

$^1\text{H}(^{83}\text{Ga},2\text{p}\gamma)$  2017Sh42

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. K. Tuli, E. Browne		NDS 157, 260 (2019)	1-Mar-2019

Also includes  $^1\text{H}(^{84}\text{Ga},2\text{pn})$ .

Based on compilation in XUNDL by B. Singh (McMaster); Dec 7, 2017.

**2017Sh42:**  $\approx 270$  MeV/nucleon secondary  $^{83,84}\text{Ga}$  beams were obtained from  $^9\text{Be}(^{238}\text{U},\text{F}), E=345$  MeV/nucleon primary reaction, and using BigRIPS separator for selection of ion based on  $B\rho-\Delta E-B\rho$  method at RIBF-RIKEN facility. For secondary reaction, 102-mm thick liquid hydrogen target was used which was surrounded by a time projection chamber (TPC). Measured  $E_\gamma$ ,  $I_\gamma$ ,  $\gamma\gamma$ -coin, outgoing protons using DALI2 array of 186 NaI(Tl) detectors for  $\gamma$  radiation and MINOS device for protons. The  $\gamma$  spectra were Doppler corrected using the reaction kinematics information from the MINOS system. Comparison with shell-model calculations.

 $^{82}\text{Zn}$  Levels

E(level) <sup>†</sup>	$J^\pi$ <sup>‡</sup>	Comments
0	$0^+$	Configuration= $\pi f_{5/2}^2$ $0^+$ (2017Sh42).
618 <sup>#</sup> 15	$(2^+)$	
987? 23	$(0^+)$	E(level): tentative level assignment, based on Ni78-II and A3DA-m shell-model calculations (2017Sh42). Configuration= $\pi p_{3/2}^2$ $0^+$ (2017Sh42).
1310 <sup>#</sup> 19	$(4^+)$	

<sup>†</sup> From  $E_\gamma$  values.

<sup>‡</sup> As proposed by 2017Sh42, based on systematics, and shell-model calculations in the present work.

<sup>#</sup> Configuration= $\pi f_{5/2}^2$  (2017Sh42).

 $\gamma(^{82}\text{Zn})$ 

$E_\gamma$ <sup>†</sup>	$I_\gamma$ <sup>‡</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$
369 <sup>#</sup> 17	20 4	987?	$(0^+)$	618	$(2^+)$
618 15	49 8	618	$(2^+)$	0	$0^+$
692 12	28 5	1310	$(4^+)$	618	$(2^+)$

<sup>†</sup> From Doppler-corrected  $\gamma$ -spectra using reaction information from the MINOS system, and simulation of response of DALI2 array by GEANT4.

<sup>‡</sup> In percent of detected (p,2p) reactions.

<sup>#</sup> Placement of transition in the level scheme is uncertain.

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## Level Scheme

Intensities: Intensities in percent of (p,2p) reactions

## Legend

- ▶  $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- ▶  $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- ▶  $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - -▶  $\gamma$  Decay (Uncertain)
- Coincidence

