Adopted Levels, Gammas

History							
Туре	Author	Citation	Literature Cutoff Date				
Full Evaluation	J. Tuli	ENSDF	15-Aug-2015				

 $Q(\beta^-)=-8325\ 57;\ S(n)=1.0960\ 34;\ S(p)=314\ 16;\ Q(\alpha)=5716\ 10$ 2012Wa38 Identification: comparison of excitation functions for ${}^{162}\text{Er}({}^{19}\text{F},\text{xn})$ and ${}^{164}\text{Er}({}^{19}\text{F},\text{xn})$, producing known and new Ir activities.

¹⁷³Ir Levels

Calculated levels: 2013Ha02, 1999Mu05.

Cross Reference (XREF) Flags

 $^{177}\mathrm{Au}\;\alpha$ decay A

 177 Au α decay (1.00 s) B C

 $(HI, xn\gamma)$

E(level) [†]	$J^{\pi \ddagger}$	T _{1/2}	XREF	Comments
0.0	$(3/2^+, 5/2^+)$	9.0 s 8	A C	$\% \varepsilon + \% \beta^+ > 93; \ \% \alpha < 7$ %\alpha' from $I_{\alpha}(5416\alpha)$ relative to $I_{\alpha}(49.6\alpha)$ in 173 Ir ε decay (9.0 s) (1992Sc16)
				J^{π} : $3/2^+$ $3/2[402]$ or $5/2^+$ $5/2[402]$ orbital assigned, consistent with systematics and daughter J^{π} in both ¹⁶⁹ Re and ¹⁷³ Os. (HI,xn γ) data consistent with placement several hundred keV below $9/2^ 1/2[541]$ state. T _{1/2} : average of 8.1 s 3 (1992Bo21) and 9.8 s 14 (1992Sc16).
71.1 14			С	
155.4 10			С	
226 ^{&} 18	$11/2^{-}$	2.20 s 5	BC	$\%\varepsilon + \%\beta^+ = 88 \ l; \ \%\alpha = 12 \ l$
				$%\alpha$: from Iα(5674α) relative to Iγ(49.6γ) in ^{1/3} Ir ε decay (2.20 s) (1992Sc16). Other value: $%\alpha$ =2.02 8 (1986Ke03).
				J^{π} : configuration=11/2 ⁻ [505] from systematics and favored α decay to 11/2 ⁻ level in ¹⁶⁹ Re.
				$T_{1/2}$: from 1992Sc16. Other value: 3.0 s <i>10</i> (1967Si02). E(level),J ^{π} : from 2009An14.
374.6 19			С	
424.4 [#] 13	(9/2-)		С	
516.4 16			С	
580.3 11			С	
601 ^{&} 18	$(13/2^{-})$		С	
686.8 [#] 13	$(13/2^{-})$		С	
789.5 13			C	
793 ^{&} 18	$(15/2^{-})$		С	
991 18	$(15/2^{-})$		С	
1095.0 ^w 12	$(13/2^+)$		C	
1101 ^{&} 18	$(17/2^{-})$		С	
1109.3 [#] 13	$(17/2^{-})$		С	
1295.3 [@] 12	$(17/2^+)$		С	
1326 ^{&} 18	(19/2 ⁻)		С	
1403 18			С	
1573 ^{&} 18	$(21/2^{-})$		С	
1573 18			С	
1605.1 [@] 12	$(21/2^+)$		С	

Adopted Levels, Gammas (continued)

				17	⁷³ Ir Level	s (continued)		
E(level) [†]	J#‡	XREF	E(level) [†]	Jπ‡	XREF	E(level) [†]	Jπ‡	XREF
1635.9 [#] 13	$(21/2^{-})$	С	2796.5 [#] 15	$(29/2^{-})$	С	4107 ^{&} 18	(39/2 ⁻)	С
1818 ^{&} 18	$(23/2^{-})$	С	2922.9 [@] 12	$(33/2^+)$	С	4107.1 [@] 14	$(41/2^+)$	С
1874 18	(19/2)	С	2929 ^{&} 18	$(31/2^{-})$	С	4262.3 [#] 23	$(41/2^{-})$	С
1981.5 [@] 12	$(25/2^+)$	С	3226 ^{&} 18	$(33/2^{-})$	С	4779.5 [@] 17	$(45/2^+)$	С
2079 ^{&} 18	$(25/2^{-})$	С	3258.5 [#] 18	$(33/2^{-})$	С	4890.3 [#] 25	$(45/2^{-})$	С
2219.3 [#] 14	$(25/2^{-})$	С	3486.4 [@] 13	$(37/2^+)$	С	5497.9 [@] 20	$(49/2^+)$	С
2350 <mark>&</mark> 18	$(27/2^{-})$	С	3513 ^{&} 18	$(35/2^{-})$	С	5589 [#] 3	$(49/2^{-})$	С
2420.8 [@] 12	$(29/2^+)$	С	3720.5 [#] 20	$(37/2^{-})$	С	6254 [@] 2	$(53/2^+)$	С
2635 ^{&} 18	$(29/2^{-})$	С	3803 ^{&} 18	$(37/2^{-})$	С			

 † From least-squares fit of levels and gammas in (HI,xn $\gamma).$

[‡] From γ -ray multipolarities, coincidence data, and analysis of band structure in (HI,xn γ), except where noted. Bandhead assignments were based on systematics for neighboring odd-Z nuclei.

[#] Band(A): $h_{9/2}$, $\omega = 1/2$ (1/2[541]) band.

[@] Band(B): $i_{13/2}$, $\omega = 1/2$ (1/2[660]) band.

[&] Band(C): $h_{11/2}$, $\omega = 11/2$ (11/2[505]) band.

 $\gamma(^{173}\text{Ir})$

All γ -ray properties are from (HI,xn γ).

E_i (level)	\mathbf{J}_i^{π}	E_{γ}	I_{γ}^{\dagger}	\mathbf{E}_{f}	\mathbf{J}_f^π	Mult.	α^{\ddagger}
155.4		155.4 10	100	0.0	$(3/2^+, 5/2^+)$		
424.4	$(9/2^{-})$	353.3 [#] 5	100	71.1		(E2)	0.0596
516.4		141.8 10	100	374.6			
580.3		424.9 5	100	155.4		D	
601	$(13/2^{-})$	374.5 1	100	226	$11/2^{-}$		
686.8	$(13/2^{-})$	262.4 1	100	424.4	$(9/2^{-})$		
789.5		273.1 10	100 11	516.4			
		365.2 [#] 10	44 12	424.4	(9/2 ⁻)		
793	$(15/2^{-})$	192.6 5	33 4	601	$(13/2^{-})$	D	
		567.0 <i>1</i>	100 8	226	$11/2^{-}$		
991	$(15/2^{-})$	390.3 5	100	601	$(13/2^{-})$		
1095.0	$(13/2^+)$	305.5 5	38 <i>3</i>	789.5		D	
		408.3 5	87 4	686.8	$(13/2^{-})$		
		514.7 5	100 11	580.3			
1101	$(17/2^{-})$	307.9 1	100 10	793	$(15/2^{-})$		
		501.0 5	51 5	601	$(13/2^{-})$	(E2)	0.0239
1109.3	$(17/2^{-})$	422.5 1	100	686.8	$(13/2^{-})$	(E2)	0.0367
1295.3	$(17/2^+)$	185.9 5	13.0 12	1109.3	$(17/2^{-})$		
		200.3 1	100 5	1095.0	$(13/2^+)$		
1326	$(19/2^{-})$	224.4 5	100 12	1101	$(17/2^{-})$	D	
		532.7 5	100 18	793	$(15/2^{-})$		
1403		412.3 10	100 33	991	$(15/2^{-})$		
		803.3 10	92 17	601	$(13/2^{-})$		
1573	$(21/2^{-})$	247.5 5	100 19	1326	$(19/2^{-})$	D	
		472.3 5	81 8	1101	$(17/2^{-})$		

Adopted Levels, Gammas (continued)

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E _i (level)	\mathbf{J}_i^{π}	E_{γ}	I_{γ}^{\dagger}	E_f	J_f^π	Mult.	a^{\ddagger}	
1573		972.9.5	100	601	$(13/2^{-})$			
1605 1	$(21/2^{+})$	309.8.7	100	1295 3	$(17/2^+)$			
1635.9	$(21/2^{-})$	526.6.1	100	1109.3	$(17/2^{-})$	(F2)	0.0211	
1818	$(23/2^{-})$	244 7 5	92.20	1573	$(21/2^{-})$	(112)	0.0211	
1010	(23/2)	492.3.5	100 12	1326	$(19/2^{-})$	E2	0.0249	
1874	(19/2)	301.4 10	16.3	1573	$(21/2^{-})$	22	0.0219	
1071	(1)(=)	471 [#] 1	<30	1403	(
		471 1	100 15	1403	$(17/2^{-})$	D		
1081 5	$(25/2^{+})$	376 4 1	100 15	1605 1	(1/2) $(21/2^+)$	(F2)	0.0500	
2070	$(25/2^{-})$	261.3.5	77.8	1005.1	(21/2) $(23/2^{-})$	$(\mathbf{L}\mathbf{Z})$	0.0500	
2019	(23/2)	506.1.5	100.8	1573	$(23/2^{-})$	(D) (E2)	0.0233	
2210.3	$(25/2^{-})$	583.4.5	100 0	1635.0	$(21/2^{-})$	(L2)	0.0255	
2219.5	$(23/2^{-})$	270 7 5	67.7	2079	(21/2) $(25/2^{-})$	D		
2550	(21/2)	532.0.5	100 79	1818	$(23/2^{-})$	E2	0.0206	
2420.8	$(20/2^{+})$	130 3 1	100 19	1010	$(25/2^+)$	(E2)	0.0200	
2420.0	$(29/2^{-})$	285 5 5	71 16	2350	$(23/2^{-})$	(L2) D	0.0552	
2055	(2)/2)	55635	100 11	2079	$(27/2^{-})$	E2	0.0185	
2796 5	$(29/2^{-})$	577 2 5	100 11	2219.3	$(25/2^{-})$	F2	0.0170	
2922.9	$(23/2^+)$	502 1 7	100	2420.8	$(29/2^+)$	(F2)	0.0238	
2929	$(31/2^{-})$	293 5 5	41 5	2635	$(29/2^{-})$	(L2) D	0.0250	
//	(01/2))	578.5.5	100 14	2350	$(27/2^{-})$	E2	0.0169	
3226	$(33/2^{-})$	297.2.5	48.6	2929	$(31/2^{-})$	D	0.010)	
0220	(35/2)	590.3.5	100 10	2635	$(29/2^{-})$	E2	0.0161	
3258.5	$(33/2^{-})$	462 1	100	2796.5	$(29/2^{-})$	E2	0.0292	
3486.4	$(37/2^+)$	563.5 5	100	2922.9	$(33/2^+)$	E2	0.0180	
3513	$(35/2^{-})$	287.6 10	100 19	3226	$(33/2^{-})$			
	(1)	585.0 10	100 25	2929	$(31/2^{-})$	E2	0.0165	
3720.5	$(37/2^{-})$	462 1	100	3258.5	$(33/2^{-})$			
3803	$(37/2^{-})$	290.7 10	57 11	3513	$(35/2^{-})$			
		577 1	100 30	3226	$(33/2^{-})$	E2	0.0170	
4107	$(39/2^{-})$	304 1	100	3803	$(37/2^{-})$			
4107.1	$(41/2^+)$	620.7 5	100	3486.4	$(37/2^+)$	E2	0.0144	
4262.3	$(41/2^{-})$	541.8 10	100	3720.5	$(37/2^{-})$			
4779.5	$(45/2^+)$	672.4 10	100	4107.1	$(41/2^+)$	E2	0.0120	
4890.3	$(45/2^{-})$	628 1	100	4262.3	$(41/2^{-})$			
5497.9	$(49/2^+)$	718.4 10	100	4779.5	$(45/2^+)$	E2	0.0104	
5589	$(49/2^{-})$	699 1	100	4890.3	$(45/2^{-})$			
6254	$(53/2^+)$	756 [#] 1	100	5497.9	$(49/2^+)$			

[†] Relative photon branching from each level.

^{\ddagger} 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.

[#] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas Legend Level Scheme Intensities: Relative photon branching from each level γ Decay (Uncertain) - -1 36 100 (53/2+) 6254 - 218.4 E2 100 4 00° 100 (49/2-) 5589 $(49/2^+)$ 5497.9 + 62/1 + 62/100 1 03° 100 (45/2-) 4890.3 $(45/2^+)$ 4779.5 + 541.8 100 + 50, 22, 100 8 $(41/2^{-})$ 4262.3 4107.1 $(41/2^+)$ 3 $\left| \frac{3\gamma_{2}}{29_{0,3}} \right|^{2}$ (39/2-) 4107 00 35 -1 45 100 (37/2-) 3803 (37/2-3720.5 Jes. 1 $= \frac{3}{2} \frac{3}{2} \frac{2}{2} \frac{2}{2} \frac{2}{2} \frac{2}{4} \frac{1}{4} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{4} \frac{1}{4} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{4} \frac{1}{2} \frac{$ 1 40 + 100 - 100 - 100 (35/2-) 3513 $(37/2^+)$ ¥ 3486.4 $[] \frac{3_{\Re_{S_{1}}}}{2_{9_{3}}} \frac{1}{2_{9_{1}}} \frac{3_{\Re_{S_{1}}}}{2_{9_{1}}} - \frac{1}{2_{9_{1}}}$ (33/2-) 3258.5 \$2, (E2) (33/2-) 3226 001 ZZ $\frac{1}{285} \frac{56}{82} \frac{1}{82} \frac{1}{82}$ (31/2-) 2929 $(33/2^+)$ 2922.9 Ś $(29/2^{-})$ 2796.5 ا الايني الم $= \frac{1}{200} \frac{320}{82} \frac{1}{82} \frac{1}{$ Ś $(29/2^{-})$ 2635 $\frac{(29/2^+)}{(27/2^-)}$ S 2420.8 S. -27 2350 6 -8 8 (25/2-) Â 2219.3 -010--10-00--12-00-~~ ~~ ŝ $(25/2^{-})$ 2079 -%-%-%-%- $(25/2^+)$ 1981.5 (19/2) 1874 $(23/2^{-})$ 1818 $\frac{\overline{(21/2^-)}}{(21/2^+)}$ 1635.9 1605.1 (21/2-) 1573 1403 $(17/2^{-})$ 1101 $(3/2^+, 5/2^+)$ 0.0 9.0 s 8

¹⁷³₇₇Ir₉₆



¹⁷³₇₇Ir₉₆

Adopted Levels, Gammas



¹⁷³₇₇Ir₉₆