

<sup>76</sup>Ge(α,pnγ) 1996Do10

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Ameenah R. Farhan, Balraj Singh		NDS 110, 1917 (2009)	30-Jun-2009

1996Do10: E=32, 26, 40 MeV. Measured γ, γγ, γγ(θ)(DCO), pγ coin, lifetimes by πg(t) (start signal from LEPS γ detector and stop signal from particle telescope). The γ-ray spectra were measured using an array of nine Compton-suppressed Ge detectors.

<sup>78</sup>As Levels

E(level) <sup>#</sup>	Jπ <sup>†</sup>	T <sub>1/2</sub> <sup>‡</sup>	Comments
0.0	2 <sup>-</sup>		
184.5 3	(3 <sup>-</sup> )		
211.7 3	(4 <sup>-</sup> )	3.9 ns 8	
364.7 3	(5 <sup>-</sup> )	3.0 ns 6	Proposed configuration=πp <sub>3/2</sub> ⊗νg <sub>9/2</sub> <sup>3</sup> as for a 5 <sup>-</sup> level in <sup>80</sup> Br.
371.9 4	(4 <sup>+</sup> )	0.90 ns 28	
439.4 3	(5 <sup>-</sup> )		
567.6@ 3	(5 <sup>+</sup> )	<0.69 ns	T <sub>1/2</sub> : 0.69 ns 21 with No delayed feeding correction applied.
622.1@ 4	(6 <sup>+</sup> )		
735.7 5			
750.0@ 5	(7 <sup>+</sup> )		
758.4 4	(6 <sup>-</sup> )		
1007.6@ 6	(8 <sup>+</sup> )		
1105.0 5			
1503.4@ 7	(9 <sup>+</sup> )		
2024.0@ 7	(10 <sup>+</sup> )		

<sup>†</sup> From 'Adopted Levels'.

<sup>‡</sup> From pγ(t) (1996Do10).

<sup>#</sup> From least-squares fit to Eγ's, assuming Δ(Eγ)=0.3 keV for each γ ray.

@ Band(A): πg<sub>9/2</sub>⊗νg<sub>9/2</sub> multiplet.

γ(<sup>78</sup>As)

E <sub>γ</sub>	E <sub>i</sub> (level)	J <sub>i</sub> <sup>π</sup>	E <sub>f</sub>	J <sub>f</sub> <sup>π</sup>	Mult.	α <sup>#</sup>	Comments
(27.2 <sup>†</sup> )	211.7	(4 <sup>-</sup> )	184.5	(3 <sup>-</sup> )	[M1]	3.66	B(M1)(W.u.)=0.038 α(K)=3.24 5; α(L)=0.360 5; α(M)=0.0550 8; α(N+..)=0.00411 6 α(N)=0.00411 6
54.3 <sup>†</sup>	622.1	(6 <sup>+</sup> )	567.6	(5 <sup>+</sup> )			
127.9 <sup>†</sup>	750.0	(7 <sup>+</sup> )	622.1	(6 <sup>+</sup> )			
128.1 <sup>‡</sup>	567.6	(5 <sup>+</sup> )	439.4	(5 <sup>-</sup> )			
153.1 <sup>†</sup>	364.7	(5 <sup>-</sup> )	211.7	(4 <sup>-</sup> )	[M1]	0.0288	B(M1)(W.u.)=0.0019 α(K)=0.0256 4; α(L)=0.00274 4; α(M)=0.000418 6; α(N+..)=3.17×10 <sup>-5</sup> 5 α(N)=3.17×10 <sup>-5</sup> 5
180.2	364.7	(5 <sup>-</sup> )	184.5	(3 <sup>-</sup> )	[E2]	0.0876	B(E2)(W.u.)=2.3 α(K)=0.0772 11; α(L)=0.00898 13; α(M)=0.001360 19; α(N+..)=9.73×10 <sup>-5</sup> 14 α(N)=9.73×10 <sup>-5</sup> 14
184.5 <sup>†</sup>	184.5	(3 <sup>-</sup> )	0.0	2 <sup>-</sup>			
187.5 <sup>‡</sup>	371.9	(4 <sup>+</sup> )	184.5	(3 <sup>-</sup> )			
195.8	567.6	(5 <sup>+</sup> )	371.9	(4 <sup>+</sup> )			

Continued on next page (footnotes at end of table)

$^{76}\text{Ge}(\alpha, \text{pn}\gamma)$  **1996Do10** (continued) $\gamma(^{78}\text{As})$  (continued)

$E_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult.	$\alpha^\#$	Comments
202.9 <sup>‡</sup>	567.6	(5 <sup>+</sup> )	364.7	(5 <sup>-</sup> )			
211.7 <sup>‡</sup>	211.7	(4 <sup>-</sup> )	0.0	2 <sup>-</sup>	[E2]	0.0484	B(E2)(W.u.)=4.8 $\alpha(\text{K})=0.0428$ 6; $\alpha(\text{L})=0.00486$ 7; $\alpha(\text{M})=0.000738$ 11; $\alpha(\text{N}+..)=5.33 \times 10^{-5}$ 8 $\alpha(\text{N})=5.33 \times 10^{-5}$ 8
227.7 <sup>‡</sup>	439.4	(5 <sup>-</sup> )	211.7	(4 <sup>-</sup> )			
257.5	622.1	(6 <sup>+</sup> )	364.7	(5 <sup>-</sup> )			
257.6 <sup>†</sup>	1007.6	(8 <sup>+</sup> )	750.0	(7 <sup>+</sup> )			
319.0	758.4	(6 <sup>-</sup> )	439.4	(5 <sup>-</sup> )			
346.6	1105.0		758.4	(6 <sup>-</sup> )			
355.8 <sup>‡</sup>	567.6	(5 <sup>+</sup> )	211.7	(4 <sup>-</sup> )			
363.8	735.7		371.9	(4 <sup>+</sup> )			
393.6	758.4	(6 <sup>-</sup> )	364.7	(5 <sup>-</sup> )			
495.8	1503.4	(9 <sup>+</sup> )	1007.6	(8 <sup>+</sup> )			
520.6	2024.0	(10 <sup>+</sup> )	1503.4	(9 <sup>+</sup> )			
1016 <sup>@</sup>	2024.0	(10 <sup>+</sup> )	1007.6	(8 <sup>+</sup> )			

<sup>†</sup> Strong  $\gamma$  ray (>20% or so).

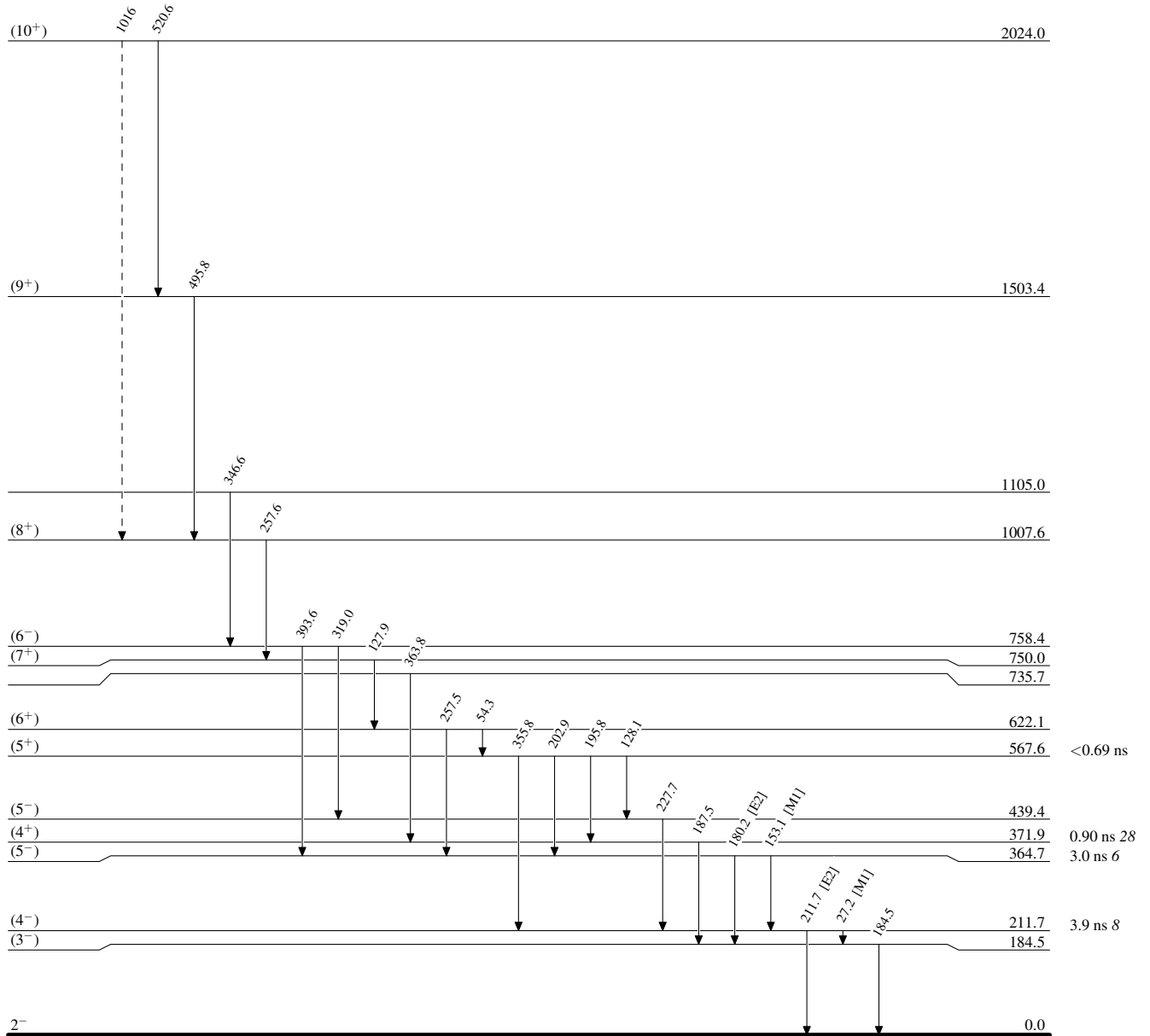
<sup>‡</sup> Medium intensity  $\gamma$  ray (about 5-20%).

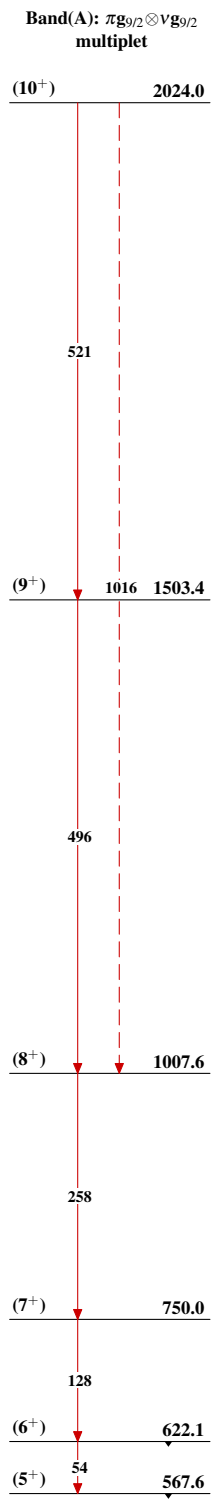
<sup>#</sup> Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on  $\gamma$ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

<sup>@</sup> Placement of transition in the level scheme is uncertain.

$^{76}\text{Ge}(\alpha, \text{pn}\gamma)$  1996Do10

Legend

Level Scheme-----►  $\gamma$  Decay (Uncertain) $^{78}_{33}\text{As}_{45}$

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