^{74}Ge(^{28}Si,2α2nγ) 2002Pa17

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 2187 (2012)	15-Sep-2012

E=138 MeV; isotopically-enriched ^{74}Ge target; five Clover Ge detectors with a 14-element NaI(Tl) multiplicity filter, one of which had an anti-Compton shield; measured Eγ, Iγ, $\gamma\gamma$ coin (15° and 70°), $\gamma\gamma(\theta)$(DCO) (15°, 70°, stretched Q gates), R_{asym} (=(I(γ_1) At 70° gated by G_2 At 45°)/(I(γ_1) At 15° gated by G_2 At 45°)), integrated polarization-directional correlation from oriented nuclei (IPDCO); shell-model calculations.

^{92}Mo Levels

E(level)†	J$^\pi$	E(level)†	J$^\pi$	E(level)†	J$^\pi$	E(level)†	J$^\pi$
0.0	0^+	4486.6	$11^{(-)}$	6662.3	$13^{(-)}$	9482	$17^{(+)}$
1510.5	2^+	4849.0	(10^+)	7134.4	(14^+)	10020	(16^+)
2284.2	4^+	5121.6	10^+	7311.7	$14^{(-)}$	10104	(18^+)
2613.4	6^+	5611.9		8222.6		10579	(17^+)
2761.2	8^+	5861.8	12^+	8387	$15^{(+)}$	11215	(18^+)
3382.0	$6^{(-)}$	6400.6		8595.5			
3625.8	$7^{(-)}$	6551.3	$12^{(-)}$	8925	$16^{(+)}$		
4252.2	$9^{(-)}$	6609.0		9359.1	(15^+)		

† From least-squares fit to Eγ assuming the same uncertainty in all Eγ data.

γ(^{92}Mo)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.†	α#	Comments
110.7	21.2 *20*	6662.3	$13^{(-)}$	6551.3	$12^{(-)}$	D		Mult.: DCO=1.77 *20*, R_{asym}=1.51 *25*.
147.7	3.9 *8*	2761.2	8^+	2613.4	6^+	Q		Mult.: DCO=0.79 *18*.
234.5	55 *6*	4486.6	$11^{(-)}$	4252.2	$9^{(-)}$	E2	0.0565	Mult.: DCO=1.02 *11*, R_{asym}=0.60 *10*, IPDCO=+0.15 *8*.
243.8	49 *5*	3625.8	$7^{(-)}$	3382.0	$6^{(-)}$	(M1)	0.0229	Mult.: DCO=1.86 *20*, R_{asym}=1.29 *20*, IPDCO=−0.02 *6*.
329.1	4.5 *11*	2613.4	6^+	2284.2	4^+	Q		Mult.: DCO=0.82 *20*.
471.9	7.2 *17*	7134.4	(14^+)	6662.3	$13^{(-)}$	E1		Mult.: DCO=2.2 *5*, R_{asym}=1.2 *4*, IPDCO=+0.09 *11*.
537.1	20.0 *20*	8925	$16^{(+)}$	8387	$15^{(+)}$	(M1)		Mult.: DCO=2.1 *3*, R_{asym}=2.1 *5*, IPDCO=−0.05 *11*.
557.2	13.3 *22*	9482	$17^{(+)}$	8925	$16^{(+)}$	M1		Mult.: DCO=2.0 *4*, IPDCO=−0.20 *18*.
559.2	7.8 *19*	10579	(17^+)	10020	(16^+)	M1		Mult.: DCO=2.2 *9*, IPDCO=−0.13 *18*.
621.9	11.2 *22*	10104	(18^+)	9482	$17^{(+)}$	M1		Mult.: DCO=1.8 *3*, IPDCO=−0.17 *9*.
626.5	61 *6*	4252.2	$9^{(-)}$	3625.8	$7^{(-)}$	E2		Mult.: DCO=0.95 *9*, R_{asym}=0.60 *9*, IPDCO=+0.07 *4*.
636.3	6.4 *20*	11215	(18^+)	10579	(17^+)	D		Mult.: DCO=2.8 *9*.
649.7	35 *4*	7311.7	$14^{(-)}$	6662.3	$13^{(-)}$	M1		Mult.: DCO=2.05 *21*, R_{asym}=1.4 *4*, IPDCO=−0.12 *6*.
660.7	8.4 *22*	10020	(16^+)	9359.1	(15^+)	M1		Mult.: DCO=1.4 *4*, R_{asym}=1.30 *20*, IPDCO=−0.09 *13*.
740.1	5.7 *20*	5861.8	12^+	5121.6	10^+	Q		Mult.: DCO=0.65 *20*.
762.9	3.0 *10*	5611.9		4849.0	(10^+)			
773.7	100 *13*	2284.2	4^+	1510.5	2^+	E2		Mult.: DCO=0.88 *16*, R_{asym}=0.55 *8*, IPDCO=+0.07 *4*.
800.7	2.0 *9*	6662.3	$13^{(-)}$	5861.8	12^+	D		Mult.: DCO=1.2 *5*.
1075.7	18 *3*	8387	$15^{(+)}$	7311.7	$14^{(-)}$	E1		Mult.: DCO=2.0 *3*, R_{asym}=1.0 *5*, IPDCO=+0.10 *8*.
1097.9	69 *7*	3382.0	$6^{(-)}$	2284.2	4^+	M2		Mult.: DCO=0.86 *9*, R_{asym}=0.75 *8*, IPDCO=−0.04 *3*.

Continued on next page (footnotes at end of table)

^{74}Ge(^{28}Si,2α2nγ) 2002Pa17 (continued)

γ(^{92}Mo) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
1220.0[@]	‡	10579	(17^+)	9359.1	(15^+)		
1375.5	‡	5861.8	12^+	4486.6	$11^{(-)}$	E1	Mult.: DCO=1.6 *11*, IPDCO=+0.01 *7*.
1510.5	100 *3*	1510.5	2^+	0.0	0^+	E2	Mult.: DCO=1.0 *3*, R_{asym}=0.75 *10*, IPDCO=+0.06 *4*.
1551.6	‡	6400.6		4849.0	(10^+)		
1560.3	‡	8222.6		6662.3	$13^{(-)}$		
1933.2	‡	8595.5		6662.3	$13^{(-)}$		
2047.6	10.0 *10*	9359.1	(15^+)	7311.7	$14^{(-)}$	D	Mult.: R_{asym}=2.3 *3*.
2064.5	39 *4*	6551.3	$12^{(-)}$	4486.6	$11^{(-)}$	M1	Mult.: DCO=2.6 *3*, R_{asym}=2.3 *3*, IPDCO=−0.06 *5*.
2087.8	2.9 *8*	4849.0	(10^+)	2761.2	8^+	Q	Mult.: DCO=0.82 *23*.
2122.4	‡	6609.0		4486.6	$11^{(-)}$		
2224.5	5.3 *19*	9359.1	(15^+)	7134.4	(14^+)	M1	Mult.: DCO=1.4 *5*, R_{asym}=2.1 *9*, IPDCO=−0.14 *18*.
2360.3	4.2 *8*	5121.6	10^+	2761.2	8^+	Q	Mult.: DCO=1.14 *21*.

[†] From DCO ratios and γ asymmetry parameters from polarization measurements. data are given by authors in the plots of figs. 3 and 5. The evaluator gives approximate values read from these plots In comments. typical DCO values are 0.6 for stretched Q (or D, ΔJ=0) and 1.4 for stretched D transitions. asymmetry parameters IPDCO are positive for electric transitions, negative for magnetic, and near-zero for mixed transitions.

‡ Transition was too weak for authors to determine its intensity.

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

[@] Placement of transition in the level scheme is uncertain.

^{74}Ge(^{28}Si,2α2nγ) 2002Pa17

Level Scheme

Intensities: Relative I_γ

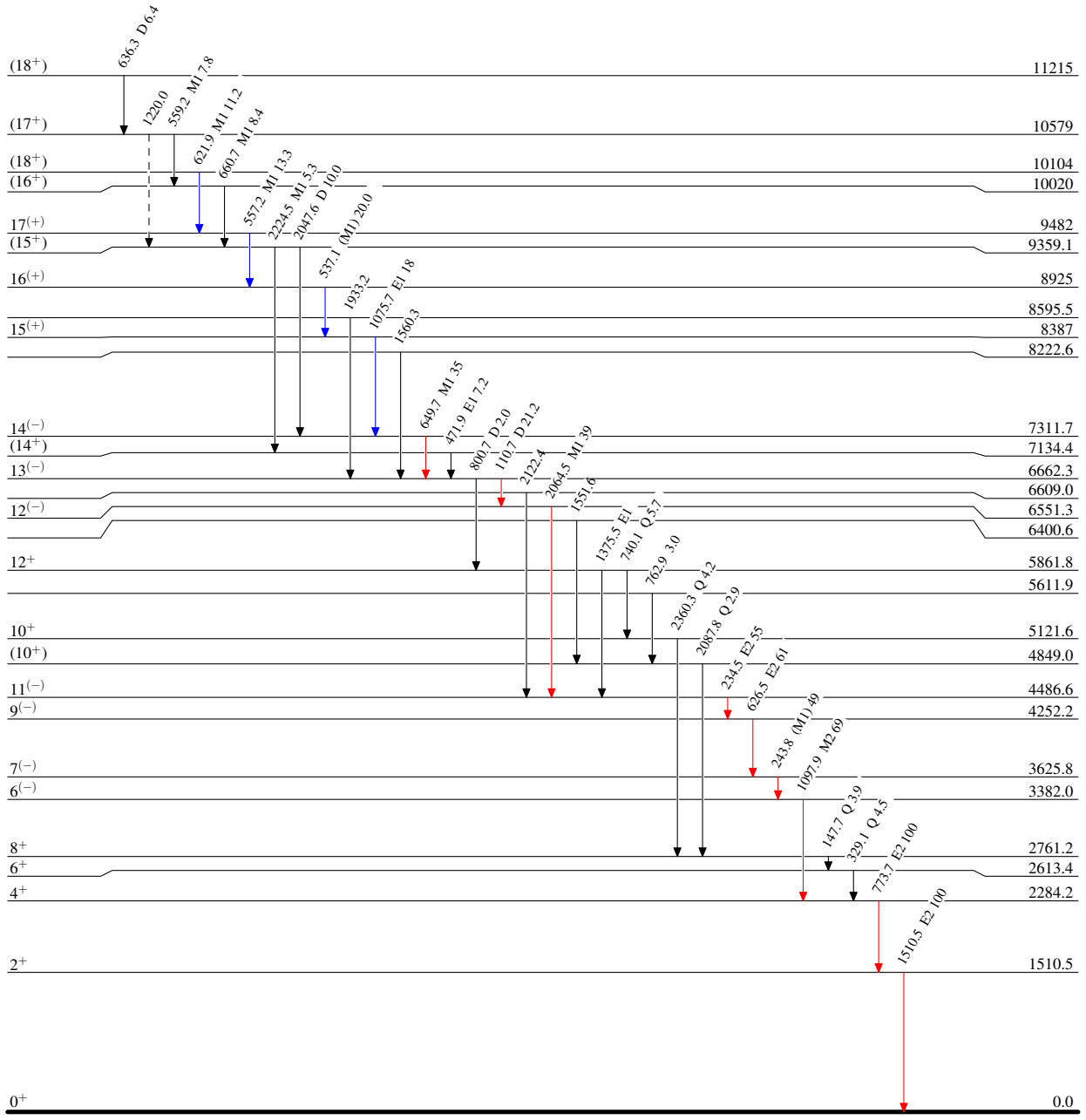
Legend

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

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

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

γ Decay (Uncertain)



$^{92}_{42}Mo_{50}$