

$^{57}\text{Fe}(\text{d,n}),(\text{d,n}\gamma)$ 1970Be33,1966Ok02

Type	Author	Citation	History	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja and B. Singh	ENSDF		31-Oct-2015

1970Be33: E=5.5 MeV; measured $\gamma(\theta, \text{H}, \text{t})$.

1966Ok02: E=11.7 MeV, FWHM $\approx$ 300 keV; measured $\sigma(\text{E}, \theta)$.

$J^\pi(^{57}\text{Fe})=1/2^-$.

 ^{58}Co Levels

E(level) [†]	J^π [‡]	$T_{1/2}$ [‡]	L	Comments
0.0	2 ⁺	70.86 d 6	3	
28 4	5 ⁺	9.10 h 9		%IT=100
57 3	4 ⁺	10.5 μs 3		%IT=100 g=+1.046 2 (1970Be33).
1290 [#]			1	
1750 [#]			1	
2770 [#]			1	

[†] From 1966Ok02, except for 28, 57 levels which are from E γ of 1970Be33.

[‡] From Adopted Levels.

[#] Probably composite of several levels because of poor energy resolution.

 $\gamma(^{58}\text{Co})$

E_γ [†]	I_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	δ	α [‡]	Comments
29 3	62 12	57	4 ⁺	28	5 ⁺	E2+M1	-2.3 4	51 4	δ : -0.33 6 or -2.3 4 (1970Be33). However, comparison of experimental and theoretical cross sections and isomer ratios from $^{58}\text{Ni}(\text{n}, \text{p})$ and $^{59}\text{Co}(\text{n}, 2\text{n})$ reactions over incident neutron energy range of 0.97 to 20.35 MeV (1999Av04, 2004Se01, and 2015HoZZ) support $\delta(\text{E2/M1})=2.3$ over 0.33. α : from Adopted Gammas for adopted $E_\gamma=28.30$ 15. α : from Adopted Gammas for adopted $E_\gamma=52.96$ 13.
57 3	100	57	4 ⁺	0.0	2 ⁺	[E2]		5.97 10	

[†] From 1970Be33.

[‡] 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.

⁵⁷Fe(d,n),(d,n γ) 1970Be33,1966Ok02

Level Scheme

Intensities: Relative I γ

Legend

- $\longrightarrow$ I γ < 2% $\times$ I γ^{max}
- $\longrightarrow$ I γ < 10% $\times$ I γ^{max}
- $\longrightarrow$ I γ > 10% $\times$ I γ^{max}

