

Coulomb excitation 2002Pr12

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 114, 1189 (2013)	1-Apr-2013

^{28}Na secondary beam, $E=43.1$ MeV/nucleon, produced from ^{40}Ar primary beam, $E=90$ MeV/nucleon, fragmentation on a Be target; ^{28}Na secondary beam bombarded a ^{197}Au target, after passing ^{197}Au , ^{28}Ne beam was stopped in a cylindrical fast-slow plastic phoswich detector. Measured E_γ using NSCL NaI(Tl) detector array, deduced γ -ray cross section, $B(E2)\uparrow$, intrinsic quadrupole moment, Coulomb and nuclear matter deformation parameters of $B_c=0.307$ and $B_n=0.348$, respectively.

 ^{28}Na Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	1^+		Intrinsic quadrupole moment $Q_0=33$ fm ² . J^π : From Adopted Levels.
1240 <i>ll</i>	(2^+)	2 ps <i>l</i>	$B(E2)\uparrow=0.005426$ E(level): From γ -ray energy. J^π : From systematics of $^{26,+28}\text{Ne}$ and $^{28,+30}\text{Mg}$, the first rotational excitation is proposed (with $J = 2$) of a $K = 1$ rotational band via an $E2$ in 2002Pr12. $T_{1/2}$: using $B(E2)\uparrow=0.005426$, adopted γ -ray properties, and assuming a mixing ratio of 1.

 $\gamma(^{28}\text{Na})$

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
1240 <i>ll</i>	1240	(2^+)	0.0	1^+	Measured a cross section of 26 mb δ .

Coulomb excitation 2002Pr12Level Scheme