^{44}Ca(^{3}He,$\alpha\gamma$) 1976Ta04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen[#]	NDS 126, 1 (2015)	31-Mar-2015

1976Ta04: E=15 MeV ^{3}He beam was produced at the University of Pennsylvania. Target of 0.4 mg/cm^2 enriched ^{44}Ca metal sandwiched between a 0.3 mg/cm^2 gold backing and a 0.1 mg/cm^2 gold window. α particles were detected by a surface-barrier position-sensitive detector and γ-rays were detected with an array of 7.6 by 10.2 cm NaI(Tl) crystals. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\alpha\gamma(\theta)$. Deduced levels, γ-branching ratios, mixing ratios.

Other: 1971HoYN.

^{43}Ca Levels

E(level)	J$^\pi$[†]	E(level)	J$^\pi$[†]	E(level)	J$^\pi$[†]
0	7/2$^-$	1394	5/2$^+$	2877	1/2$^-$
373	5/2$^-$	1678	11/2$^-$	2943	3/2$^-$
593	3/2$^-$	1931	5/2$^-$	3027	(3/2 to 7/2)
990	3/2$^+$	2695	3/2$^+$,5/2$^+$	3030	(1/2 to 5/2)
				3270	(5/2,7/2)

[†] From Adopted Levels.

$\gamma(^{43}Ca)$

E$_i$(level)	J$_i^\pi$	E$_\gamma$	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.[†]	δ[†]	Comments
373	5/2$^-$	373	100	0	7/2$^-$	D+Q	−0.15 *3*	A$_2$=+0.07 *4*, A$_4$=+0.01 *7*. δ: other: −0.18 *5* (1971HoYN).
593	3/2$^-$	220	30	373	5/2$^-$	D+Q	−0.10 *5*	A$_2$=+0.01 *5*, A$_4$=+0.08 *8*.
		593	70	0	7/2$^-$			
990	3/2$^+$	397	12	593	3/2$^-$			
		617	88	373	5/2$^-$	D(+Q)	−0.012 *17*	A$_2$=−0.085 *19*, A$_4$=−0.012 *28*.
		990	28	0	7/2$^-$			
1394	5/2$^+$	404	13	990	3/2$^+$			
		801	6	593	3/2$^-$			
		1021	77	373	5/2$^-$			
		1394	4	0	7/2$^-$			
1678	11/2$^-$	1678	100	0	7/2$^-$			
1931	5/2$^-$	1338	7	593	3/2$^-$			
		1558	33	373	5/2$^-$			
		1931	60	0	7/2$^-$			
2695	3/2$^+$,5/2$^+$	1705	19 *9*	990	3/2$^+$			
		2102	17 *9*	593	3/2$^-$			
		2322	64 *11*	373	5/2$^-$			
2877	1/2$^-$	2504	≈75	373	5/2$^-$			δ(Q/D)=+0.10 *7* for J=3/2, −0.62 *10* for J=5/2. But adopted J^π(2877)=1/2$^-$. A$_2$=−0.21 *8*, A$_4$=−0.12 *14*.
2943	3/2$^-$	1953	24 *9*	990	3/2$^+$			
		2570	68 *9*	373	5/2$^-$			
		2943	8 *5*	0	7/2$^-$			
3027	(3/2 to 7/2)	2654	100	373	5/2$^-$	D+Q		δ(Q/D)=−0.09 *6* for J=3/2, −0.37 *6* for J=5/2. A$_2$=−0.01 *7*, A$_4$=+0.21 *10*.
3030	(1/2 to 5/2)	2040	31 *9*	990	3/2$^+$			
		2437	69 *9*	593	3/2$^-$			
3270	(5/2,7/2)	1876	17 *6*	1394	5/2$^+$			
		2280	49 *6*	990	3/2$^+$	D+Q	+0.07 *5*	A$_2$=−0.29 *11*, A$_4$=+0.38 *16*.
		3270	34 *6*	0	7/2$^-$	D(+Q)	−0.13 *13*	A$_2$=+0.029 *17*, A$_4$=+0.18 *26*.

[†] From $\gamma(\theta)$ data.

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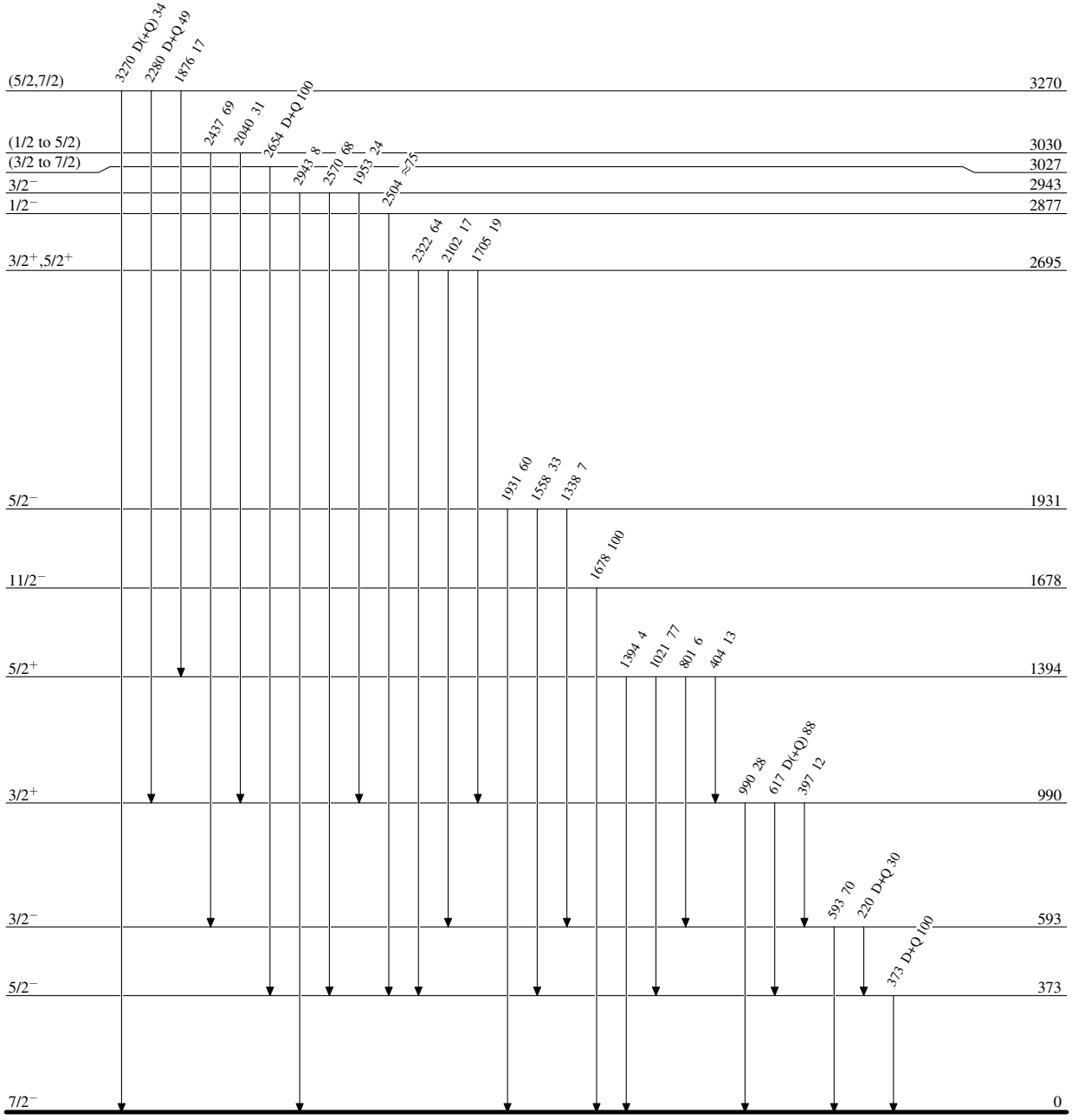
Level Scheme

Intensities: % photon branching from each level



$^{43}_{20}Ca_{23}$