

$^{238}\text{U}(^{82}\text{Se}, ^{82}\text{Ge}\gamma)$  **2012Sa46**

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

Based on [2012Sa46](#) in XUNDL compiled by J. Modica (DePaul U/ANL), J. Chen and F. Kondev (ANL) Nov 2, 2012.

[2012Sa46](#): E=515 MeV provided by combination of the Tandem-XTU and ALPI superconducting LINAC accelerators at Legnaro National Laboratories (LNL). Isotopically enriched targets of  $^{238}\text{UO}_2$  and metallic  $^{238}\text{U}$  with thickness of  $400 \mu\text{g}/\text{cm}^2$  and  $1000 \mu\text{g}/\text{cm}^2$ , respectively. Nuclide identification through energy loss by PRISMA magnetic spectrometer.  $E\gamma$  detected by CLARA array composed of 23 Compton-suppressed Ge clover detectors in coincidence with PRISMA spectrometer. The  $E\gamma$ ,  $\gamma\gamma$  and  $\gamma\gamma\gamma$  coincidence measured through second experiment at LNL using a  $^{238}\text{U}$  target of  $60 \text{mg}/\text{cm}^2$  thickness and GASP array. Comparison with shell-model calculations.

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

E(level) <sup>‡</sup>	J <sup>π</sup> <sup>†</sup>
0	0 <sup>+</sup>
1347 1	2 <sup>+</sup>
2285 2	4 <sup>+</sup>
2521 2	(2 <sup>+</sup> )
2932 2	5 <sup>+</sup>
3225 2	6 <sup>+</sup>

<sup>†</sup> From [2012Sa46](#) based on  $\gamma(\theta)$  and R(ADO) data.

<sup>‡</sup> From  $E\gamma$  data.

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

R(ADO) is  $\gamma$  angular distribution from oriented nuclei where  $R(\text{ADO})=I\gamma(\text{at } 35^\circ(145^\circ) \text{ gated by } \gamma_2)/I\gamma_1(\text{at } 90^\circ \text{ gated by } \gamma_2)$ . ADO ratios centered at 1.2 and 0.8 for stretched quadrupole and stretched dipole transitions, respectively.

$E_\gamma$	$I_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. <sup>†</sup>	Comments
647 1	22 7	2932	5 <sup>+</sup>	2285	4 <sup>+</sup>	D	R(ADO)=0.7 3.
938 1	58 12	2285	4 <sup>+</sup>	1347	2 <sup>+</sup>	Q	$A_2=+0.37$ 15, R(ADO)=1.2 2.
940 1	37 8	3225	6 <sup>+</sup>	2285	4 <sup>+</sup>	Q	$A_2=+0.48$ 16, R(ADO)=1.2 2.
1174 1	19 6	2521	(2 <sup>+</sup> )	1347	2 <sup>+</sup>	D+Q	$A_2=+0.31$ 19.
1347 1	100 15	1347	2 <sup>+</sup>	0	0 <sup>+</sup>	Q	$A_2=+0.34$ 14, R(ADO)=1.2 2.

<sup>†</sup> From  $\gamma(\theta)$  and R(ADO).

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## Level Scheme

Intensities: Relative  $I_\gamma$ 

## Legend

- $\blackrightarrow$   $I_\gamma < 2\% \times I_\gamma^{\max}$
- $\color{blue}\blackrightarrow$   $I_\gamma < 10\% \times I_\gamma^{\max}$
- $\color{red}\blackrightarrow$   $I_\gamma > 10\% \times I_\gamma^{\max}$

