

$^{208}\text{Pb}(^{40}\text{Ar},\text{X}\gamma)$  **2013Sz02**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 140, 1 (2017)	30-Sep-2015

Transfer channel: 1p removal, In addition **2013Sz02**: E=255 MeV  $^{40}\text{Ar}$  beam was provided by the ECR ion source and accelerated by the superconducting ALPI-Linac accelerator of the Laboratory Nazionali di Legnaro. Target was  $300 \mu\text{g}/\text{cm}^2$   $^{208}\text{Pb}$ . Projectile-like fragments were separated and identified with the large solid angle magnetic spectrometer Prisma with TOF information provided by a position-sensitive microchannel plate detector at the entrance of the Prisma and  $\Delta E$ -E information by an array of transverse field multiparametric ionization chamber at the end of Prisma.  $\gamma$  rays were detected with the Clara array of 24 HPGe clover detectors. Measured fragments,  $E_\gamma$ ,  $I_\gamma$ , time-of-flight, energy loss,  $\gamma\gamma$ -coin, (fragment) $\gamma$ -coin. Deduced levels, J,  $\pi$ . Comparison with large-scale shell-model calculations.

All data are from **2013Sz02**, unless otherwise noted.

 $^{40}\text{Cl}$  Levels

E(level) <sup>†</sup>	J $\pi$ <sup>‡</sup>	Comments
0.0	2 <sup>-</sup>	
211.6 4	(1 <sup>-</sup> )	
243.95 10	(3 <sup>-</sup> )	
367.6 11	(2)	
431.8 4	(0 <sup>-</sup> to 3 <sup>+</sup> )	J $\pi$ : (3 <sup>-</sup> ) from figure 9 in <b>2013Sz02</b> , based on shell-model prediction; (0 <sup>-</sup> ) listed in authors' table II.
601.15 10	(4 <sup>-</sup> )	
680.85 14	(4 <sup>-</sup> )	
839.06 14	(5 <sup>-</sup> )	
889.2 5	1 <sup>+</sup>	
1164.5 5		
2014.2 10	(6 <sup>-</sup> )	
2619.9 10	(7 <sup>-</sup> )	

<sup>†</sup> From a least-squares fit to  $\gamma$ -ray energies.

<sup>‡</sup> From Adopted Levels, unless otherwise noted.

 $\gamma(^{40}\text{Cl})$ 

$E_\gamma$	$I_\gamma$ <sup>†</sup>	$E_i$ (level)	J $\pi_i$	$E_f$	J $\pi_f$
156 1	10.0 20	367.6	(2)	211.6	(1 <sup>-</sup> )
211.6 4	8.0 20	211.6	(1 <sup>-</sup> )	0.0	2 <sup>-</sup>
<sup>x</sup> 219.0 4	9.0 20				
237.9 1	31.0 30	839.06	(5 <sup>-</sup> )	601.15	(4 <sup>-</sup> )
244.0 1	78 4	243.95	(3 <sup>-</sup> )	0.0	2 <sup>-</sup>
357.4 2	38 6	601.15	(4 <sup>-</sup> )	243.95	(3 <sup>-</sup> )
431.8 4	13 5	431.8	(0 <sup>-</sup> to 3 <sup>+</sup> )	0.0	2 <sup>-</sup>
436.9 1	29 5	680.85	(4 <sup>-</sup> )	243.95	(3 <sup>-</sup> )
458 <sup>‡</sup>		889.2	1 <sup>+</sup>	431.8	(0 <sup>-</sup> to 3 <sup>+</sup> )
563.3 4	17.0 20	1164.5		601.15	(4 <sup>-</sup> )
601.1 1	3.8 9	601.15	(4 <sup>-</sup> )	0.0	2 <sup>-</sup>
605 2	3.0 8	2619.9	(7 <sup>-</sup> )	2014.2	(6 <sup>-</sup> )
678 <sup>‡</sup>		889.2	1 <sup>+</sup>	211.6	(1 <sup>-</sup> )
889.2 5	4.0 20	889.2	1 <sup>+</sup>	0.0	2 <sup>-</sup>
1175 1	11.0 30	2014.2	(6 <sup>-</sup> )	839.06	(5 <sup>-</sup> )
<sup>x</sup> 1360 1	6.5 20				
1781 1	5.0 20	2619.9	(7 <sup>-</sup> )	839.06	(5 <sup>-</sup> )

Continued on next page (footnotes at end of table)

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${}^{208}\text{Pb}({}^{40}\text{Ar}, X\gamma)$  **2013Sz02** (continued)

$\gamma({}^{40}\text{Cl})$  (continued)

† Effective number of counts after taking into account detector efficiency.  $I_\gamma$  from [2013Sz02](#) divided by 10.

‡ Placement of transition in the level scheme is uncertain.





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

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Legend

## Level Scheme

Intensities: Relative  $I_\gamma$ 

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

