

$^9\text{Be}(^{28}\text{Ne}, ^{27}\text{Ne}\gamma), ^1\text{H}(^{28}\text{Ne}, ^{27}\text{Ne}\gamma)$  2006Te04,2006Do09

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 112, 1875 (2011)	30-Nov-2010

Others: 2008EI02, 2007EI10.

2006Te04:  $^9\text{Be}(^{28}\text{Ne}, ^{27}\text{Ne}\gamma) - ^{28}\text{Ne}$  was produced from  $^{40}\text{Ar}$  primary beam fragmentation ( $E=140$  MeV/u) followed by single-neutron knockout reaction ( $^{28}\text{Ne}, ^{27}\text{Ne}$ ) of the  $^{28}\text{Ne}$  secondary beam ( $E=80$  MeV/u) on a  $^9\text{Be}$  target; Detector: SeGA array of 15 HPGe detectors arranged in a two ring configuration, 7 detectors positioned at  $37^\circ$  with respect to the beam axis and 8 detectors positioned at  $90^\circ$ ; Measured:  $E\gamma$ ,  $\gamma\gamma$  coin, partial cross section, deduced level scheme, spectroscopic factors, L values.

2006Do09,2008EI02,2007EI10 (same research group):  $^1\text{H}(^{28}\text{Ne}, ^{27}\text{Ne}\gamma) -$  The primary beam of  $^{40}\text{Ar}$  at  $E=94$  MeV/nucleon was fragmented on a  $^{181}\text{Ta}$  target at RIKEN fragment separator facility; Z identification was performed by time-of-flight and  $E-\Delta E$  method; The secondary beam of  $^{28}\text{Ne}$ ,  $E=51.3$  MeV/u, bombarded a liquid  $^1\text{H}$  target; Measured  $E\gamma$ ,  $I\gamma$ ,  $\gamma\gamma$  coin,  $^{27}\text{Ne}-\gamma$  coin using a setup of 146 NaI(Tl) scintillators surrounding the target; the  $^{27}\text{Ne}$  particles were detected and identified using a parallel-plate avalanche counter (PPAC) and time-of-flight.

 $^{27}\text{Ne}$  Levels

E(level)	$J^\pi^\dagger$	$T_{1/2}$	$L^\ddagger$	$C^2S^\ddagger$	Comments
0	$(3/2^+)$				$\sigma=21$ mb 2 ( $^9\text{Be}(^{28}\text{Ne}, ^{27}\text{Ne})$ ), this value may include cross section for the population of a $7/2^-$ isomer (2006Te04).
765 10	$(3/2^-)$		(0,1)	0.32 4	$\sigma=10$ mb 1 ( $^9\text{Be}(^{28}\text{Ne}, ^{27}\text{Ne})$ )-2006Te04.
885 10	$(1/2^+)$	<10 ps	(0,1)	1.07 7	$T_{1/2}$ : the upper limit of $T_{1/2}$ for this state is proposed in 2006Te04 based on the symmetric shape of the 885-keV photopeak. $\sigma=35$ mb 2 ( $^9\text{Be}(^{28}\text{Ne}, ^{27}\text{Ne})$ )-2006Te04.

$^\dagger$  From Adopted Levels.

$^\ddagger$  From 2006Te04. L-values are deduced from the measured longitudinal momentum distributions of the  $^{27}\text{Ne}$  knockout residues (2006Te04).

 $\gamma(^{27}\text{Ne})$ 

$E_i(\text{level})$	$J_i^\pi$	$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_f$	$J_f^\pi$	Mult. $^\ddagger$	Comments
765	$(3/2^-)$	765 10		0	$(3/2^+)$		$E_\gamma$ : 765 20 (2006Do09).
885	$(1/2^+)$	119	19.3 25	765	$(3/2^-)$	D	
		885 10	80.7 25	0	$(3/2^+)$	D+Q	$E_\gamma, \text{Mult.}$ : $E_\gamma=904$ 21 (2006Do09).

$^\dagger$  From 2006Te04.

$^\ddagger$  Proposed in 2006Te04, on the basis of 119 $\gamma$  and 885 $\gamma$  branching ratio from the 885-keV level and the upper limit of the level half-life.

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Legend

Level Scheme

Intensities: % photon branching from each level

● Coincidence

