^{23}Na(^{3}He,t) 2002Fu17

History

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

$J^{\pi}(^{23}Na)=3/2^{+}$.

Target: Thin foil of Na_2CO_3 using polyvinyl alcohol as supporting material (thickness about 2 mg/cm^2); Projectile: ^{3}He, E=140 MeV/nucleon, from the K=400, RCNP Ring Cyclotron; Outgoing tritons were momentum analyzed and detected at the focal plane of the Grand Raiden spectrometer with a multiwire drift-chamber system allowing track reconstruction; FWHM=45 keV; Measured triton spectra mainly at 0°, and also $\Theta(\sqrt{(\theta^2+\phi^2)})$ within 0° to 2.0° in steps of 0.05° for triton intensity; Deduce excitation energy, L value, B(GT) strength. Also studied isobaric analogue structure of ^{23}Na, mirror nuclide of ^{23}Mg.

^{23}Mg Levels

E(level)	L[#]	Comments
0.0	0	B(GT)=(0.340 *14*) (including Fermi-transition strength).
451	0	B(GT)=0.146 *6* (used for calibration).
2360 *3*	0	B(GT)=0.055 *4*.
2906 *3*	0	B(GT)=0.193 *11*.
3860 *3*	0	B(GT)=0.055 *4*.
4357 *3*	0	B(GT)=0.250 *13*.
5291 *3*	0	B(GT)=0.066 *5*.
5658[†] *4*	0	B(GT)=0.270 *17*.
5712[†] *8*	0	B(GT)=0.061 *9*.
6138 *3*		L: Populated with small L transfer, 2002Fu17 noted.
6550 *3*	0	B(GT)=0.116 *7*.
6818 *3*	0	B(GT)=0.028 *3*.
6911 *3*	0	B(GT)=0.057 *4*.
7114[‡]		L: ≠0 (from Fig. 5 caption).
7241[‡]		E(level): May be a doublet of 7228.5 and 7261.9 in Adopted Levels. Not adopted. L: ≠0 (from Fig. 5 caption).
7449[‡]		L: ≠0 (from Fig. 5 caption).
7790 *6*		L: ≠0 (from Fig. 5 caption).
7851 *6*		L: ≠0 (from Fig. 5 caption).
8076 *15*		L: ≠0 (from Fig. 5 caption).
8168 *4*	0	B(GT)=0.290 *15*.
8452 *5*	0	B(GT)=0.039 *3*.
9159 *6*	0	B(GT)=0.069 *5*.
9502 *6*	0	B(GT)=0.055 *4*.
10290 *7*	0	B(GT)=0.046 *4*.
11132 *8*	0	B(GT)=0.062 *5*.

[†] Close doublet state − the peak shape was well reproduced at 5691 keV.

[‡] From Fig. 5 in 2002Fu17.

[#] Determined from relative peak intensities of the triton spectra at angle intervals of 0°−0.5°, 0.5°−1.0°, 1.0°−1.5°, and 1.5°−2.0°.