

${}^9\text{Be}({}^{38}\text{Si}, {}^{33}\text{Na}\gamma)$ 2011GaZZ

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh		NDS 112, 1393 (2011)	31-Mar-2011

2011GaZZ: E=83 MeV/nucleon ${}^{38}\text{Si}$ beam produced by fragmentation of 140 MeV/nucleon ${}^{48}\text{Ca}$ primary beam delivered by the Coupled Cyclotron Facility of the National Superconducting Cyclotron Laboratory (NSCL) onto a 752 mg/cm^2 ${}^9\text{Be}$ fragmentation target. Isotope of interest selected in the A1900 fragment separator and detected in the focal plane of the S800 spectrograph. A 32-fold segmented high-purity Ge detector array (SeGA) for detecting γ rays. Measured E_γ . Deduced levels. Calculated transition strengths. Comparison with shell model calculations.

[Additional information 1.](#)

 ${}^{33}\text{Na}$ Levels

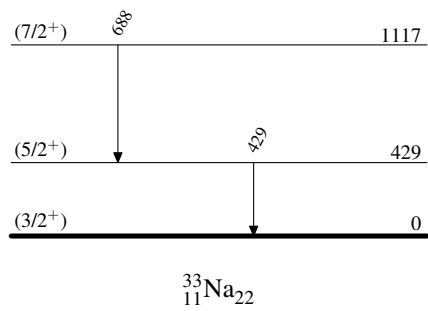
E(level)	J^π †	Comments
0‡	(3/2 ⁺)	
429‡ 5	(5/2 ⁺)	
1117‡ 8	(7/2 ⁺)	For a possible 1117-keV transition to the g.s. branching ratio is calculated as 4.2% (2011GaZZ), which is too weak to be seen in the current work.

† From a Monte-Carlo Shell-Model calculations using the SPDF-M effective interaction.

‡ Band(A): $K^\pi=3/2^+$ band. Rotational band predicted by shell model calculations.

 $\gamma({}^{33}\text{Na})$

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
429 5	429	(5/2 ⁺)	0	(3/2 ⁺)
688 6	1117	(7/2 ⁺)	429	(5/2 ⁺)

$^9\text{Be}(^{38}\text{Si}, ^{33}\text{Na}\gamma)$ 2011GaZZLevel Scheme

${}^9\text{Be}({}^{38}\text{Si}, {}^{33}\text{Na}\gamma)$ 2011GaZZBand(A): $K^\pi=3/2^+$ band(7/2⁺) 1117

688

(5/2⁺) 429

429

(3/2⁺) 0 ${}^{33}_{11}\text{Na}_{22}$