^{192}Os(^{18}O,^{16}Oγ) 2017Da06

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 177, 1 (2021)	3-Sep-2021

2017Da06: E=80 MeV. Target=≈99% enriched, 20 mg/cm^2 ^{192}Os. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma\gamma(\theta)$(DCO), half-lives of the first 2^+ and 4^+ states by $\gamma\gamma\gamma$(t) fast timing method using hybrid HPGe-LaBr$_3$(Ce) RoSPHERE array at IFIN-HH, Bucharest accelerator facility. Deduced levels, J, π, band structures, multipolarities, B(E2), effective β_2. Comparison with calculations of Hartree-Fock-Bogoliubov interacting-boson-model (IBM) calculations. Systematics of energies of ground-state band members in neighboring even-even nuclei.

^{194}Os Levels

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	Comments
0[#]	0^+		
218[#] *1*	2^+	302 ps *50*	T$_{1/2}$: from (218γ in LaBr$_3$)(150-382 γ region in LaBr$_3$)(531γ in HPGe)(t) (2017Da06). Other: 385 ps *26* (Fig. 7c in 2017Da06) from (218γ in LaBr$_3$)(250-1300 γ region in LaBr$_3$)(382γ in HPGe)(t). The first value is adopted by 2017Da06. Deduced effective β_2=0.140 *10* (2017Da06).
601[#] *1*	4^+		T$_{1/2}$: (218γ in HPGe)(382γ in LaBr$_3$)(150-1000 γ region in LaBr$_3$)(t) gives FWHM=888 ps for the prompt response fit for the time-difference spectra (2017Da06).
656[@] *1*	2^+		
696[&] *1*	0^+		
967[a] *1*	(3^+)		J$^\pi$: from Fig. 2 in 2017Da06. Authors′ Table I and text list J=3.
1063[&] *1*	(2^+)		J$^\pi$: from text in 2017Da06, 2^+ in authors′ Fig. 2 and Table I.
1090 *1*	(4^+)		J$^\pi$: (4^+,3) in Table I of 2017Da06, 4^+ in authors′ Fig. 2. In authors′ text, 4^+ is preferred.
1131[#] *2*	6^+		
1141[@] *2*	(4^+)		
1284[a] *1*	(4^+)		J$^\pi$: (4^+,3) in Table I of 2017Da06, 4^+ in authors′ Fig. 2. In authors′ text, 4^+ is preferred.
1445 *2*	(5^+)		E(level),J$^\pi$: from Fig. 2 of 2017Da06; not listed in authors′ Table I. This level is not discussed in authors′ text.
1624[@] *2*	(6^+)		J$^\pi$: (6^+,5) in Table I of 2017Da06, 6^+ in authors′ Fig. 2. In authors′ text, 6^+ is preferred.
1670[a] *2*	(5^+)		J$^\pi$: from Table I of 2017Da06, 5^+ in authors′ Fig. 2.
1792[#] *2*	8^+		

[†] From 2017Da06. Uncertainties from assumption of 1 keV uncertainty for each Eγ value, and a least-squares fit to Eγ data.
[‡] From 2017Da06, based on previous assignments, and DCO data in the present experiment. When considered in Adopted Levels, assignments are placed in parentheses where applicable, if there is no other strong supporting experimental evidence.
[#] Band(A): g.s. band.
[@] Band(B): Possible band based on 2^+.
[&] Band(C): Excited 0^+ band.
[a] Band(D): Possible band based on (3^+).

γ(^{194}Os)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[†]	α[‡]	Comments
218	114	218	2^+	0	0^+	[E2]	0.249 *4*	B(E2)↓=0.30 *4*; B(E2)(W.u.)=45 *16* (2017Da06)
221	10	1284	(4^+)	1063	(2^+)	(E2)		DCO=1.0 *6*
317	9	1284	(4^+)	967	(3^+)			DCO=1.0 *7* Mult.: ΔJ=1 transition.
366	10	1063	(2^+)	696	0^+	(E2)		DCO=1.1 *7*
382	100	601	4^+	218	2^+	(E2)		DCO=1.4 *7*

Continued on next page (footnotes at end of table)

^{192}Os(^{18}O,^{16}Oγ) 2017Da06 (continued)

γ(^{194}Os) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
386	13	1670	(5^+)	1284	(4^+)		DCO=2 *1* Mult.: $\Delta J=1$ transition.
434	3	1090	(4^+)	656	2^+	(E2)	DCO=0.9 *7*
438	22	656	2^+	218	2^+		DCO=1.5 *8* Mult.: $\Delta J=0$ transition.
478	20	696	0^+	218	2^+	(E2)	DCO=1.2 *7*
484	7	1141	(4^+)	656	2^+	(E2)	DCO=0.9 *6*
531	18	1131	6^+	601	4^+	(E2)	DCO=1.4 *8*
656	7	656	2^+	0	0^+		
661	≤12	1792	8^+	1131	6^+	(E2)	DCO=1.9 *8*
684	4	1284	(4^+)	601	4^+		Mult.: $\Delta J=0$ transition.
749	27	967	(3^+)	218	2^+		DCO=0.9 *6* Mult.: $\Delta J=1$ transition. Previous placement of a 749γ from 2541, 10^+ to 8^+ level in 2001Wh01 is not confirmed by 2017Da06, as this γ is observed in coincidence with 218γ, but not with 382γ.
845[#]	18[#]	1063	(2^+)	218	2^+		DCO=1.0 *6* Mult.: $\Delta J=0$ transition.
845[#]	18[#]	1445	(5^+)	601	4^+		γ placement from Fig. 2 of 2017Da06. In authors′ Table I, this γ is placed from 1063 level only.
872	8	1090	(4^+)	218	2^+		DCO=0.5 *4*
1024	3	1624	(6^+)	601	4^+		DCO=0.6 *5*
1063	44	1063	(2^+)	0	0^+		
1066	8	1284	(4^+)	218	2^+		DCO=0.7 *6*

[†] From 2017Da06 based on DCO data gated on $\Delta J=2$, E2 218γ, and E2 more probable than M2 for $\Delta J=2$, with parentheses added by the evaluators, as in evaluators′ assessment, the DCO values do not yield meaningful multipolarity and/or ΔJ assignments due to large uncertainties in DCO results.

[‡] 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.

[#] Multiply placed with undivided intensity.

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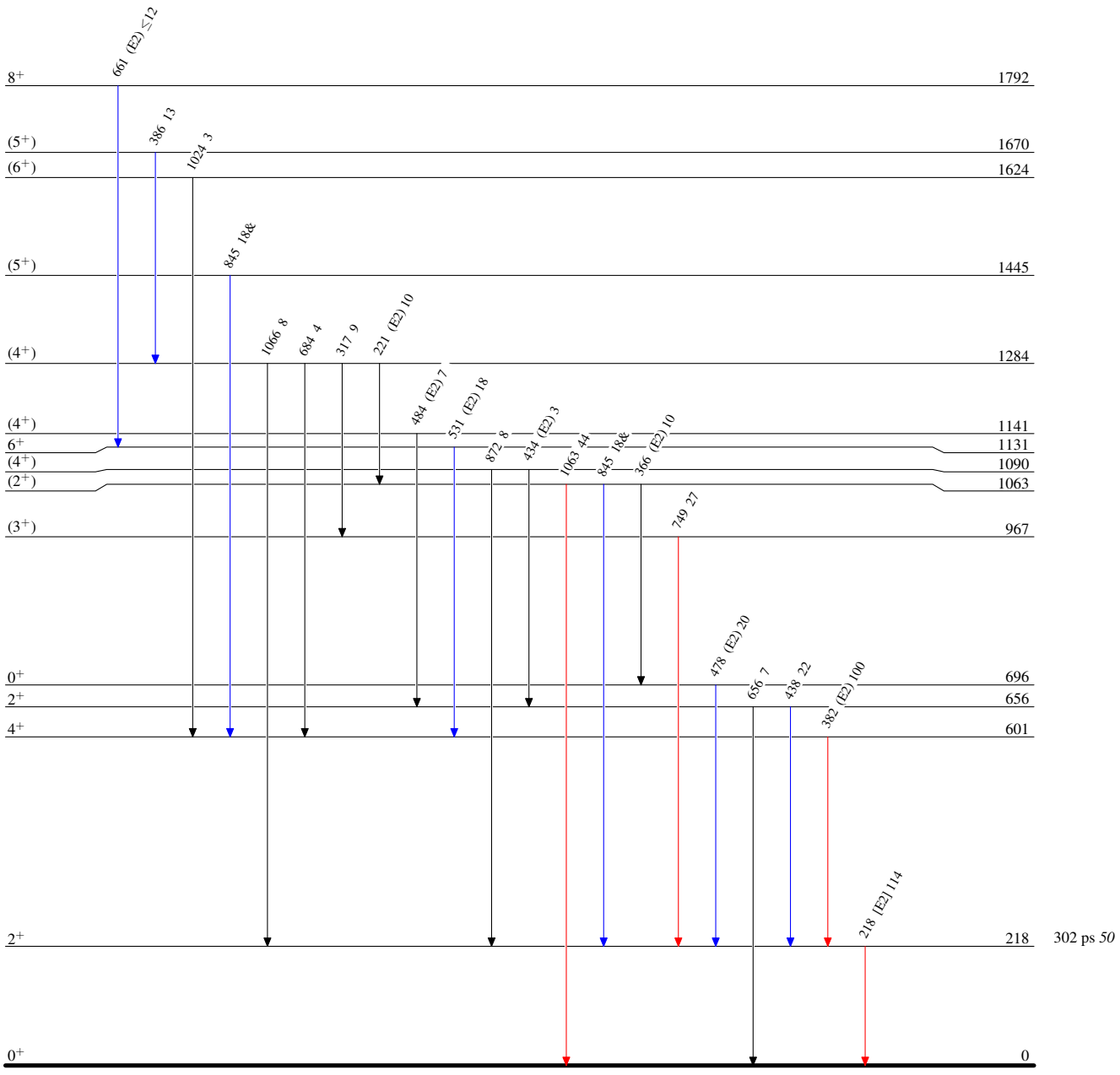
Level Scheme

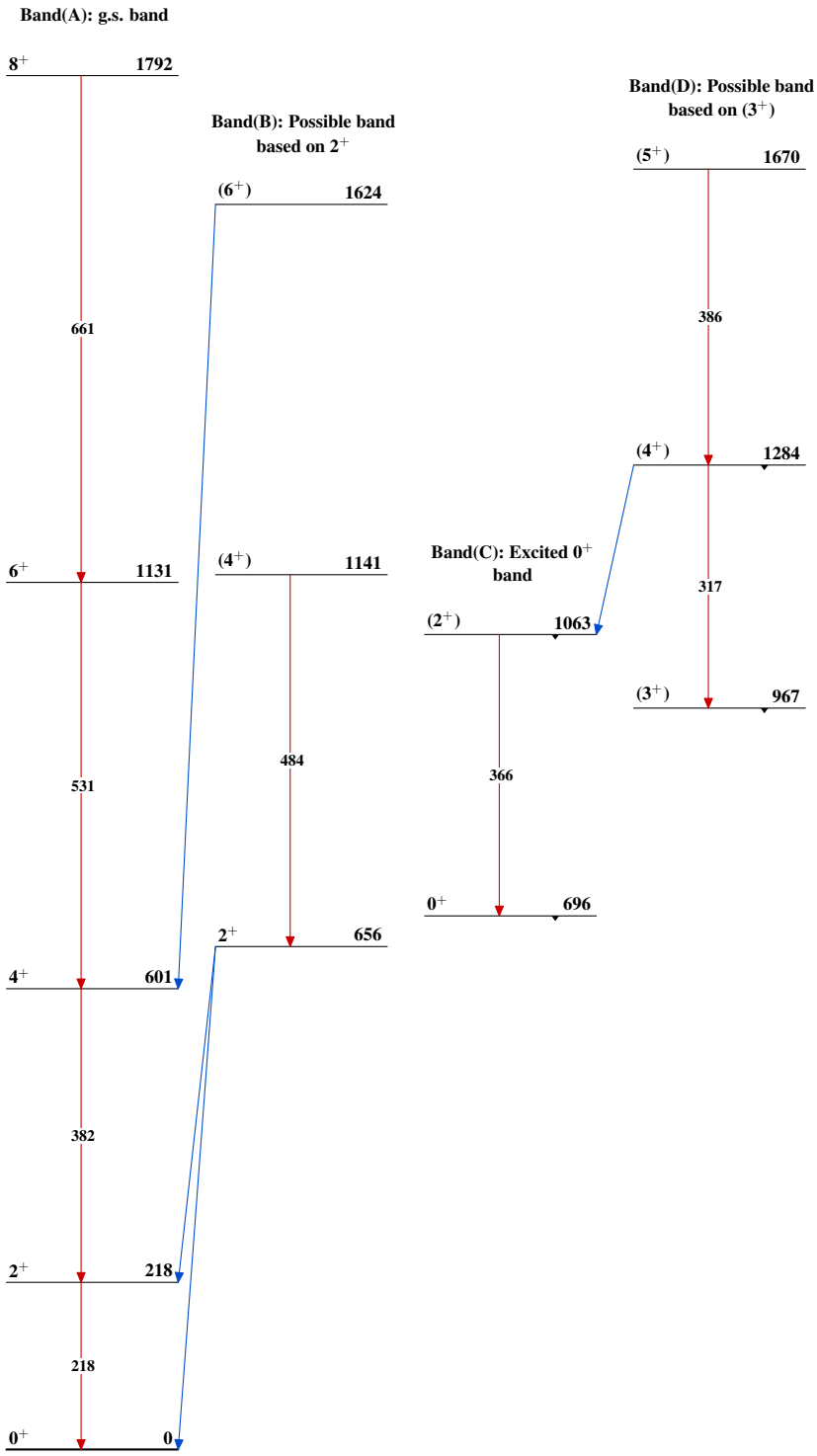
Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



$^{194}_{76}Os_{118}$

^{192}Os(^{18}O,^{16}Oγ) 2017Da06



$^{194}_{76}Os_{118}$