$^{12}C(^{16}O,\alpha n\gamma)$ 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 using 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. Seven clovers were placed at 90° and other three at 135° with respect to the beam direction; deduced excited levels and MED (Mirror Energy Differences) between ^{23}Mg and ^{23}Na.

^{23}Mg Levels

E(level)[†]	J$^\pi$[‡]
0.0	3/2$^+$
450 *1*	5/2$^+$
2050 *1*	7/2$^+$
2713 *1*	9/2$^+$
5452 *1*	11/2$^+$
5937 *1*	11/2$^+$
6193 *1*	13/2$^+$
7144 *1*	13/2$^+$
8938 *1*	15/2$^+$
9595 *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.

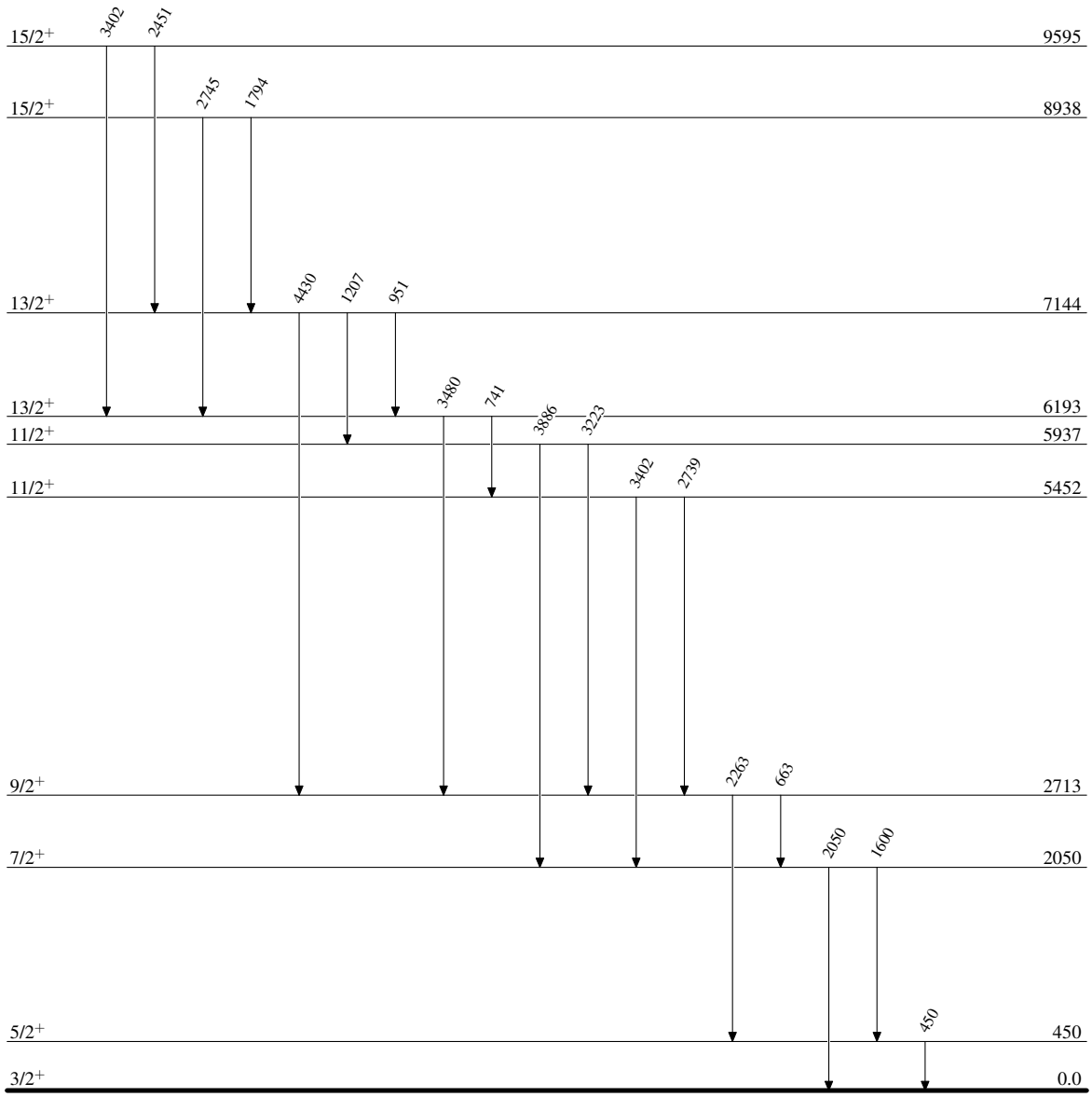
$\gamma(^{23}Mg)$

E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
450	450	5/2$^+$	0.0	3/2$^+$	2451	9595	15/2$^+$	7144	13/2$^+$
663	2713	9/2$^+$	2050	7/2$^+$	2739	5452	11/2$^+$	2713	9/2$^+$
741	6193	13/2$^+$	5452	11/2$^+$	2745	8938	15/2$^+$	6193	13/2$^+$
951	7144	13/2$^+$	6193	13/2$^+$	3223	5937	11/2$^+$	2713	9/2$^+$
1207	7144	13/2$^+$	5937	11/2$^+$	3402[†]	5452	11/2$^+$	2050	7/2$^+$
1600	2050	7/2$^+$	450	5/2$^+$	3402[†]	9595	15/2$^+$	6193	13/2$^+$
1794	8938	15/2$^+$	7144	13/2$^+$	3480	6193	13/2$^+$	2713	9/2$^+$
2050	2050	7/2$^+$	0.0	3/2$^+$	3886	5937	11/2$^+$	2050	7/2$^+$
2263	2713	9/2$^+$	450	5/2$^+$	4430	7144	13/2$^+$	2713	9/2$^+$

[†] Multiply placed.

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

Level Scheme



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