Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	V. S. Shirley	NDS 75,377 (1995)	1-Oct-1993

Q(β^-)=−5.17×10^3 *4*; S(n)=7.70×10^3 *4*; S(p)=4.69×10^3 *4*; Q(α)=3.56×10^3 *4* 2012Wa38
Note: Current evaluation has used the following Q record −4770 SY7590 SY4310 SY3890 syst 1993Au05.
Identification: excitation functions for ^{165}Ho(^{14}N,xn) and ^{165}Ho(^{16}O,xn), presence of γ's from ^{173}Ta ε decay (1986Sz05); excitation functions for (p,xn) on ^{181}Ta, presence of γ's from ^{173}Ta ε decay in 9-neutron product (1963Sa14); excitation functions for (^{3}He,xn) on ^{176}Hf (1973CaYH).

^{173}W Levels

Cross Reference (XREF) Flags

A ^{161}Dy(^{16}O,4nγ)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0#	5/2$^-$	7.6 min *2*	A	%ε+%β^+=100 %α<0.002 from extrapolation of Q(α) vs. $T_{1/2}(\alpha)$ for ^{161,163,165}W. J$^\pi$: 5/2[512] bandhead; log *ft*=5.1 to ≤633.5 (7/2$^-$) level in ^{173}Ta. $T_{1/2}$: weighted average of 6.3 min *4* (1990Me12), 7.6 min *1* (1991KuZN), and 7.97 min *27* (1986Sz05). Others: 1963Sa14, 1971Na28, 1973CaYH.
0.0+x&	(1/2$^-$)		A	
85.37@ *10*	(7/2)$^+$	14 ns *4*	A	J$^\pi$: 85.7γ E1 to 5/2$^-$. $T_{1/2}$: $\gamma\gamma$(t) in ^{161}Dy(^{16}O,4nγ) (1978Wa16).
89.74+x& *20*	(5/2$^-$)		A	
95.23# *9*	(7/2$^-$)		A	
127.91@ *13*	(9/2$^+$)		A	
200.04@ *14*	(11/2$^+$)		A	
216.85# *10*	(9/2$^-$)		A	
273.84@ *16*	(13/2$^+$)		A	
280.71+x& *22*	(9/2$^-$)		A	
362.26# *15*	(11/2$^-$)		A	
423.95@ *16*	(15/2$^+$)		A	
517.87@ *19*	(17/2$^+$)		A	
529.34# *15*	(13/2$^-$)		A	
555.46+x& *24*	(13/2$^-$)		A	
715.76# *17*	(15/2$^-$)		A	
763.20@ *20*	(19/2$^+$)		A	
867.23@ *22*	(21/2$^+$)		A	
896.7+x& *3*	(17/2$^-$)		A	
918.19# *19*	(17/2$^-$)		A	
1134.7# *4*	(19/2$^-$)		A	
1203.6@ *3*	(23/2$^+$)		A	
1292.5+x& *3*	(21/2$^-$)		A	
1316.3@ *3*	(25/2$^+$)		A	
1362.4# *5*	(21/2$^-$)		A	
1600.5# *4*	(23/2$^-$)		A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{173}W Levels (continued)

E(level)[†]	Jπ[‡]	XREF	E(level)[†]	Jπ[‡]	XREF	E(level)[†]	Jπ[‡]	XREF
1727.6[@] *3*	(27/2$^+$)	A	2320.8[@] *4*	(31/2$^+$)	A	3271.5+x[&] *8*	(37/2$^-$)	A
1734.6+x[&] *4*	(25/2$^-$)	A	2462.2[@] *4*	(33/2$^+$)	A	3675.1[@] *7*	(39/2$^+$)	A
1843.5[#] *8*	(25/2$^-$)	A	2643.0[#] *8*	(31/2$^-$)	A	3834.5[@] *6*	(41/2$^+$)	A
1852.6[@] *4*	(29/2$^+$)	A	2719.3+x[&] *8*	(33/2$^-$)	A	3887.9+x[&] *9*	(41/2$^-$)	A
2099.7[#] *7*	(27/2$^-$)	A	2972.1[@] *5*	(35/2$^+$)	A			
2213.4+x[&] *6*	(29/2$^-$)	A	3130.5[@] *5*	(37/2$^+$)	A			

[†] From ^{161}Dy(^{16}O,4nγ).

[‡] From γ-ray multipolarities, coincidence data, and analysis of rotational structure in ^{161}Dy(^{16}O,4nγ) (1978Wa16), except where noted.

[#] Band(A): 5/2(512) band; α=13.9, β=−11 (J=5/2, 7/2, 9/2, 11/2 levels).

[@] Band(B): 7/2(633) band Coriolis mixing causes significant signature splitting within this band.

[&] Band(C): 1/2(521) band; α=14.0, β=−23, a=0.72 (J=1/2, 5/2, 9/2, 13/2 levels).

Adopted Levels, Gammas (continued)

γ(^{173}W)

E_i(level)	J_i^π	E_γ[†]	I_γ[†‡]	E_f	J_f^π	Mult.[†]	δ[†]	α[@]	Comments
85.37	(7/2)$^+$	85.37 *10*	100	0.0	5/2$^-$	E1		0.570	B(E1)(W.u.)=1.6×10^{-5} *5*
89.74+x	(5/2$^-$)	89.74 *20*	100	0.0+x	(1/2$^-$)				
95.23	(7/2$^-$)	95.22 *10*	100	0.0	5/2$^-$				
127.91	(9/2$^+$)	42.49 *10*	100	85.37	(7/2)$^+$				E_γ: overlap with Dy x rays affects measurement.
200.04	(11/2$^+$)	72.11 *10*	100 *22*	127.91	(9/2$^+$)	(M1+E2)		14.0[#] *14*	
		114.78 *15*	22 *11*	85.37	(7/2)$^+$				
216.85	(9/2$^-$)	121.60 *10*	92 *25*	95.23	(7/2$^-$)	M1+E2	−0.30 *15*	2.71 *8*	
		216.87 *15*	100 *25*	0.0	5/2$^-$				I_γ: includes component from contaminant.
273.84	(13/2$^+$)	73.83 *10*	100 *20*	200.04	(11/2$^+$)				
		145.48 *40*	<200	127.91	(9/2$^+$)				I_γ: see comment with 145.4γ.
280.71+x	(9/2$^-$)	190.97 *10*	100	89.74+x	(5/2$^-$)	E2		0.364	
362.26	(11/2$^-$)	145.40 *25*	<182	216.85	(9/2$^-$)				I_γ: for 145.4γ and 145.5γ combined.
		267.07 *20*	100 *27*	95.23	(7/2$^-$)	E2		0.122	
423.95	(15/2$^+$)	150.12 *10*	80 *7*	273.84	(13/2$^+$)	M1+E2	−0.8 *4*	1.27 *14*	
		223.91 *10*	100 *7*	200.04	(11/2$^+$)	E2		0.215	
517.87	(17/2$^+$)	93.93 *10*	36 *5*	423.95	(15/2$^+$)				
		243.69 *40*	100 *36*	273.84	(13/2$^+$)				I_γ: includes component from ^{174}W.
529.34	(13/2$^-$)	167.08 *15*	100 *11*	362.26	(11/2$^-$)	M1+E2	−0.09 *10*	1.13	
		312.48 *15*	79 *11*	216.85	(9/2$^-$)	E2		0.0759	
555.46+x	(13/2$^-$)	274.75 *10*	100	280.71+x	(9/2$^-$)	E2		0.112	
715.76	(15/2$^-$)	186.38 *15*	87 *13*	529.34	(13/2$^-$)	M1+E2	+0.02 *6*	0.835	
		353.51 *15*	100 *20*	362.26	(11/2$^-$)	E2		0.0531	
763.20	(19/2$^+$)	245.30 *25*	38 *9*	517.87	(17/2$^+$)	M1+E2	−0.8 *4*	0.30 *5*	
		339.29 *15*	100 *6*	423.95	(15/2$^+$)	E2		0.0597	
867.23	(21/2$^+$)	104.07 *15*	5.5 *18*	763.20	(19/2$^+$)				
		349.31 *20*	100 *20*	517.87	(17/2$^+$)				I_γ: includes components from ^{172}W and ^{174}W.
896.7+x	(17/2$^-$)	341.28 *15*	100	555.46+x	(13/2$^-$)	E2		0.0587	
918.19	(17/2$^-$)	202.40 *15*	35 *10*	715.76	(15/2$^-$)	M1+E2	−2.0 *20*	0.37 *5*	
		388.88 *15*	100 *15*	529.34	(13/2$^-$)	E2		0.0407	
1134.7	(19/2$^-$)	418.90 *35*	100	715.76	(15/2$^-$)				
1203.6	(23/2$^+$)	336.43 *20*	26 *8*	867.23	(21/2$^+$)	M1+E2	−1.0 *10*	0.11 *3*	
		440.36 *25*	100 *8*	763.20	(19/2$^+$)	(E2)		0.0292	I_γ: includes component from ^{23}Na.
1292.5+x	(21/2$^-$)	395.80 *15*	100	896.7+x	(17/2$^-$)	E2		0.0388	
1316.3	(25/2$^+$)	449.08 *20*	100	867.23	(21/2$^+$)	E2		0.0277	
1362.4	(21/2$^-$)	444.20 *45*	100	918.19	(17/2$^-$)	E2		0.0285	
1600.5	(23/2$^-$)	465.80 *20*	100	1134.7	(19/2$^-$)	E2		0.0253	
1727.6	(27/2$^+$)	523.94 *20*	100	1203.6	(23/2$^+$)	E2		0.0189	
1734.6+x	(25/2$^-$)	442.06 *30*	100	1292.5+x	(21/2$^-$)	E2		0.0289	
1843.5	(25/2$^-$)	481.10 *60*	100	1362.4	(21/2$^-$)	E2		0.0233	
1852.6	(29/2$^+$)	536.25 *20*	100	1316.3	(25/2$^+$)	E2		0.0179	
2099.7	(27/2$^-$)	499.19 *50*	100	1600.5	(23/2$^-$)				

$^{173}_{74}W_{99}$-3

Adopted Levels, Gammas (continued)

$\gamma(^{173}W)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†‡]	E_f	J_f^π	Mult.[†]	α[@]
2213.4+x	(29/2$^-$)	478.77 *40*	100	1734.6+x	(25/2$^-$)	E2	0.0236
2320.8	(31/2$^+$)	593.24 *30*	100	1727.6	(27/2$^+$)		
2462.2	(33/2$^+$)	609.67 *20*	100	1852.6	(29/2$^+$)	E2	0.0132
2643.0	(31/2$^-$)	543.30 *35*	100	2099.7	(27/2$^-$)		
2719.3+x	(33/2$^-$)	505.96 *50*	100	2213.4+x	(29/2$^-$)		
2972.1	(35/2$^+$)	651.32 *30*	100	2320.8	(31/2$^+$)	E2	0.0113
3130.5	(37/2$^+$)	668.31 *25*	100	2462.2	(33/2$^+$)	E2	0.0107
3271.5+x	(37/2$^-$)	552.13 *25*	100	2719.3+x	(33/2$^-$)		
3675.1	(39/2$^+$)	703.00 *40*	100	2972.1	(35/2$^+$)	(E2)	0.00955
3834.5	(41/2$^+$)	703.97 *30*	100	3130.5	(37/2$^+$)	(E2)	0.00952
3887.9+x	(41/2$^-$)	616.40 *32*	100	3271.5+x	(37/2$^-$)	E2	0.0129

† From ^{161}Dy(^{16}O,4nγ).

‡ Relative photon branching from each level.

Brackets combined range for M1 and E2.

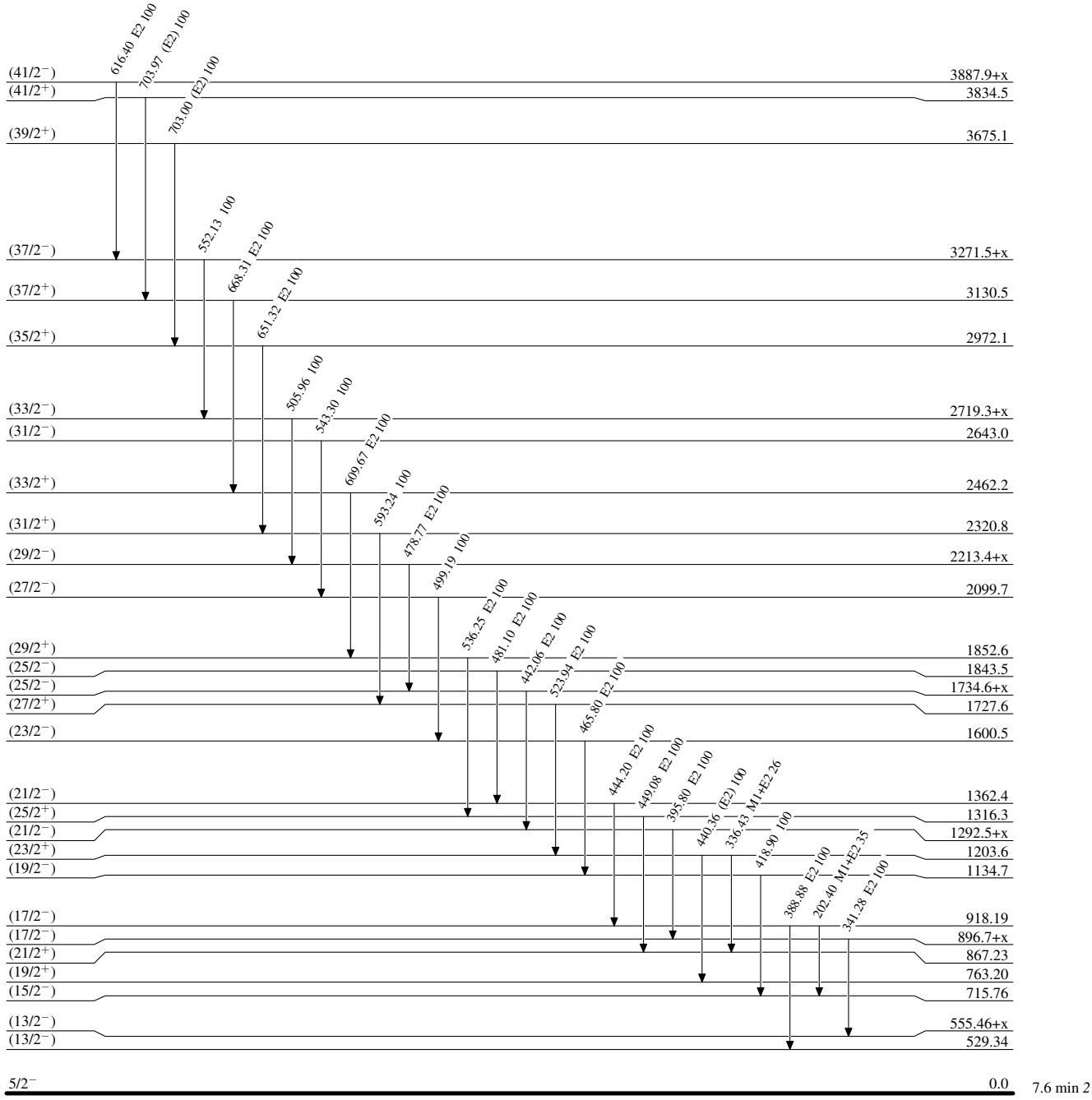
@ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

$^{173}_{74}W_{99}$-4

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

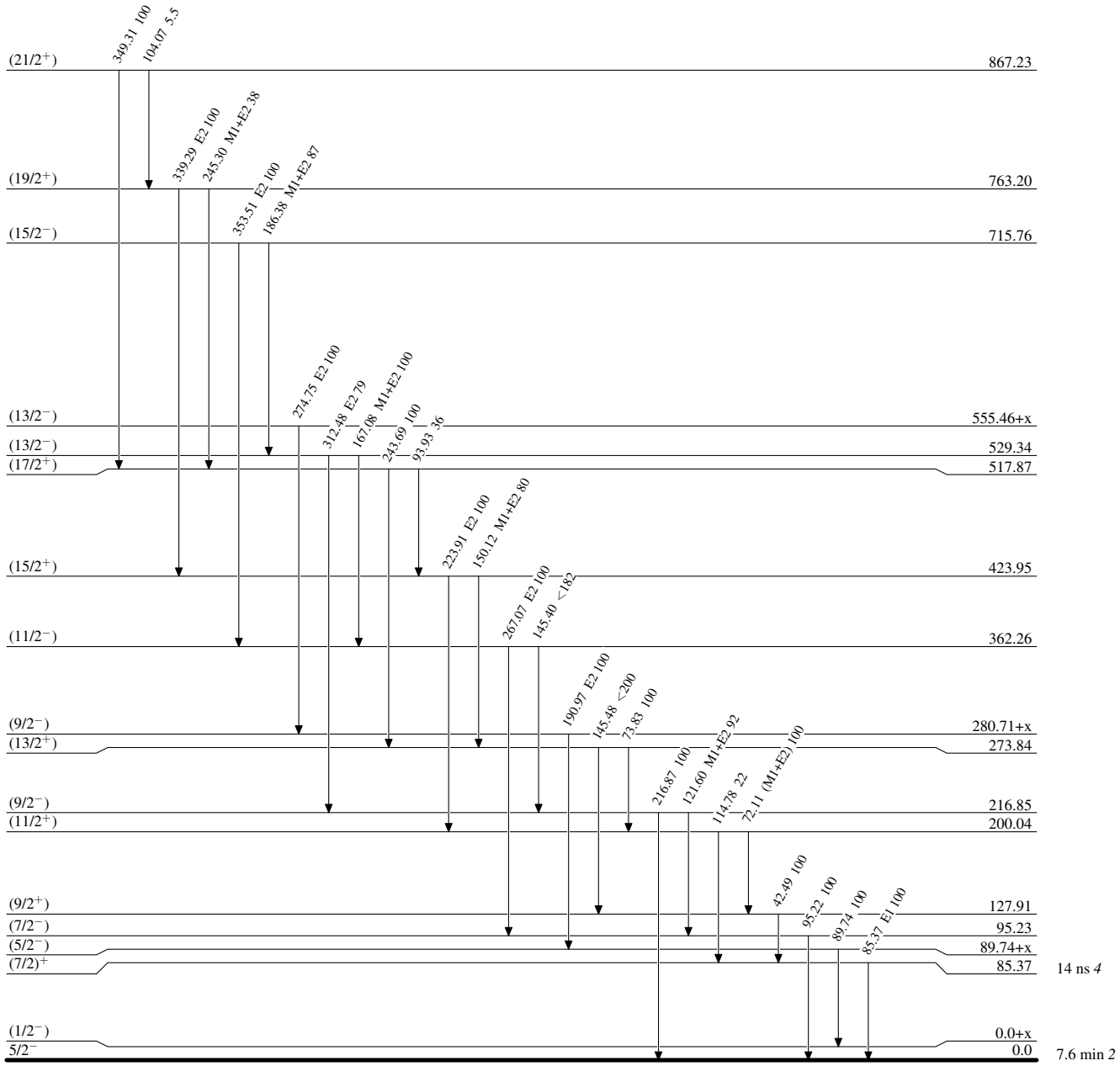


$^{173}_{74}W_{99}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{173}_{74}W_{99}$

Adopted Levels, Gammas