$^{12}C(^{16}O,\alpha p\gamma)$ 2018Bo17

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia[#], A. Chakraborty[##]	NDS 171,1 (2021)	1-Jun-2020

Other: 2017Bo08.

2018Bo17,2017Bo08: E=60-70 MeV; measured charged particles by the 4π DIAMANT detector consisting of 80 CsI(Tl) scintillators, neutrons by the neutron wall array of 50 liquid scintillators, Eγ, Iγ (numerical value not given), particle-$\gamma\gamma$-coin using γ-ray array EXOGAM of 10 Compton suppressed clovers of 4 segmented HPGe, seven clovers were placed at 90° and three clovers at 135° with respect to the beam direction; deduced excited levels and MED (Mirror Energy Differences) between ^{23}Mg and ^{23}Na.

^{23}Na Levels

E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]
0.0	3/2$^+$	2703 *1*	9/2$^+$	6235 *1*	13/2$^+$	9803 *1*	15/2$^+$
440 *1*	5/2$^+$	5534 *1*	11/2$^+$	7268 *1*	13/2$^+$	11073 *1*	17/2$^+$
2076 *1*	7/2$^+$	6115 *1*	11/2$^+$	9039 *1*	15/2$^+$		

[†] From least-squares fit to γ-ray energies, assuming ΔE=1 keV.

[‡] Proposed by 2017Bo08, based on decay scheme and yrast/yrare band structure.

$\gamma(^{23}Na)$

Eγ	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Eγ	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
440	440	5/2$^+$	0.0	3/2$^+$	2804	9039	15/2$^+$	6235	13/2$^+$
627	2703	9/2$^+$	2076	7/2$^+$	2830	5534	11/2$^+$	2703	9/2$^+$
701	6235	13/2$^+$	5534	11/2$^+$	3411	6115	11/2$^+$	2703	9/2$^+$
1033	7268	13/2$^+$	6235	13/2$^+$	3458	5534	11/2$^+$	2076	7/2$^+$
1153	7268	13/2$^+$	6115	11/2$^+$	3531	6235	13/2$^+$	2703	9/2$^+$
1636	2076	7/2$^+$	440	5/2$^+$	3568	9803	15/2$^+$	6235	13/2$^+$
1771	9039	15/2$^+$	7268	13/2$^+$	4038	6115	11/2$^+$	2076	7/2$^+$
2034	11073	17/2$^+$	9039	15/2$^+$	4269	9803	15/2$^+$	5534	11/2$^+$
2076	2076	7/2$^+$	0.0	3/2$^+$	4564	7268	13/2$^+$	2703	9/2$^+$
2263	2703	9/2$^+$	440	5/2$^+$	4838	11073	17/2$^+$	6235	13/2$^+$
2535	9803	15/2$^+$	7268	13/2$^+$					

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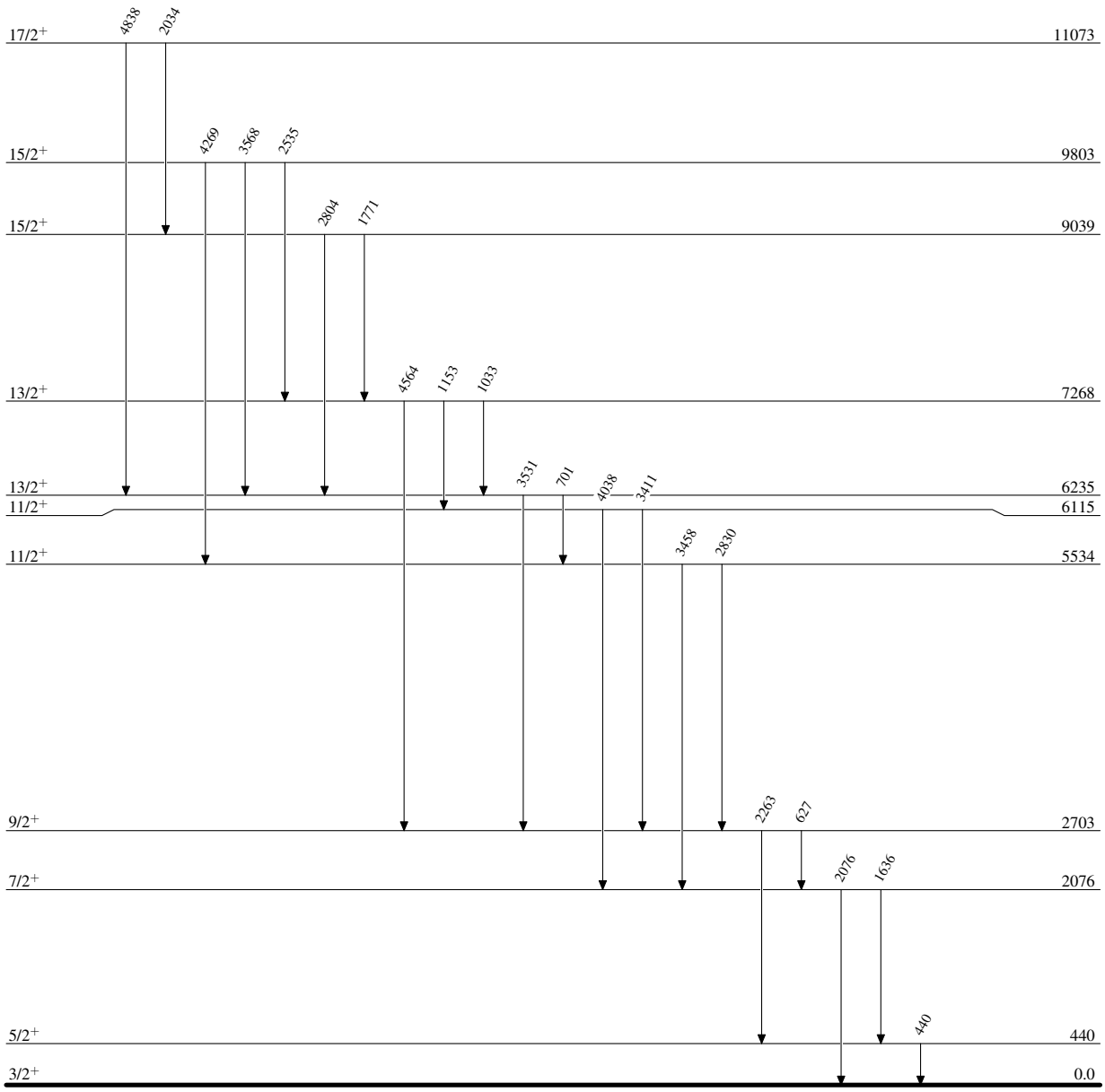
Level Scheme



$^{23}_{11}Na_{12}$