

⁷²Ge($\alpha,3n\gamma$) 1976Be15

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen		NDS 158, 1 (2019)	16-May-2019

1976Be15: E=30-55 MeV, measured E γ , I γ , $\gamma(\theta)$, $\gamma\gamma$. Isotopic assignment of γ -rays from similar relative gamma-ray excitation functions and coin with known 125 γ in ⁷³Se. The yield of 125 γ was also compared to the yield of 361 γ from the subsequent ⁷³Se ϵ decay.

⁷³Se Levels

E(level) [†]	J π [‡]	T _{1/2}	Comments
0.0	7/2 ⁺		
25.71 4	1/2 ⁻	39.8 min 17	T _{1/2} : from Adopted Levels.
90.7 2			
151.02 17	3/2 ⁽⁻⁾		
505.30 17	5/2 ⁽⁻⁾		
804.67 20	7/2 ⁽⁻⁾		
1178.59 22	9/2 ⁽⁻⁾		

[†] From least-squares fit to E γ data.

[‡] From **1976Be15**, based on $\gamma(\theta)$ data and band structure. Note that spins here are lower by one unit as compared to those in Adopted Levels.

$\gamma(^{73}\text{Se})$

E γ [†]	I γ	E _i (level)	J π _i	E _f	J π _f	Mult. [‡]	δ	α [#]	Comments
25.71 4		25.71	1/2 ⁻	0.0	7/2 ⁺	E3		5250 90	E γ ,Mult.: from Adopted Gammas. γ ray weakly observed by 1976Be15 with an x-ray detector.
65.0 2	43 4	90.7		25.71	1/2 ⁻				
125.2 2	161 16	151.02	3/2 ⁽⁻⁾	25.71	1/2 ⁻	D(+Q)	≤ 0.03		A ₂ =-0.40 2; A ₄ =-0.02 18
299.3 2	49 5	804.67	7/2 ⁽⁻⁾	505.30	5/2 ⁽⁻⁾	D(+Q)	≤ 0.2		A ₂ =-0.12 5; A ₄ =+0.10 12
354.2 2	100 10	505.30	5/2 ⁽⁻⁾	151.02	3/2 ⁽⁻⁾	D(+Q)	≤ 0.2		A ₂ =-0.46 5; A ₄ =+0.10 12
373.8 2	48 5	1178.59	9/2 ⁽⁻⁾	804.67	7/2 ⁽⁻⁾	D(+Q)	≤ 0.15		A ₂ =-0.37 14; A ₄ =+0.24 34
479.7 2	33 3	505.30	5/2 ⁽⁻⁾	25.71	1/2 ⁻				
653.6 2	62 6	804.67	7/2 ⁽⁻⁾	151.02	3/2 ⁽⁻⁾	Q			A ₂ =+0.45 11; A ₄ =-0.31 12
673.4 2	42 4	1178.59	9/2 ⁽⁻⁾	505.30	5/2 ⁽⁻⁾	Q			A ₂ =+0.35 12; A ₄ =-0.40 16
^x 912.4 2	131 13								

[†] **1976Be15** state that energies are accurate to 0.15 keV. The evaluators assign uncertainty of 0.2 keV.

[‡] From $\gamma(\theta)$, except where noted.

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

^x γ ray not placed in level scheme.

$^{72}\text{Ge}(\alpha,3n\gamma)$ 1976Be15

Level Scheme

Intensities: Relative I_γ

Legend

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

