

$^{192}\text{Os}(\text{p,p}'\gamma), (\text{d,d}'\gamma)$ 1976Ja18

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 1871 (2012)	15-Jun-2012

1976Ja18: E(p)=16 MeV, E(d)=23.2 MeV; osmium metal targets enriched to 99% in ^{192}Os ; measured $E\gamma$, $I\gamma$ (Ge(Li)), $\gamma\gamma$ coin.

 ^{192}Os Levels

E(level)	J^π [†]	Comments
0.0	0 ⁺	
205.8	2 ⁺	
489.0	2 ⁺	
580.3	4 ⁺	
690.3	3 ⁺	
909.5	4 ⁺	
1069.3	4 ⁺	
1088.5	6 ⁺	
1143.4	5 ⁺	
1341.0	3 ⁻	The Alaga rule favors K=3 for this level.
1560.6?	(4 ⁻)	E(level), J^π : 1976Ja18 establish level from a surprisingly strong 220 γ -852 γ coin and assign $J^\pi=(4^-)$ based on transitions to (3 ⁻) and (5 ⁺) levels and on level systematics in neighboring even-A Os isotopes. 1983Kl06 (in $^{192}\text{Os}(\text{n,n}'\gamma)$) observe both the gammas placed from this level by 1976Ja18; however, in (n,n' γ), the 220 γ is placed from the 910 level, and excit for the unplaced 417 γ is inconsistent with J=4. A 219.7 γ (in ^{192}Ir) is expected from competing reactions, but should not appear in a spectrum gated by the 852 γ . Nevertheless, the evaluator considers the existence of this level to be questionable.

[†] Adopted values.

 $\gamma(^{192}\text{Os})$

E_γ [†]	I_γ [‡]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
^x 168.4	2.6 4					
201.2	4.8 4	690.3	3 ⁺	489.0	2 ⁺	
205.8	100	205.8	2 ⁺	0.0	0 ⁺	
219.6 ^{a@b}	1.0 ^a 5	909.5	4 ⁺	690.3	3 ⁺	E_γ, I_γ : γ tentatively placed by evaluator; see comment on 1561 level. Based on I(330 γ) and adopted branching, only I(220 γ)=0.34 3 is expected to deexcite the 910 level, leaving $I_\gamma=0.7$ 5 to be otherwise accounted for in (d,d' γ). I(220 γ)/I(330 γ) in (p,p' γ) is consistent with adopted branching.
						I_γ : I(220 γ):I(330 γ)=1.0 5:6.7 10 for E(p)=16 MeV (1976Ja18).
219.6 ^{a@b}	1.0 ^a 5	1560.6?	(4 ⁻)	1341.0	3 ⁻	See comment with 1561 level.
234 [#]		1143.4	5 ⁺	909.5	4 ⁺	
^x 242.4	12.9 9					
272.0	5.3 4	1341.0	3 ⁻	1069.3	4 ⁺	I_γ : I(272 γ):I(852 γ)=3.4 6:7.2 10 for E(p)=16 MeV (1976Ja18).
283.3	22.4 16	489.0	2 ⁺	205.8	2 ⁺	
329.6	2.9 3	909.5	4 ⁺	580.3	4 ⁺	I_γ : I(220 γ):I(330 γ)=1.0 5:6.7 10 for E(p)=16 MeV (1976Ja18).
^x 348.5	2.6 4					Seen only in (d,d' γ).
374 [@]	22 ^{&} 8	580.3	4 ⁺	205.8	2 ⁺	
379.2	15.6 17	1069.3	4 ⁺	690.3	3 ⁺	I_γ : I(379 γ):I(580 γ)=3.7 9:8.8 12 for E(p)=16 MeV (1976Ja18). Branching data from (p,p' γ) and (d,d' γ) are discrepant.
417 ^{#@b}		1560.6?	(4 ⁻)	1143.4	5 ⁺	See comment with 1561 level.
420 [@]		909.5	4 ⁺	489.0	2 ⁺	
^x 437	1.6 5					
453.1	10.7 12	1143.4	5 ⁺	690.3	3 ⁺	

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$^{192}\text{Os}(\text{p,p}'\gamma), (\text{d,d}'\gamma)$ **1976Ja18** (continued) $\gamma(^{192}\text{Os})$ (continued)

$E_\gamma^\dagger$	$I_\gamma^\ddagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
485@		690.3	3 ⁺	205.8	2 ⁺	
489@		489.0	2 ⁺	0.0	0 ⁺	
508@	4.5& 15	1088.5	6 ⁺	580.3	4 ⁺	
563#		1143.4	5 ⁺	580.3	4 ⁺	
580.4	14.2 15	1069.3	4 ⁺	489.0	2 ⁺	I_γ : $I(379\gamma):I(580\gamma)=3.7\ 9:8.8\ 12$ for $E(\text{p})=16$ MeV (1976Ja18). Branching data from (p,p'γ) and (d,d'γ) are discrepant.
^x 591#						
650.7	2.4 4	1341.0	3 ⁻	690.3	3 ⁺	
852.0	9.1 11	1341.0	3 ⁻	489.0	2 ⁺	I_γ : $I(272\gamma):I(852\gamma)=3.4\ 6:7.2\ 10$ for $E(\text{p})=16$ MeV (1976Ja18).
1135.2	2.4 4	1341.0	3 ⁻	205.8	2 ⁺	Seen only in (d,d'γ) (out of energy range for (p,p'γ)).

[†] Uncertainties range from 0.1 keV (for strong, well-resolved lines) to 0.8 keV (for weak, poorly-resolved lines).

[‡] For (d,d'γ) at $E(\text{d})=23.2$ MeV, relative to $I_\gamma(205.8\gamma)=100$. See **1976Ja18** for I_γ values from (p,p'γ) (here, I_γ is given in comments only when it provides branching information).

Seen in coincidence spectra only.

@ Complex line (peak wider than normal).

& Deduced from coincidence spectra.

^a Multiply placed with undivided intensity.

^b Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

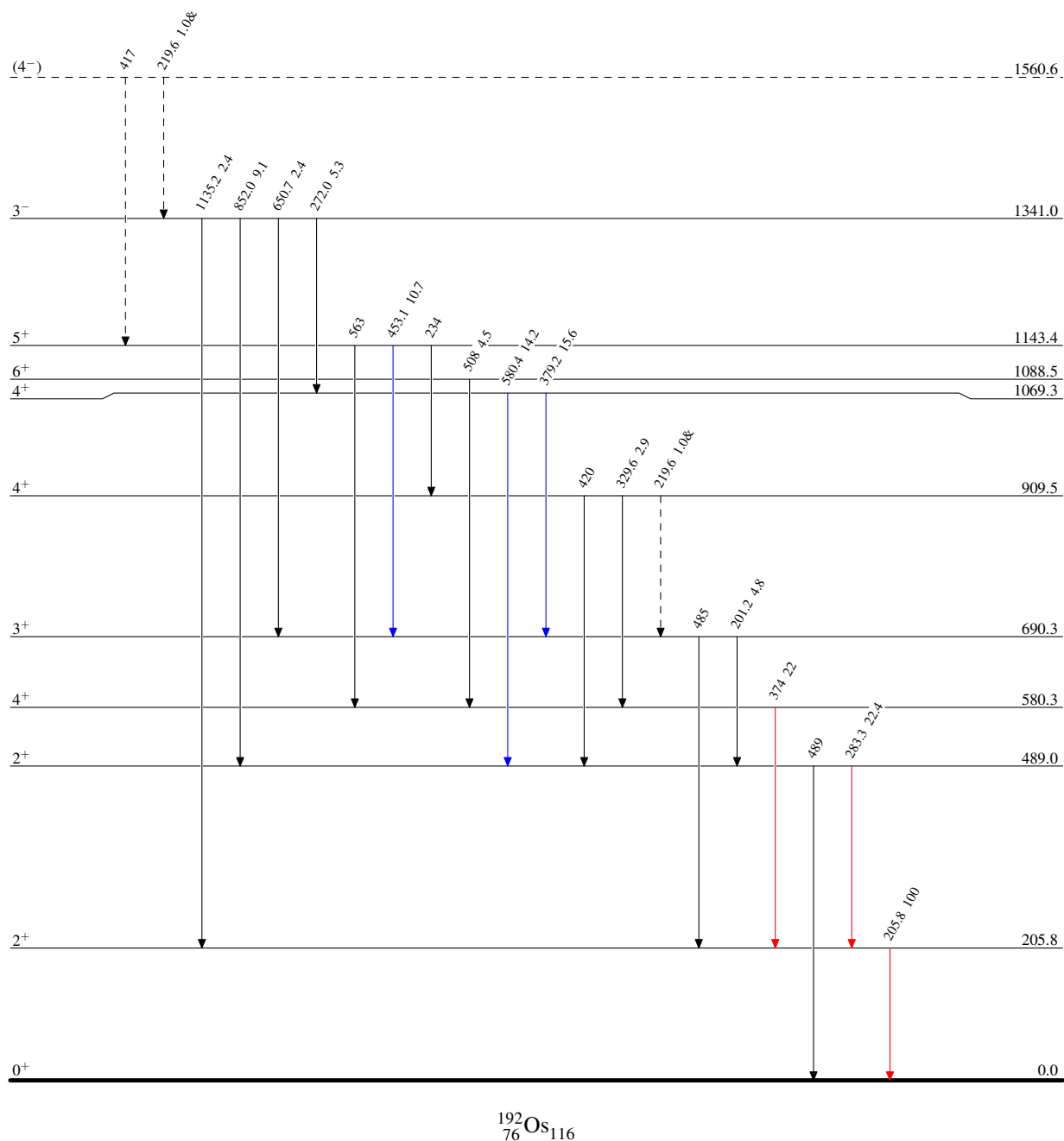
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Level Scheme

Intensities: Relative I_γ for $^{192}\text{Os}(\text{d,d}'\gamma)$, $E=23.2$ MeV
& Multiply placed: undivided intensity given

Legend

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

 $^{192}_{76}\text{Os}_{116}$