^{70}Ge(n,n′γ) 1985DoZW,1987Do14

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	G. Gürdal, E. A. Mccutchan	NDS 136, 1 (2016)	1-Jul-2016

1987Do14: reactor fast neutrons, enriched target. An anti-Compton Ge(Li)-NaI(Tl) detector system was used to detect γ-rays. Measured γ(θ); sign convention for δ not given by authors.

1985DoZW: reactor fast neutrons, measured Eγ, Iγ, $T_{1/2}$ by DSAM.

1970Ch15: E=0.5-2.55 MeV; Ge(Li) detectors; measured σ(θ) for γ rays with pulsed beam TOF system; sign convention for δ not given by authors.

Others: 1969Ko34, 1969Li12, 1971Ko26, and 1988DoZU.

^{70}Ge Levels

E(level)†	Jπ‡	$T_{1/2}$#	E(level)†	Jπ‡	$T_{1/2}$#	E(level)†	Jπ‡	$T_{1/2}$#
0.0	0^+		2805.8	4^+		3334.6	0^+ to 3^+	
1039.3	2^+		2887.4	0^+		3371.5	(3,4)	0.3 ps *2*
1215.3	0^+		2944.4	2^+		3417.8	5^-	
1707.7	2^+		3046.3	3^+		3489.1	$(3,4^+)$	
2153.6	4^+		3059.0	4^+		3581.3	4^+	0.6 ps *2*
2156.9	2^+		3105.6	(0^+)		3631.2	$(2)^+$	0.5 ps *1*
2306.2	0^+		3180.4	2^+	0.015 ps *6*	3668.8	6^-	
2451.2	3^+		3293.6	$3^+,4^+$		3956	7^-	
2535.0	2^+	>0.4 ps	3297	6^+				
2561.7	3^-		3313.9	1^-				

† From a least-squares fit to Eγs by the evaluators.
‡ From the Adopted Levels.
# From 1985DoZW by DSAM.

γ(^{70}Ge)

Eγ†	Iγ#	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	δ@	Comments
176.4	11.6 *3*	1215.3	0^+	1039.3	2^+			
251.0		3668.8	6^-	3417.8	5^-			
358.8		3417.8	5^-	3059.0	4^+			
449.2	0.20 *2*	2156.9	2^+	1707.7	2^+			
492.4	0.10 *2*	1707.7	2^+	1215.3	0^+			
595.1	0.7 *3*	3046.3	3^+	2451.2	3^+			
608.3	0.20 *2*	3059.0	4^+	2451.2	3^+			
651.8	0.20 *4*	2805.8	4^+	2153.6	4^+			
658.5	0.2	3956	7^-	3297	6^+			
668.3	10.6 *2*	1707.7	2^+	1039.3	2^+	D+Q		δ: −6 *+3−10* or −0.6 *5* from population parameter method using γ(θ) of 1709γ to fix the excited state alignment and the γ(θ) of 668γ to determine δ; −7 *4* or −0.75 *25* from Wolfenstein-Hauser-Feshbach statistical model calculations. Sign of δ reversed from that given by 1970Ch15; −10 *+5−10* (1987Do14) from γ(θ).
730.8	0.20 *2*	2887.4	0^+	2156.9	2^+			
743.7	2.9 *3*	2451.2	3^+	1707.7	2^+	D+Q	+3.5 *9*	
758.2	0.10 *5*	3293.6	$3^+,4^+$	2535.0	2^+			
827.6	1.6 *2*	2535.0	2^+	1707.7	2^+			
889.4	0.20 *2*	3046.3	3^+	2156.9	2^+			
892.7	0.6 *1*	3046.3	3^+	2153.6	4^+			
905.5	0.7 *1*	3059.0	4^+	2153.6	4^+			

Continued on next page (footnotes at end of table)

^{70}Ge(n,n′γ) 1985DoZW,1987Do14 (continued)

γ(^{70}Ge) (continued)

E_γ [†]	I_γ [#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[@]
941.0	2.5 *2*	2156.9	2^+	1215.3	0^+		
1039.3	100 *5*	1039.3	2^+	0.0	0^+		
1098.5	1.6 *2*	2805.8	4^+	1707.7	2^+		
1114.3	6.2 *3*	2153.6	4^+	1039.3	2^+		
1117.6	3.0 *5*	2156.9	2^+	1039.3	2^+		
1179.5	0.20 *3*	2887.4	0^+	1707.7	2^+		
1217.9	0.3 *1*	3371.5	(3,4)	2153.6	4^+		
1236.7	1.0 *1*	2944.4	2^+	1707.7	2^+		
1266.9	1.1 *2*	2306.2	0^+	1039.3	2^+		
1319.8	0.20 *2*	2535.0	2^+	1215.3	0^+		
1332.2	0.20 *2*	3489.1	$(3,4^+)$	2156.9	2^+		
1338.6	0.3 *1*	3046.3	3^+	1707.7	2^+		
1351.3	0.10 *2*	3059.0	4^+	1707.7	2^+		
1397.9	0.10 *3*	3105.6	(0^+)	1707.7	2^+		
1411.9	1.3 *1*	2451.2	3^+	1039.3	2^+	D+Q	−2.2 *+5−3*
1427.6	0.3 *1*	3581.3	4^+	2153.6	4^+		
1495.4	2.1 *2*	2535.0	2^+	1039.3	2^+	D+Q	−0.75
1522.4	4.7 *3*	2561.7	3^-	1039.3	2^+	D+Q	−0.11 *4*
1585.2	0.4 *1*	3293.6	$3^+,4^+$	1707.7	2^+		
1707.7	10.2 *7*	1707.7	2^+	0.0	0^+		
1781.4	0.5 *1*	3489.1	$(3,4^+)$	1707.7	2^+		
2007.0[&]	0.10 *2*	3046.3	3^+	1039.3	2^+		
2019.7	0.9 *1*	3059.0	4^+	1039.3	2^+		
2066.3	0.30 *2*	3105.6	(0^+)	1039.3	2^+		
2141.1	0.7 *1*	3180.4	2^+	1039.3	2^+		
2156.9	0.8 *1*	2156.9	2^+	0.0	0^+		
2274.6	0.5 *1*	3313.9	1^-	1039.3	2^+		
2295.3	0.6 *1*	3334.6	0^+ to 3^+	1039.3	2^+		
2591.9	0.30 *1*	3631.2	$(2)^+$	1039.3	2^+		

[†] From 1985DoZW.
[‡] Deduced from the measured δ in 1987Do14.
[#] Relative intensity (1985DoZW).
[@] From 1987Do14, unless given otherwise, with all signs changed. δ(1522γ) with adopted value suggests the sign convention of these authors to be opposite to that of Krane-Steffen.
[&] The authors′ value of 2027.0 appears to be a misprint.

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Level Scheme

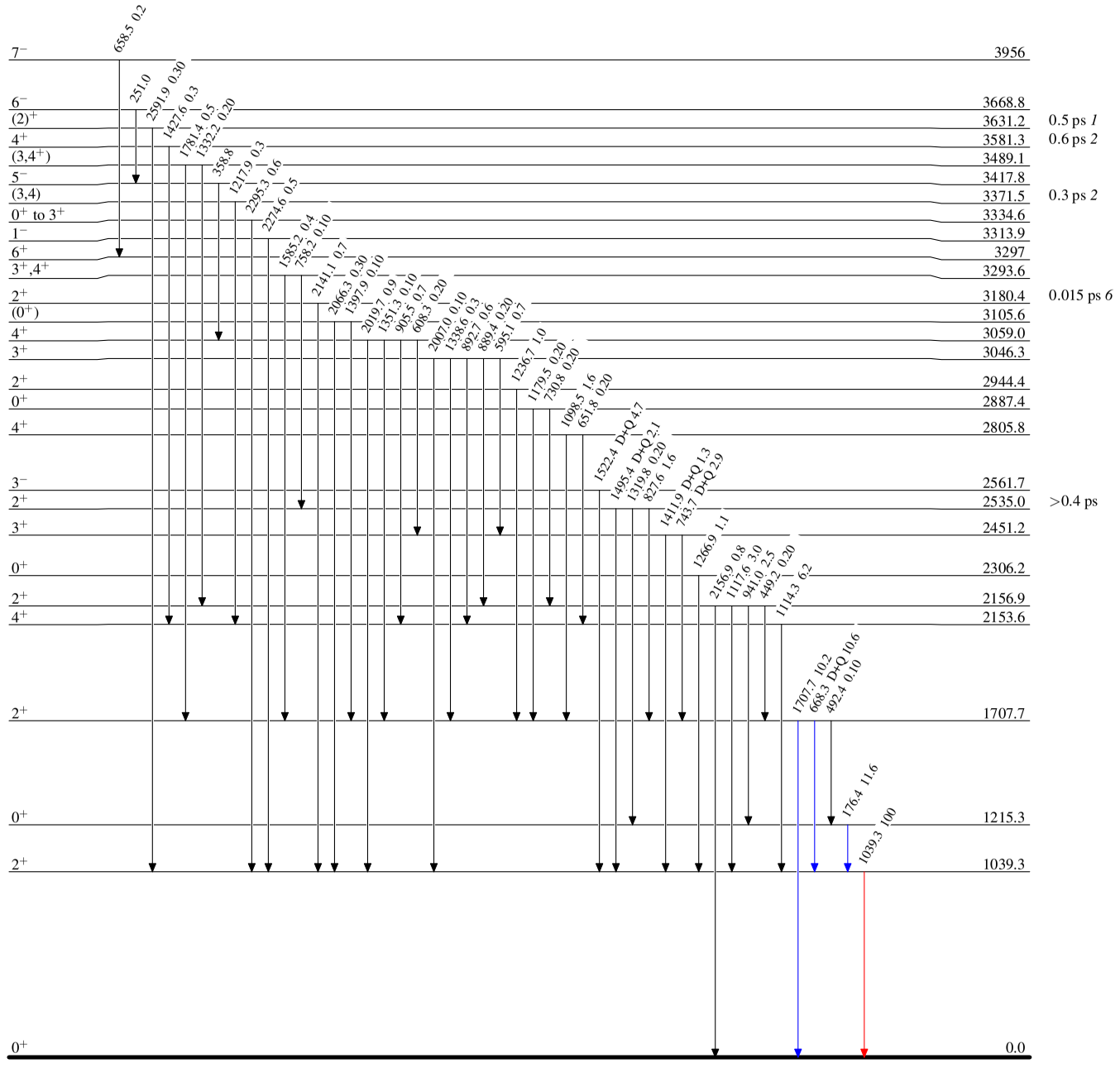
Intensities: Relative I_γ

Legend

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

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

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



$^{70}_{32}Ge_{38}$