^{58}Fe(p,n),(p,nγ) 1975Br05,1972Ha61

History

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

1975Br05 (also 1973BrYA): E=3.33-4.73 MeV; measured Eγ, Iγ, γ(θ).
1972Ha61 (also 1972Ge14): E=3.9 MeV; measured Eγ, Iγ, $T_{1/2}$, nγ(θ), pγ(θ,H), γ(θ,H).
Others:
1988Wa07: E=120 MeV; measured σθ, deduced Gamow-Teller strengths resonances and transition strengths.
1978Wo14: E=20.2 MeV; measured σ(E,θ).
1970Ta01: E=3.65 to 6.06 MeV; FWHM≈10 keV; tof, measured level energies.
Additional information 1.
All data for E≤112 levels are from 1972Ha61, except where noted.

^{58}Co Levels

E(level)†	Jπ@	$T_{1/2}$@	L#	S‡	Comments
0.0	2^+	70.86 d *6*			
24.9	5^+	9.10 h *9*			%IT=100
53.2 *3*	4^+	10.5 μs *3*			%IT=100
111.5 *5*	3^+	0.18 ns *3*			g=+0.74 *13*.
366 *3*	3^+				
374	5^+				E(level): from 1975Br05.
455 *3*	4^+				
884 *4*					
1037 *4*	3^+			1.2	
1044 *5*	1^+		[0]	1.0	E(level): 1050 (1978Wo14).
1180 *5*	5^+				
1236 *5*	2^+				
1352 *5*	$(2)^+$				
1368 *5*	1^+				
1376 *5*	1^+				
1415 *5*	$(5)^+$				
1433 *5*	1^+		[0]		E(level): a doublet at 1400 (1978Wo14).
1520 *5*					
1545 *5*	5^+				
1602 *5*	3^+				
1664 *5*	3^+				
1725 *5*	1^+				
1734 *5*			[0]	1.7	L: combined angular distribution for 1734+1864 shows L=0 shape. E(level): 1730 (1978Wo14).
1745 *5*	$(3,4)^+$				
1777 *6*	$3^+,4^+,5^+$				
1810 *6*	0^+				
1829 *6*					
1841 *6*	3^+				
1864 *6*	1^+		[0]	1.6	E(level): 1870 (1978Wo14). L: combined angular distribution for 1734+1864 shows L=0 shape.
1975 *6*	3^+				
2008 *6*	$2^+,3^+,4^+$				
2071 *6*	4^+				
2166 *7*	3^+				
2245 *7*	1^+		[0]	0.5	E(level): 2250 (1978Wo14).
2260 *7*					
2339 *7*	$1^+,2^+,3^+$				
2420 *7*					
2441 *8*	$(1^+,2^+)$				
2640	1^+		[0]	1.7	

Continued on next page (footnotes at end of table)

^{58}Fe(p,n),(p,nγ) 1975Br05,1972Ha61 (continued)

^{58}Co Levels (continued)

E(level)[†]	J$^{\pi}$[@]	L[#]	S[‡]	Comments
3290	1$^+$	[0]	0.5	
5800	0$^+$	0		E(level): probable IAS of ^{58}Fe(g.s.). L: from angular distribution.

[†] E≤112 (1972Ha61); E=366-2441 (1970Ta01); E>2441 (1978Wo14), unless indicated otherwise.
[‡] Relative strength of excitation (1978Wo14). Note that the peaks are not well resolved and level association is somewhat arbitrary.
[#] Assumed value for pure L=0 spin-flip transitions to $J^{\pi}=1^+$ states (1978Wo14), except for 1730+1870 unresolved group and for 5800 group where L value is from $\sigma(\theta)$ distribution.
[@] From Adopted Levels.

γ(^{58}Co)

E$_i$(level)	J$_i^{\pi}$	Eγ	Iγ[‡]	E$_f$	J$_f^{\pi}$	Mult.	δ[†]	Comments
53.2	4$^+$	28.3	36 *3*	24.9	5$^+$			
		53.2	64 *3*	0.0	2$^+$			
111.5	3$^+$	58.3	40 *4*	53.2	4$^+$	D(+Q)	−0.02 *3*	Mult.: A_2=−0.12 *5*, A_4=+0.06 *7*.
		111.5	60 *4*	0.0	2$^+$	D(+Q)	−0.02 *2*	Mult.: A_2=−0.29 *4*, A_4=+0.06 *5*, δ=−0.04 *2* (1972Ha61).
366	3$^+$	366	100	0.0	2$^+$	D(+Q)	0.00 *1*	
374	5$^+$	321	100	53.2	4$^+$	D(+Q)	−0.03 *2*	
455	4$^+$	432	100	24.9	5$^+$	D+Q	−0.07 *2*	
1037	3$^+$	583	100	455	4$^+$	D(+Q)	−0.02 *6*	
1433	1$^+$	1435		0.0	2$^+$	D+(Q)	0.00 *8*	

[†] All δ for Eγ>100 keV are from γ(θ) in 1975Br05.
[‡] % photon branching from each level (1971Ro08).

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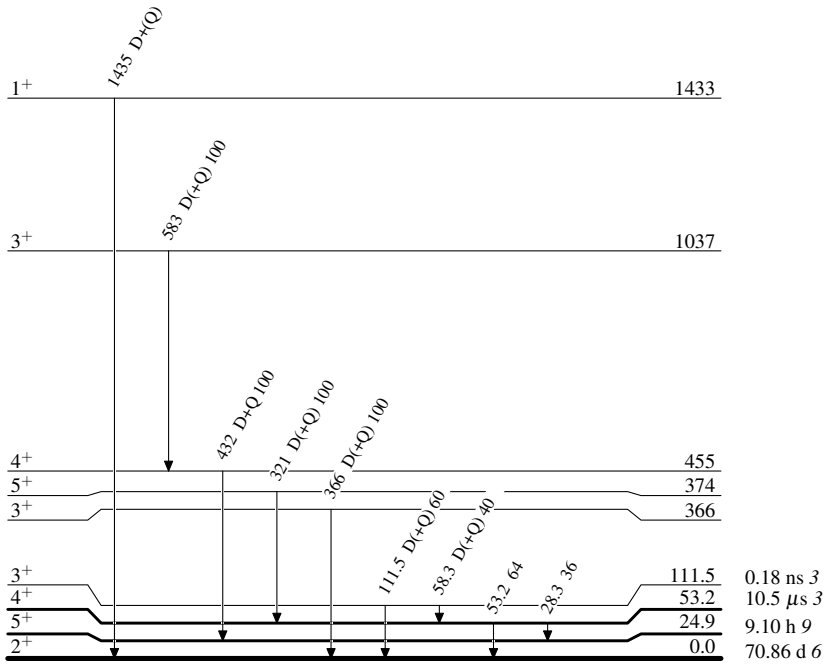
Level Scheme

Intensities: % photon branching from each level



$^{58}_{27}Co_{31}$