^{9}Be(^{22}Mg,^{23}Alγ)   **2008Ga17**

History

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

Based on XUNDL: Compiled by F.G. Kondev, ANL, August 22, 2008.

One proton pickup reaction. Studies were also carried out using inelastic scattering ^{9}Be(^{23}Al,^{23}Al$'\gamma$) reaction.

Secondary cocktail beam composed of 32% ^{22}Mg and 3% ^{23}Al and produced in reaction ^{9}Be(^{36}Ar,X) at E=150 MeV/nucleon.
    A1900 fragment separator. Experiment performed at NSCL, MSU facility. Detected γ rays using Segmented Germanium Array and
    S800 spectrograph. Measured time-of-flight, ΔE using two plastic scintillators.

A total cross section of 0.54 mb *5* was measured for the one-proton pickup channel.

^{23}Al Levels

E(level)	J^π	Comments
0.0	$5/2^+$	
1616 *8*	$(7/2^+)$	E(level): from Eγ.
		J^π: Tentatively assigned by 2008Ga17 compared to mirror state of ^{23}Ne at 1701.6 keV.
		$\sigma \geq 0.07$ mb *2* for one-proton pickup reaction to $7/2^+$ state.
		Configuration=$[^{22}$Mg$(2^+)\otimes d_{5/2}]_{7/2^+}$.
		A branching ratio of $\Gamma\gamma/\Gamma p \sim 20$ is estimated from shell model and proton decay calculations (2008Ga17).

$\gamma(^{23}$Al)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
1616 *8*	1616	$(7/2^+)$	0.0	$5/2^+$	E_γ: Weighted average of 1614 keV *9* and 1618 keV *8*, measured in ^{9}Be(^{22}Mg,^{23}Alγ) and ^{9}Be(^{23}Al,^{23}Alγ), respectively.

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Level Scheme

$^{23}_{13}Al_{10}$