

$^1\text{H}(^{44}\text{S},\text{p}'\gamma)$  **2019Ri03**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh		NDS 190,1 (2023)	20-Jun-2023

**2019Ri03:**  $E=70.2$  MeV/nucleon (midtarget)  $^{44}\text{S}$  secondary beam was produced by fragmentation of a 140 MeV/nucleon  $^{48}\text{Ca}$  primary beam from the Coupled-Cyclotron Facility at NSCL in a  $1222$  mg/cm $^2$   $^9\text{Be}$  production target. Fragments were separated by the A1900 fragment separator and identified by time-of-flight and object position in the S800 spectrograph. The secondary target was liquid hydrogen contained in a cylindrical aluminum cell.  $\gamma$  rays were detected and tracked by the GRETINA array consisting of eight modules with each housing four 36-fold segmented HPGe crystals. Measured  $E_\gamma$ ,  $I_\gamma$ ,  $\sigma$ . Deduced levels, deformation length. Comparisons with shell model calculations.

 $^{44}\text{S}$  Levels

$E(\text{level})^\dagger$	$J^\pi^\ddagger$	Comments
0	$0^+$	
1329 1	$2^+$	$\sigma=15$ mb 3, giving deformation length= $1.07$ fm 16.
1385? 26	$0^+$	
2283 4	$(2^+)$	$\sigma=4.5$ mb 8.
2479 11	$(4^+)$	$\sigma=2.7$ mb 8.
3284 25	$(2^+)$	$\sigma=3.7$ mb 7.
4027 13		$\sigma=2.1$ mb 5.

$^\dagger$  From a least-squares fit to  $\gamma$ -ray energies.

$^\ddagger$  From the Adopted Levels.

 $\gamma(^{44}\text{S})$ 

$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
954 4	17 3	2283	$(2^+)$	1329	$2^+$	
1150 11	11 3	2479	$(4^+)$	1329	$2^+$	
1329	100 4	1329	$2^+$	0	$0^+$	$E_\gamma$ : uncertainty is not given in <b>2019Ri03</b> and is assumed as 5 keV in the least-squares fitting.
1899 6	13 2	3284	$(2^+)$	1385?	$0^+$	
1955 25	2 2	3284	$(2^+)$	1329	$2^+$	
2698 13	8 2	4027		1329	$2^+$	
<sup>x</sup> 3076 10	8 2					

$^\dagger$  From **2019Ri03**.

<sup>x</sup>  $\gamma$  ray not placed in level scheme.

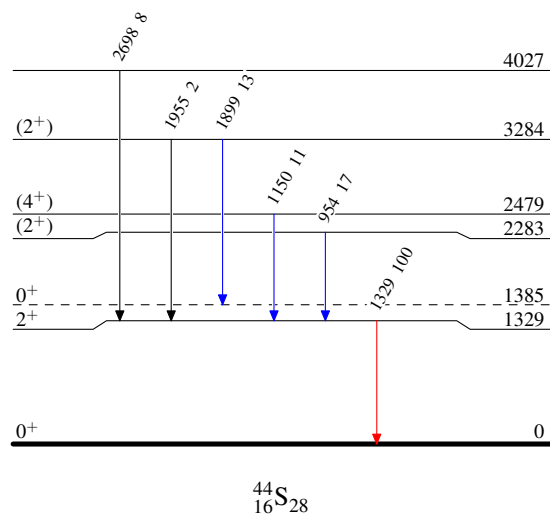
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## Level Scheme

Intensities: Relative  $I_\gamma$ 

## Legend

- $\longrightarrow$   $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $\longrightarrow$   $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $\longrightarrow$   $I_\gamma > 10\% \times I_\gamma^{\text{max}}$

 ${}^{44}_{16}\text{S}_{28}$