

${}^{238}\text{U}({}^{70}\text{Zn},\text{X}\gamma)$  2012Re11

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Kazimierz Zuber, Balraj Singh		NDS 125, 1 (2015)	25-Jan-2015

Multinucleon transfer reactions.

2012Re11 (also 2012Re16):  ${}^{70}\text{Zn}$  beam at E=460 MeV delivered by the LNL-Legnaro Tandem-ALPI accelerator complex.

Target=400  $\mu\text{g}/\text{cm}^2$   ${}^{238}\text{U}$ . Gamma rays detected in coincidence with nuclei by the CLARA-PRISMA setup: a large-acceptance magnetic spectrometer and 22 Compton-suppressed Ge clover detectors. Measured  $E\gamma$ ,  $I\gamma$ ,  $({}^{61}\text{Co})\gamma$  coin. Deduced levels, configurations. Comparison with large-scale shell-model calculations.

 ${}^{61}\text{Co}$  Levels

E(level) <sup>†</sup>	$J\pi$ <sup>‡</sup>
0.0	$7/2^-$
1286.4 9	$(9/2)^-$
1663.5 5	$(11/2^-)$
2372.9 9	$(13/2^-)$
3125.1 14	$(15/2^-)$
3471.4 16	$(13/2^-)$
3657.8 17	$(15/2^-)$
4093.9 19	$(17/2^-)$

<sup>†</sup> From  $E\gamma$  data.

<sup>‡</sup> From  ${}^{61}\text{Co}$  Adopted Levels.

 $\gamma({}^{61}\text{Co})$ 

$E\gamma$	$I\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$
<sup>x</sup> 168.7 12	18 6				
186.4 5	18 4	3657.8	$(15/2^-)$	3471.4	$(13/2^-)$
436.1 9	20 7	4093.9	$(17/2^-)$	3657.8	$(15/2^-)$
709.4 7	45 9	2372.9	$(13/2^-)$	1663.5	$(11/2^-)$
752.2 11	42 15	3125.1	$(15/2^-)$	2372.9	$(13/2^-)$
1286.4 9	100 15	1286.4	$(9/2)^-$	0.0	$7/2^-$
1663.5 5	84 16	1663.5	$(11/2^-)$	0.0	$7/2^-$
1807.8 15	40 10	3471.4	$(13/2^-)$	1663.5	$(11/2^-)$

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

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## Level Scheme

Intensities: Relative  $I_\gamma$ 

## Legend

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

