

$^{96}\text{Zr}(^{32}\text{S},\text{p}4\text{n}\gamma)$ 2013Se14

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 174, 1 (2021)	15-Apr-2021

2013Se14: E=140 MeV ^{32}S beam was produced from the 15UD Pelletron accelerator at IUAC facility. Target was 1 mg/cm² ^{96}Zr on a 10 mg/cm² Pb backing. γ rays were detected with the INGA array consisting of 17 Compton-suppressed Ge clover detectors. Measured E_γ , $\gamma\gamma$ -coin, Doppler-shift attenuation. Deduced lifetimes of excited states, transition quadrupole moments, deformation parameters. Comparisons with cranking shell model calculations.

 ^{123}Cs Levels

Q(transition) values given under comments are deduced for axially-symmetric shape by 2013Se14 from measured lifetimes, with 15% systematic uncertainty in lifetimes due to nuclear stopping power not included.

E(level) [†]	J^π [‡]	$T_{1/2}$ [#]	Comments
156.3 ^{‡@}	11/2 ⁽⁻⁾		Additional information 1.
476.8 ^{‡@}	(15/2 ⁻)		Additional information 2.
999.1 ^{‡@}	(19/2 ⁻)		Additional information 3.
1684.6 ^{‡@}	(23/2 ⁻)		Additional information 4.
2485.3 [@] 5	(27/2 ⁻)	0.34 ps 6	Q(transition)=3.82 +9-20.
3353.5 [@] 7	(31/2 ⁻)	0.23 ps 4	Q(transition)=3.81 +19-16.
4258.3 [@] 9	(35/2 ⁻)	0.22 ps +4-5	Q(transition)=3.43 +19-6.
5213.5 [@] 10	(39/2 ⁻)	0.30 ps 5	Q(transition)=2.60 3.
6239.8 [@] 12	(43/2 ⁻)	0.18 ps 3	Q(transition)=2.87 +20-15.
7353.2 [@] 13	(47/2 ⁻)	0.10 ps 3	Q(transition)=2.96 +29-28.
8559.0 [@] 14	(51/2 ⁻)	0.10 ps +2-3	Q(transition)=2.40 +29-17.

[†] From a least-squares fit to γ -ray energies, assuming $\Delta E_\gamma=0.5$ keV, unless otherwise noted.

[‡] From Adopted Levels. Energies are rounded values.

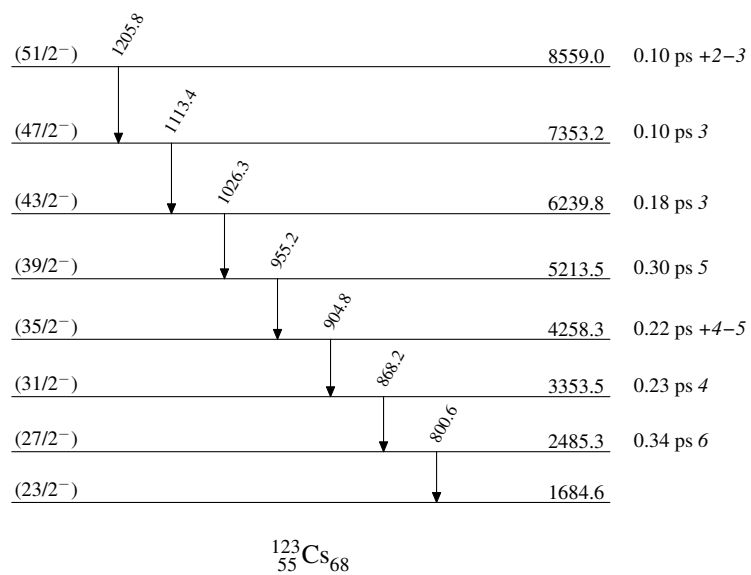
[#] From DSAM in 2013Se14. A 15% systematic uncertainty due to stopping powers has been added (by the evaluator), according to a general comment by 2013Se14.

[@] Band(A): Band based on 11/2⁽⁻⁾, $\alpha=-1/2$.

 $\gamma(^{123}\text{Cs})$

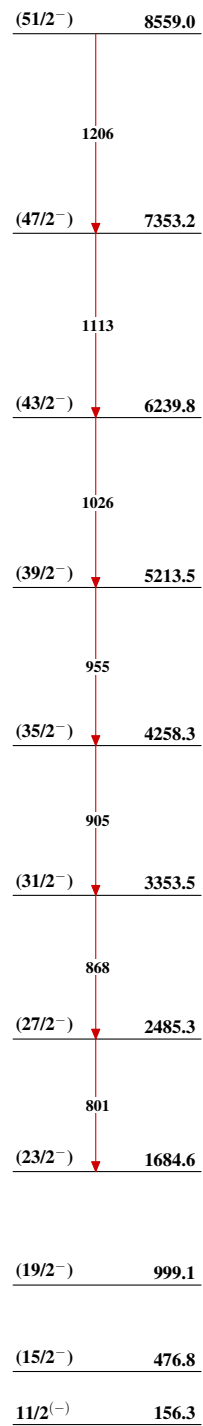
E_γ [†]	E_i (level)	J_i^π	E_f	J_f^π
800.6	2485.3	(27/2 ⁻)	1684.6	(23/2 ⁻)
868.2	3353.5	(31/2 ⁻)	2485.3	(27/2 ⁻)
904.8	4258.3	(35/2 ⁻)	3353.5	(31/2 ⁻)
955.2	5213.5	(39/2 ⁻)	4258.3	(35/2 ⁻)
1026.3	6239.8	(43/2 ⁻)	5213.5	(39/2 ⁻)
1113.4	7353.2	(47/2 ⁻)	6239.8	(43/2 ⁻)
1205.8	8559.0	(51/2 ⁻)	7353.2	(47/2 ⁻)

[†] From 2013Se14.

$^{96}\text{Zr}(^{32}\text{S},\text{p}4\text{n}\gamma)$ 2013Se14Level Scheme

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Band(A): Band based on
 $11/2^{(-)}, \alpha=-1/2$

 $^{123}_{55}\text{Cs}_{68}$