

Adopted Levels, Gammas

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

Q(β^-)=-10150 *syst*; S(n)=9390 *syst*; S(p)=1560 *syst*; Q(α)=6335 6 [2021Wa16](#)
 Estimated uncertainties ([2021Wa16](#)): $\Delta Q(\beta^-)$ =260, $\Delta S(n)$ =250, $\Delta(S(p))$ =210.
 S(2n)=21550 360, S(2p)=1420 210, Q(ϵp)=9200 200, Q(ϵ)=8910 200 (*syst*, [2021Wa16](#)).

¹⁶⁵Os Levels

Cross Reference (XREF) Flags

A	¹⁶⁶ Ir p decay (10.5 ms)	D	⁹² Mo(⁷⁸ Kr,2p3n γ)
B	¹⁶⁶ Ir p decay (15.1 ms)	E	¹⁰⁶ Cd(⁶⁴ Zn,2p3n γ)
C	¹⁶⁹ Pt α decay (6.99 ms)		

E(level) [†]	J π [‡]	T _{1/2}	XREF	Comments
0.0 [#]	(7/2 ⁻)	71 ms 3	ABCDE	$\% \alpha = 90$ 2 (2008Bi15); $\% \epsilon + \% \beta^+ = 10$ 2 $\% \alpha$ is measured by 2008Bi15 from correlated α events in ¹⁶⁹ Pt \rightarrow ¹⁶⁵ Os \rightarrow ¹⁶¹ W α decay chain. Other: 100 40 (1981Ho10). $\% \epsilon + \% \beta^+$ is assumed to be 100-% α ; this decay branch has not been observed. J π : from 1997Da07 , based on proton decay from ¹⁶⁶ Ir. Possible configuration= $\nu f_{7/2}$ from systematics. T _{1/2} : from timing of α decay of ¹⁶⁵ Os (1996Pa01). Others: 72 ms 8 (1991Se01), 65 ms +70-30 (1981Ho10). E(α)=6188 7 (1996Pa01), 6164 10 (1981Ho10), 6200 20 (1978Ca11 , 1977Ca23). J π : (M1) γ to (7/2 ⁻); possible configuration= $\nu h_{9/2}$ from systematics.
95.2 [@] 10	(9/2 ⁻)		DE	
499.3 [#] 5	(11/2 ⁻)		DE	
584.8 [@] 12	(13/2 ⁻)		DE	
1096.0 [#] 7	(15/2 ⁻)		DE	
1218.0 [@] 13	(17/2 ⁻)		DE	
1654.6 [#] 9	(19/2 ⁻)		DE	
1917.8 [@] 14	(21/2 ⁻)		DE	
2247.6 [#] 14	(23/2 ⁻)		DE	
2609.4 [@] 17	(25/2 ⁻)		DE	

[†] From a least-squares fit to γ -ray energies.

[‡] For excited states, assignments are as proposed in [2013Dr06](#), based on multipolarity assignments from 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 (¹⁶⁵Os)

E _i (level)	J π _i	E γ [†]	I γ	E _f	J π _f	Mult. [‡]	α [#]	Comments
95.2	(9/2 ⁻)	95.2 10	100	0.0	(7/2 ⁻)	(M1)	6.48 22	Mult.: from intensity balance arguments.
499.3	(11/2 ⁻)	499.3 5	100	0.0	(7/2 ⁻)	Q		E γ : other: 499.7 3 from (⁶⁴ Zn,2p3n γ).
584.8	(13/2 ⁻)	489.6 5	100	95.2	(9/2 ⁻)	Q		E γ : other: 489.9 3 from (⁶⁴ Zn,2p3n γ).
1096.0	(15/2 ⁻)	596.7 5	100	499.3	(11/2 ⁻)	Q		E γ : other: 597.3 4 from (⁶⁴ Zn,2p3n γ).

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Adopted Levels, Gammas (continued) $\gamma(^{165}\text{Os})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ	E_f	J_f^π	Mult. [‡]	Comments
1218.0	(17/2 ⁻)	633.2 5	100	584.8	(13/2 ⁻)	Q	E_γ : other: 633.9 4 from ($^{64}\text{Zn}, 2p3n\gamma$).
1654.6	(19/2 ⁻)	558.6 5	100	1096.0	(15/2 ⁻)	Q	E_γ : other: 559.2 5 from ($^{64}\text{Zn}, 2p3n\gamma$).
1917.8	(21/2 ⁻)	699.8 5	100	1218.0	(17/2 ⁻)		E_γ : other: 700.8 4 from ($^{64}\text{Zn}, 2p3n\gamma$).
2247.6	(23/2 ⁻)	593.0 10	100	1654.6	(19/2 ⁻)		E_γ : other: 593.0 4 from ($^{64}\text{Zn}, 2p3n\gamma$).
2609.4	(25/2 ⁻)	691.6 10	100	1917.8	(21/2 ⁻)		E_γ : other: 694.1 5 from ($^{64}\text{Zn}, 2p3n\gamma$) is discrepant.

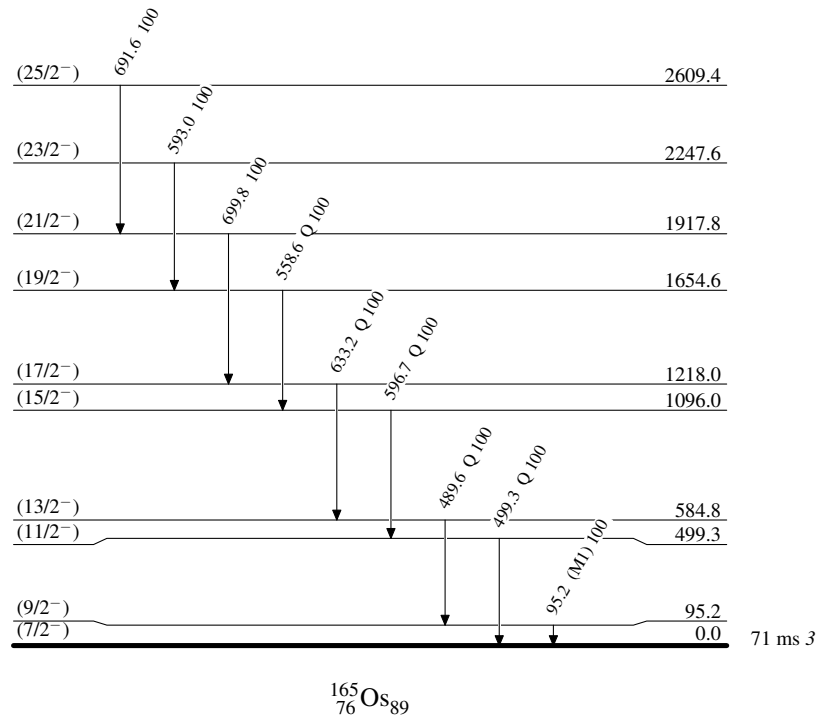
[†] From $^{92}\text{Mo}(^{78}\text{Kr}, 2p3n\gamma)$ (2013Dr06). Corresponding energies in $^{106}\text{Cd}(^{64}\text{Zn}, 2p3n\gamma)$ (2002Ap03) are in general agreement with those in 2013Dr06, but tend to be higher by about 0.5-1 keV or more. Since the two studies were carried out at the same laboratory, evaluator prefers to adopt values from the more recent work of 2013Dr06.

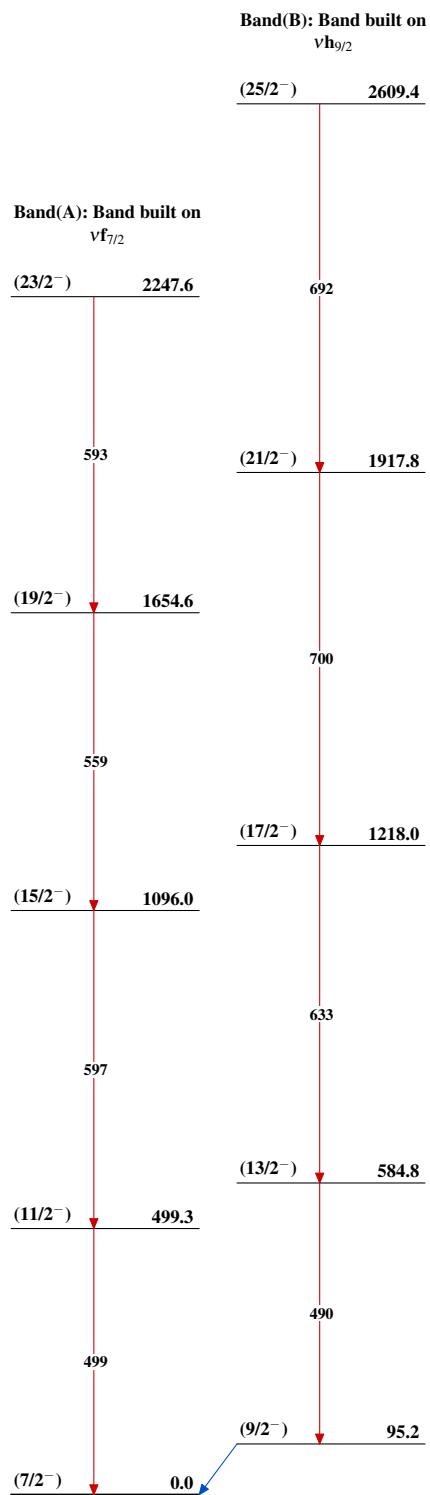
[‡] From angular anisotropy measurements in in-beam γ -ray data. Mult=Q indicates $\Delta J=2$, quadrupole (most likely E2) transition.

[#] 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.

Adopted Levels, Gammas**Level Scheme**

Intensities: Relative photon branching from each level



Adopted Levels, Gammas $^{165}_{76}\text{Os}_{89}$