^{92}Mo(^{78}Kr,2p3nγ) 2013Dr06

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 194,460 (2024)	31-Oct-2022

2013Dr06: E=357 MeV ^{78}Kr beam was produced from the K130 cyclotron at JYFL facility. Targets were 0.5 and 1.0 mg/cm^2 ^{92}Mo. Evaporation residues were separated by the RITU gas-filled separator and implanted into the DSSDs of the GREAT spectrometer. γ rays were detected with the JUROGAM array consisting of 43 escape-suppressed HPGe detectors. Measured Eγ, Iγ, $\gamma(\theta)$, $\gamma\gamma$-coin, (recoil)γ-coin correlated with following α decay of ^{165}Os. Deduced levels, J, π, γ-ray multipolarities. Recoil-decay tagging technique used to identify γ rays in specific nuclides.

^{165}Os Levels

E(level)†	J$^\pi$‡	T$_{1/2}$	Comments
0#	(7/2$^-$)	71 ms *3*	T$_{1/2}$: from Adopted Levels.
95.2@ *10*	(9/2$^-$)		
499.3# *5*	(11/2$^-$)		
584.8@ *12*	(13/2$^-$)		
1096.0# *7*	(15/2$^-$)		
1218.0@ *13*	(17/2$^-$)		
1654.6# *9*	(19/2$^-$)		
1917.8@ *14*	(21/2$^-$)		
2247.6# *14*	(23/2$^-$)		
2609.4@ *17*	(25/2$^-$)		

† From a least-squares fit to γ-ray energies.
‡ As proposed in 2013Dr06, based on angular anisotropy data and band structures.
# Band(A): Band built on $\nu f_{7/2}$.
@ Band(B): Band built on $\nu h_{9/2}$.

γ(^{165}Os)

α-correlated angular intensity ratio R(θ)=[Iγ(158°)+Iγ(134°)]/[Iγ(94°)+Iγ(86°)]. Typical values are 1 for stretched quadrupoles and 0.6 for stretched dipoles (2013Dr06).

E$_\gamma$†	I$_\gamma$	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.‡	α#	Comments
95.2 *10*	14 *3*	95.2	(9/2$^-$)	0	(7/2$^-$)	(M1)	6.48 *22*	Mult.: from intensity balance at 95.2-keV level. R(θ)=0.6 *3*.
^{x}384.3 *10*	13 *2*							
^{x}388.7 *10*	10 *2*							
489.6 *5*	79 *3*	584.8	(13/2$^-$)	95.2	(9/2$^-$)	Q		R(θ)=0.9 *1*.
499.3 *5*	100 *3*	499.3	(11/2$^-$)	0	(7/2$^-$)	Q		R(θ)=1.1 *1*.
^{x}518.0 *5*	33 *3*							
^{x}539.8 *10*	13 *3*							
558.6 *5*	38 *3*	1654.6	(19/2$^-$)	1096.0	(15/2$^-$)	Q		R(θ)=1.3 *4*.
^{x}584.9 *5*	25 *4*							
593.0 *10*	19 *4*	2247.6	(23/2$^-$)	1654.6	(19/2$^-$)			
596.7 *5*	97 *5*	1096.0	(15/2$^-$)	499.3	(11/2$^-$)	Q		R(θ)=0.9 *2*.
^{x}604.5 *10*	16 *2*							
633.2 *5*	64 *4*	1218.0	(17/2$^-$)	584.8	(13/2$^-$)	Q		R(θ)=0.9 *2*.
^{x}656.1 *5*	24 *3*							R(θ)=0.9 *3*.

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^{92}Mo(^{78}Kr,2p3nγ) 2013Dr06 (continued)

γ(^{165}Os) (continued)

E_γ †	I_γ	E_i(level)	J^π_i	E_f	J^π_f
691.6 *10*	15 *2*	2609.4	(25/2⁻)	1917.8	(21/2⁻)
699.8 *5*	43 *3*	1917.8	(21/2⁻)	1218.0	(17/2⁻)

† Uncertainty of 0.5 keV assigned for γ rays with Iγ≥20, and 1.0 keV for others based on a general comment by 2013Dr06.
‡ Except for 95.2γ, all others are stretched quadrupoles (assumed E2) transitions based on angular intensity ratios for some of the γ rays.
# Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
x γ ray not placed in level scheme.

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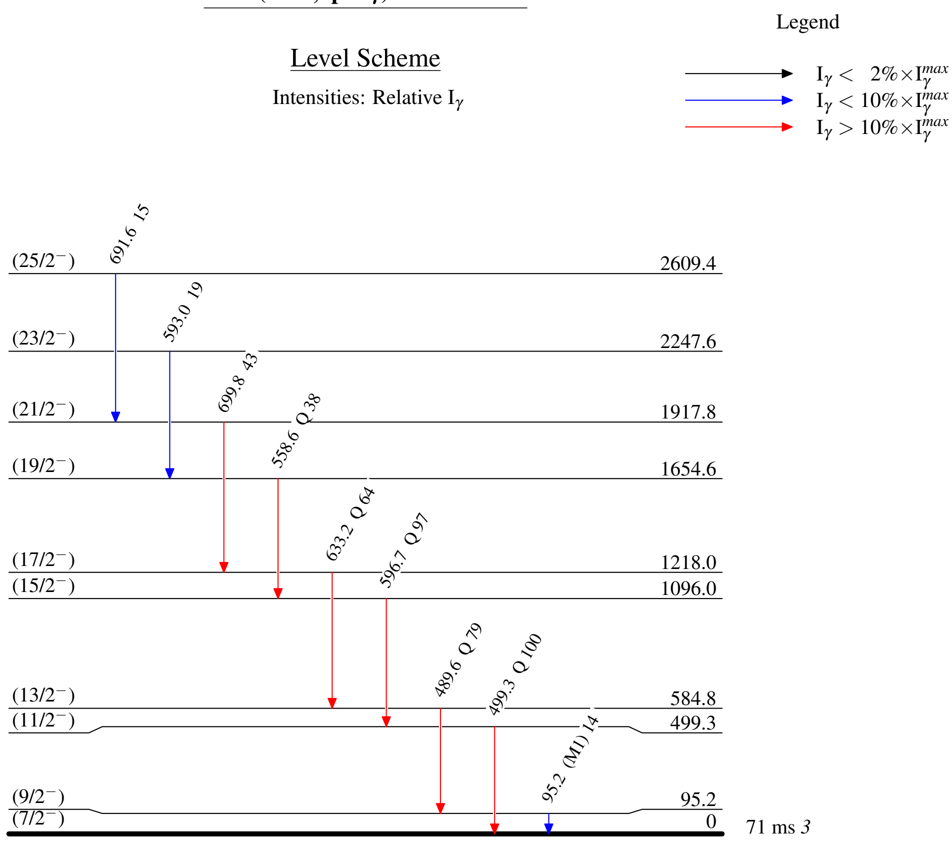

$^{165}_{76}Os_{89}$

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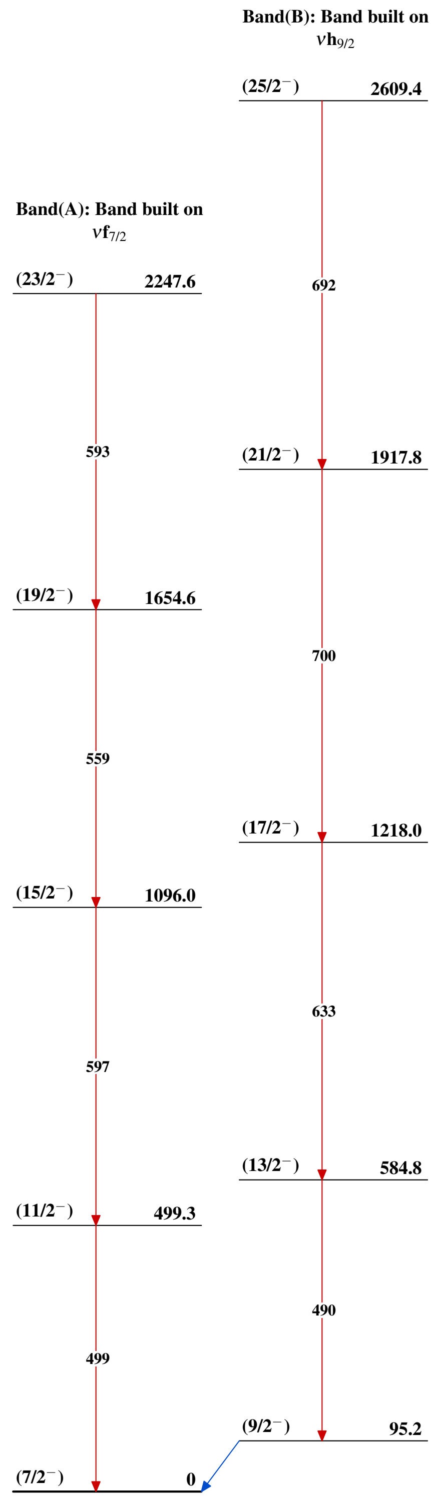

$^{165}_{76}Os_{89}$