## $^{208}$Pb($^{40}$Ar,X$\gamma$) 2011Sz02

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | Balraj Singh and Jun Chen[#] | NDS 126, 1 (2015) | 31-Mar-2015 |

2011Sz02: E=255 MeV $^{40}$Ar beam from an ECR ion source accelerated by the superconducting ALPI accelerator of the Laboratory Nazionali di Legnaro. Target=300 $\mu$g/cm$^2$ $^{208}$Pb. Projectile-like fragments identified by spectrometer Prisma by $\Delta$E, E and time-of-flight measurements. $\gamma$-rays detected by the Clara array, consisting of twenty-four HPGe clover-type detectors. Measured E$\gamma$, I$\gamma$, fragment-$\gamma$ coincidence. Deduced levels, J, $\pi$. Comparison with shell-model calculations. Also 2013Sz01.

### $^{43}$Ar Levels

| E(level) | J$^\pi$[†] | Comments |
|---|---|---|
| 0.0 | (5/2$^-$) | |
| 0+x | (7/2$^-$) | E(level): x ≈ 100 keV predicted. Previous assignment of a 200-keV $\gamma$-ray from this level (2009Mo09) was not confirmed in the present work. |
| 762.3 *4* | (3/2$^-$) | |
| 1527.4+x *5* | (11/2$^-$) | J$^\pi$: assignment based on conclusion from 1999Ma89 that this is a negative parity state which is dominated by a configuration with the valence neutrons in the *fp* shell and new results from 2006Wi10. |
| 1859+x *2* | (9/2$^-$) | J$^\pi$: assignment based on strong 2$^+$($^{42}$Ar)$\otimes\nu$f$_{7/2}$ component of the wave function for the state, similar to that in $^{41}$Ar. |

[†] From theoretical predications by shell-model calculations (2011Sz02).

### $\gamma$($^{43}$Ar)

| E$_\gamma$ | I$_\gamma$ | E$_i$(level) | J$_i^\pi$ | E$_f$ | J$_f^\pi$ |
|---|---|---|---|---|---|
| 762.3 *4* | 64 *21* | 762.3 | (3/2$^-$) | 0.0 | (5/2$^-$) |
| 1527.4 *5* | 100 *16* | 1527.4+x | (11/2$^-$) | 0+x | (7/2$^-$) |
| 1859 *2* | 37 *15* | 1859+x | (9/2$^-$) | 0+x | (7/2$^-$) |

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Level Scheme

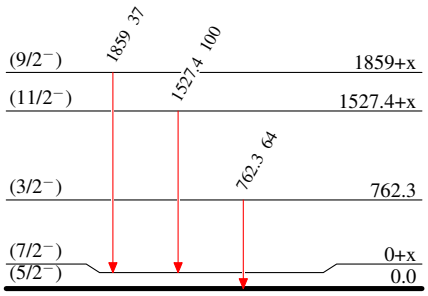
Intensities: Relative $I_\gamma$

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$




$^{43}_{18}Ar_{25}$