

<sup>238</sup>U(<sup>82</sup>Se,Xγ), <sup>192</sup>Os(<sup>82</sup>Se,Xγ) [2012Sa46,2007De37](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 199,271 (2025)	1-Sep-2024

**2012Sa46:** Isotopically enriched targets of <sup>238</sup>UO<sub>2</sub> and metallic <sup>238</sup>U with thickness of 400 μg/cm<sup>2</sup> and 1000 μg/cm<sup>2</sup>, respectively. E(<sup>82</sup>Se)=515 MeV beam was delivered by the Tandem-XTU and ALPI superconducting LINAC accelerators at Legnaro National Laboratories (LNL). Nuclide identification through energy loss by PRISMA magnetic spectrometer placed at grazing angle of 64° with respect to beam direction. Average mass resolution was ΔA/A = 1/180. E<sub>γ</sub> detected by CLARA array composed of 23 Compton-suppressed Ge clover detectors in coincidence with PRISMA spectrometer. Measured E<sub>γ</sub>, γγ and γγγ coincidences through a second experiment at LNL using a <sup>238</sup>U target of 60 mg/cm<sup>2</sup> thickness and GASP array.

**2007De37:** E(<sup>82</sup>Se)=505 MeV for <sup>238</sup>U target, 460 MeV for <sup>192</sup>Os target; isotopically enriched targets; CLARA γ-ray spectrometer (based on Compton-suppressed composite EUROBALL Clover detectors) coupled with the magnetic spectrometer PRISMA at the Legnaro facility; measured E<sub>γ</sub>. Used thick target and GASP array (40 Compton-suppressed Ge detectors and an inner ball of BGO detectors) to measure γγ coin. Shell model calculations.

<sup>81</sup>Ga Levels

E(level) <sup>†</sup>	Comments
0	J <sup>π</sup> : shell-model calculations ( <a href="#">2012Sa46</a> ) predict 5/2 <sup>-</sup> .
1236	J <sup>π</sup> : shell-model calculations ( <a href="#">2012Sa46</a> ) predict 9/2 <sup>-</sup> .
1464? <i>I</i>	J <sup>π</sup> : shell-model calculations ( <a href="#">2012Sa46</a> ) predict 7/2 <sup>-</sup> .
1998? <i>I</i>	J <sup>π</sup> : shell-model calculations ( <a href="#">2012Sa46</a> ) predict 11/2 <sup>-</sup> .
2363? <i>I</i>	J <sup>π</sup> : shell-model calculations ( <a href="#">2012Sa46</a> ) predict 13/2 <sup>-</sup> .

<sup>†</sup> From a least-squares fitting of E<sub>γ</sub>.

γ(<sup>81</sup>Ga)

E <sub>γ</sub> <sup>†</sup>	I <sub>γ</sub> <sup>†</sup>	E <sub>i</sub> (level)	E <sub>f</sub>	Comments
228 <i>I</i>	40 <i>IO</i>	1464?	1236	
365 <i>I</i>	35 <i>IO</i>	2363?	1998?	
534 <i>I</i>	38 <i>I4</i>	1998?	1464?	
899 <i>I</i>	35 <i>I3</i>	2363?	1464?	
1236 <i>I</i>	100 <i>25</i>	1236	0	E <sub>γ</sub> : Other: 1236 ( <a href="#">2007De37</a> ).
1464 <i>I</i>	33 <i>I2</i>	1464?	0	

<sup>†</sup> From [2012Sa46](#).

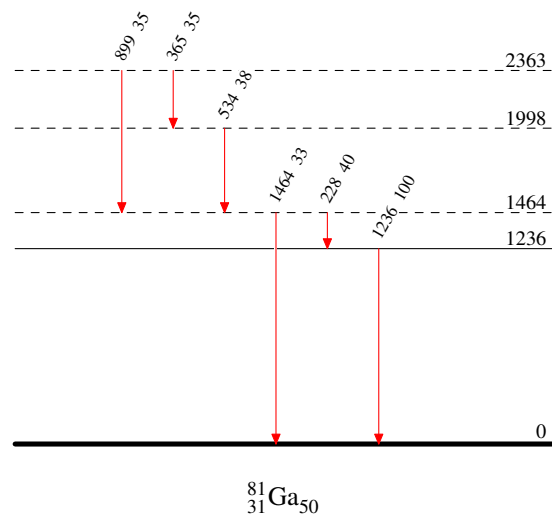
$^{238}\text{U}(^{82}\text{Se},\text{X}\gamma), ^{192}\text{Os}(^{82}\text{Se},\text{X}\gamma)$  2012Sa46,2007De37

## Level Scheme

Intensities: Relative  $I_\gamma$ 

## Legend

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

 $^{81}_{31}\text{Ga}_{50}$