^{248}\text{Cm}(^{18}\text{O}, ^{16}\text{O}n\gamma)$  **2008Is05** (continued)

$\gamma(^{249}\text{Cm})$ (continued)								
$E_\gamma$	$I_\gamma^\dagger$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. #	$\alpha^\@$	Comments
185.0 1	23.3 22	429.75	15/2 <sup>+</sup>	244.75	11/2 <sup>+</sup>	E2	1.331 19	$\alpha(\text{N})=0.1642$ 23; $\alpha(\text{O})=0.0399$ 6; $\alpha(\text{P})=0.00670$ 10; $\alpha(\text{Q})=4.20\times 10^{-5}$ 6 I( $\gamma+\text{ce}$ )= 52 9. $\alpha(\text{K})=0.1585$ 22; $\alpha(\text{L})=0.849$ 12; $\alpha(\text{M})=0.2384$ 34 $\alpha(\text{N})=0.0663$ 9; $\alpha(\text{O})=0.01612$ 23; $\alpha(\text{P})=0.00273$ 4; $\alpha(\text{Q})=2.228\times 10^{-5}$ 31 I( $\gamma+\text{ce}$ )= 55 5.
192.5 1	38 <sup>‡</sup> 4	375.30	11/2 <sup>-</sup>	182.84	11/2 <sup>+</sup>			I( $\gamma+\text{ce}$ )= 43 4.
199.6 2	22.4 25	498.60	17/2 <sup>+</sup>	299.00	13/2 <sup>+</sup>	(E2)	0.992 14	$\alpha(\text{K})=0.1461$ 21; $\alpha(\text{L})=0.613$ 9; $\alpha(\text{M})=0.1718$ 25 $\alpha(\text{N})=0.0478$ 7; $\alpha(\text{O})=0.01162$ 17; $\alpha(\text{P})=0.001978$ 29; $\alpha(\text{Q})=1.788\times 10^{-5}$ 26 I( $\gamma+\text{ce}$ )= 45 5.
233.7 1	22.4 26	663.45	19/2 <sup>+</sup>	429.75	15/2 <sup>+</sup>	(E2)	0.554 8	$\alpha(\text{K})=0.1183$ 17; $\alpha(\text{L})=0.316$ 4; $\alpha(\text{M})=0.0882$ 12 $\alpha(\text{N})=0.02452$ 35; $\alpha(\text{O})=0.00598$ 8; $\alpha(\text{P})=0.001025$ 14; $\alpha(\text{Q})=1.156\times 10^{-5}$ 16 I( $\gamma+\text{ce}$ )= 35 4.
265.7 1	86 5	375.30	11/2 <sup>-</sup>	109.57	9/2 <sup>+</sup>	E1	0.0566 8	$\alpha(\text{K})=0.0443$ 6; $\alpha(\text{L})=0.00928$ 13; $\alpha(\text{M})=0.002267$ 32 $\alpha(\text{N})=0.000618$ 9; $\alpha(\text{O})=0.0001543$ 22; $\alpha(\text{P})=2.86\times 10^{-5}$ 4; $\alpha(\text{Q})=1.561\times 10^{-6}$ 22 I( $\gamma+\text{ce}$ )= 91 5.
369.7 1	20.4 29	868.30	19/2 <sup>-</sup>	498.60	17/2 <sup>+</sup>	(E1)	0.0281 4	$\alpha(\text{K})=0.02220$ 31; $\alpha(\text{L})=0.00441$ 6; $\alpha(\text{M})=0.001071$ 15 $\alpha(\text{N})=0.000292$ 4; $\alpha(\text{O})=7.33\times 10^{-5}$ 10; $\alpha(\text{P})=1.380\times 10^{-5}$ 19; $\alpha(\text{Q})=8.10\times 10^{-7}$ 11 I( $\gamma+\text{ce}$ )= 21 3.
400.1 1	14.6 20	699.10	15/2 <sup>-</sup>	299.00	13/2 <sup>+</sup>	(E1)	0.02387 33	$\alpha(\text{K})=0.01894$ 27; $\alpha(\text{L})=0.00371$ 5; $\alpha(\text{M})=0.000901$ 13 $\alpha(\text{N})=0.0002459$ 34; $\alpha(\text{O})=6.17\times 10^{-5}$ 9; $\alpha(\text{P})=1.167\times 10^{-5}$ 16; $\alpha(\text{Q})=6.96\times 10^{-7}$ 10 I( $\gamma+\text{ce}$ )= 15 2.

<sup>†</sup> In units of  $\mu\text{b}$  deduced by the evaluator from  $\alpha$  and I( $\gamma+\text{ce}$ ). I( $\gamma+\text{ce}$ ) given in comments in units of  $\mu\text{b}$  were obtained by **2008Is05** from their measured  $I_\gamma$ 's and theoretical conversion coefficients taken from Rosel *et.al* (1978Ro21).

<sup>‡</sup> Combined intensity for 192.5+193.5  $\gamma$  rays. **2008Is05** give the total intensity only with 192.5 $\gamma$  which may imply that the intensity of the 193.5 $\gamma$  is weak.

<sup>#</sup> From  $^{248}\text{Cm}(^{16}\text{O}, ^{15}\text{O}n\gamma)$  measurement by the same group (**2008Is05**).

<sup>@</sup> [Additional information 4](#).

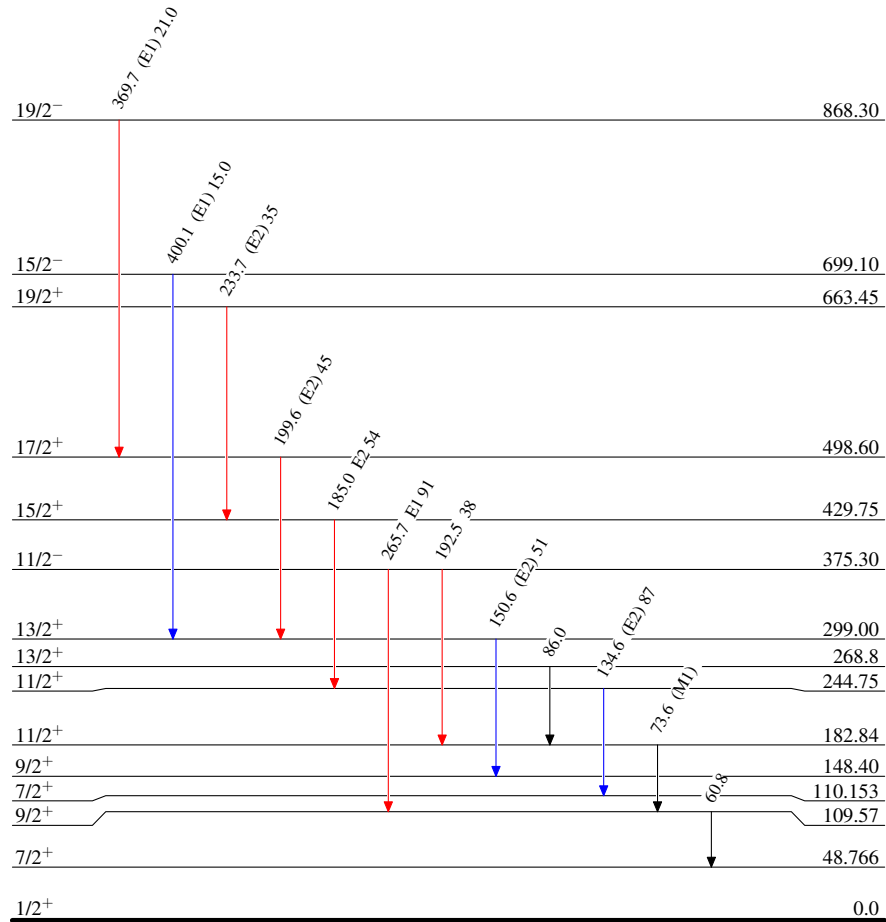
$^{248}\text{Cm}(^{18}\text{O},^{16}\text{O}n\gamma)$  2008Is05

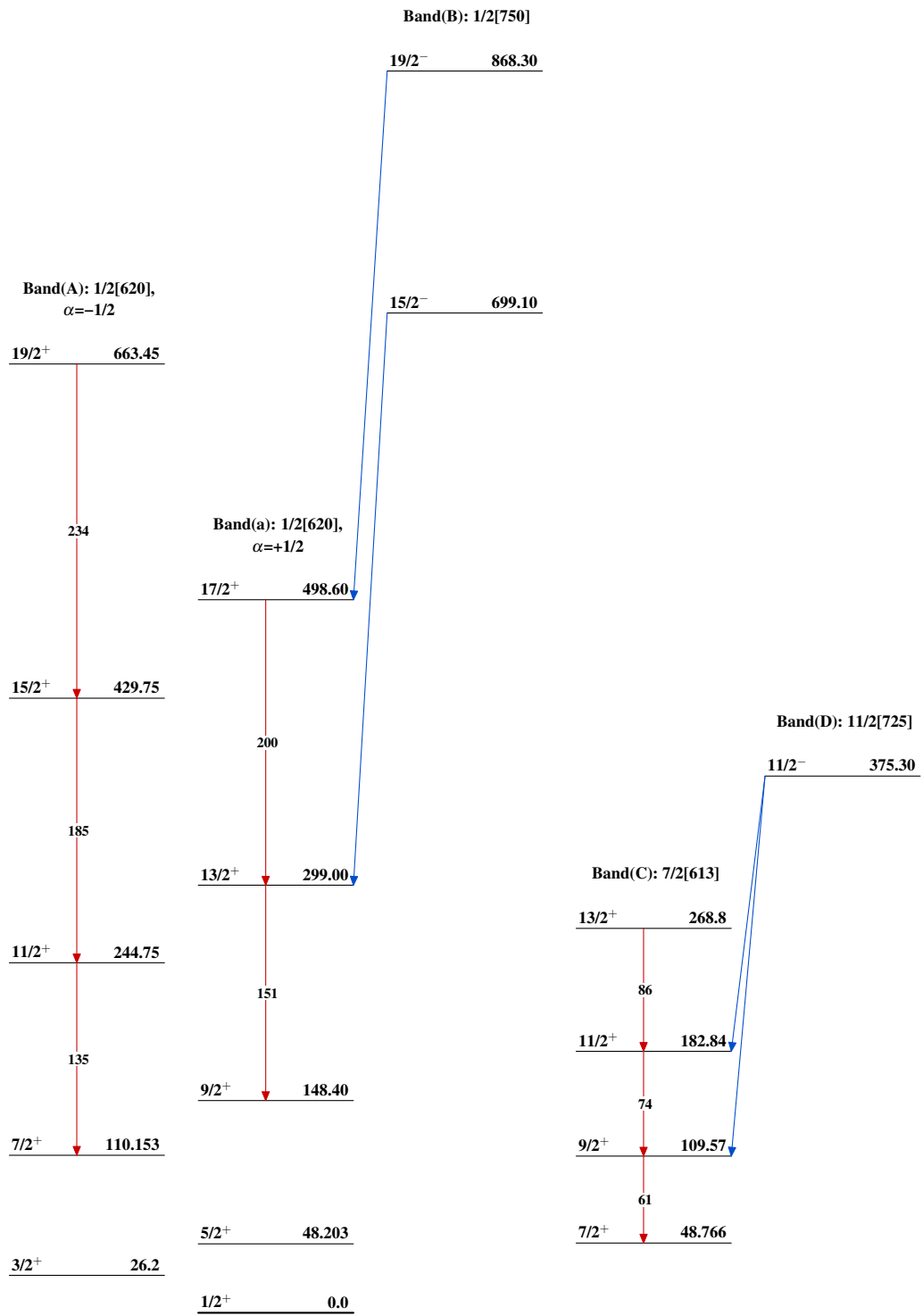
## Level Scheme

Intensities: Relative  $I_{(\gamma+ce)}$ 

## Legend

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

 $^{249}_{96}\text{Cm}_{153}$

$^{248}\text{Cm}(^{18}\text{O}, ^{16}\text{O}n\gamma)$  2008Is05 $^{249}_{96}\text{Cm}_{153}$