Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, Huo Junde	NDS 87,15 (1999)	1-Nov-1998

Q(β^-)=−6.55×10^3 *4*; S(n)=9.57×10^3 *4*; S(p)=5.12×10^3 *4*; Q(α)=3.60×10^3 *4* 2012Wa38

Note: Current evaluation has used the following Q record −6.5E3 SY9.6E3 SY4.8E3 SY3.6E3 syst 1995Au04.

Additional information 1.

Other reaction: ^{150}Nd(^{30}Si,6nγ), E=178 MeV. Measured $\gamma\gamma$ coin. Detector: 8 π array of 20 hyperpure germanium detectors. Measured γ rays from high-spin members of rotational bands, as well as strong γ rays from a quasicontinuum spectrum (1996Cr07).

Spin assignments are based on rotational structure and angular correlation data of 1978Dr04 in ^{162}Dy(^{16}O,4nγ). Additional specific arguments are given for individual levels.

^{174}W Levels

Cross Reference (XREF) Flags

- A ^{162}Dy(^{16}O,4nγ)
- B ^{159}Tb(^{19}F,4nγ),^{165}Ho(^{14}N,5nγ)
- C ^{169}Tm(^{11}B,6nγ)
- D ^{174}Re ε decay

E(level)[†]	J$^\pi$[b]	T$_{1/2}$[&]	XREF	Comments
0.0[‡]	0$^+$	33.2 min *21*	ABCD	%ε+%β^+=100 T$_{1/2}$: weighted average (LRSW, χ^2/ν=8.1) of 35.3 min *5* (1990Me12), 33.2 min *9* (1985Sz03), 31 min *2* (1965De25,1966De22), 29 min *1* (1964Sa22), and 29 min *3* (1973CaYH).
113.0[‡] *1*	2$^+$	1.14 ns *7*	ABCD	J$^\pi$: 113.0 E2 γ to 0$^+$.
356.4[‡] *2*	4$^+$	42 ps *2*	ABCD	J$^\pi$: 243.4 E2 γ to 2$^+$.
705.95[‡] *24*	6$^+$	4.4 ps *8*	ABCD	J$^\pi$: 349.5 E2 γ to 4$^+$.
1138.9[‡] *3*	8$^+$	2.6 ps *3*	ABC	J$^\pi$: 433.0 E2 γ to 6$^+$.
1364.7[@] *4*	(4$^-$)	17 ps *10*	AB	J$^\pi$: 1008.3 d γ to 4$^+$.
1401.3[#] *4*	(5$^-$)	9.0 ps *35*	AB	J$^\pi$: 695.1γ to 6$^+$, 1046γ to 4$^+$.
1628.5[@] *3*	(6)$^-$	13 ps *2*	AB	J$^\pi$: 922.4 E1+M2 γ to 6$^+$.
1637.5[‡] *4*	10$^+$	1.9 ps *3*	ABC	J$^\pi$: 498.6 E2 γ to 8$^+$.
1672.0 *5*		≥187 ns	A	
1676.3[#] *3*	(7$^-$)	4.9 ps *15*	AB	J$^\pi$: 537.5γ to 8$^+$, 275.0γ to (5$^-$).
1705.5 *5*			A	
1919.7 *5*		187[a] ns *25*	A	
1963.2[@] *3*	(8$^-$)	11 ps *1*	AB	J$^\pi$: 334.5 (E2) γ to (6)$^-$, 824.2γ to 8$^+$.
1999.1[#] *3*	9$^-$	3.0 ps *6*	AB	J$^\pi$: 860.2 E1 γ to 8$^+$, 361.4γ to 10$^+$.
2189.4[‡] *4*	12$^+$	1.1 ps *2*	ABC	J$^\pi$: 551.9 E2 γ to 10$^+$.
2329.9[@] *4*	(10$^-$)	3.5 ps *10*	AB	J$^\pi$: 366.7 (E2) γ to (8$^-$).
2396.4[#] *4*	(11$^-$)	1.7 ps *3*	AB	J$^\pi$: 397.3 (E2) γ to 9$^-$, 759.0 (E1) γ to 10$^+$.
2751.8[@] *5*	(12$^-$)	1.9 ps *3*	AB	J$^\pi$: 421.9 (E2) γ to (10$^-$).
2785.2[‡] *5*	14$^+$	0.6 ps *1*	ABC	J$^\pi$: 595.8 E2 γ to 12$^+$.
2861.8[#] *4*	(13$^-$)	1.4 ps *5*	AB	XREF: A(2861.8). J$^\pi$: 465.4 (E2) γ to (11$^-$).
3242.6[@] *5*	(14$^-$)	1.7 ps *3*	AB	J$^\pi$: 490.8 (E2) γ to (12$^-$).
3388.6[#] *5*	(15$^-$)	0.9 ps *5*	AB	J$^\pi$: 526.8 (E2) γ to (13$^-$).
3397.3[‡] *6*	16$^+$	0.5 ps *2*	AB	XREF: A(3397.3).

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Adopted Levels, Gammas (continued)

^{174}W Levels (continued)

E(level)[†]	J$^{\pi}$[b]	T$_{1/2}$[&]	XREF	Comments
				J$^{\pi}$: 612.1 E2 γ to 14^{+}.
3799.4[@] *7*	(16^{-})		AB	J$^{\pi}$: 556.8γ to (14^{-}).
3968.6[#] *6*	(17^{-})	≤30[a] ns	AB	J$^{\pi}$: 580.0 (E2) γ to (15^{-}).
3977.7[‡] *6*	18^{+}		AB	J$^{\pi}$: 580.4 E2 γ to 16^{+}.
4415.6[@] *10*	(18^{-})		AB	J$^{\pi}$: 616.2γ to (16^{-}).
4588.6[#] *9*	(19^{-})	≤30[a] ns	AB	J$^{\pi}$: 620.0γ to (17^{-}).
4606.2[‡] *7*	(20^{+})		AB	J$^{\pi}$: 628.5 (E2) γ to 18^{+}.

[†] From ^{162}Dy(^{16}O,4nγ) (1978Dr04).
[‡] Band(A): K$^{\pi}$=0^{+} g.s.-rotational band.
[#] Band(B): K$^{\pi}$=(4^{-}) band, odd-spin members.
[@] Band(C): K$^{\pi}$=(4^{-}) band, even-spin members.
[&] From recoil distance technique in ^{159}Tb(^{19}F,4nγ) (1987Ga14), unless otherwise specified.
[a] From $\gamma\gamma$(t) in ^{162}Dy(^{16}O,4nγ) (1978Dr04).
[b] J^{π} assignments are based on rotational structure, and on γ-ray multipolarities and decay patterns. Specific arguments are given with individual levels.

γ(^{174}W)

E$_i$(level)	J$_i^{\pi}$	E$_{\gamma}$[†]	I$_{\gamma}$[†]	E$_f$	J$_f^{\pi}$	Mult.[‡]	δ	α[#]	Comments
113.0	2^{+}	113.0 *1*	100	0.0	0^{+}	E2		2.45	B(E2)(W.u.)=135 *9*
356.4	4^{+}	243.4 *1*	100	113.0	2^{+}	E2		0.164	B(E2)(W.u.)=235 *12*
705.95	6^{+}	349.5 *2*	100	356.4	4^{+}	E2		0.0549	B(E2)(W.u.)=410 *80*
1138.9	8^{+}	433.0 *2*	100	705.95	6^{+}	E2		0.0305	B(E2)(W.u.)=240 *30*
1364.7	(4^{-})	1008.3 *4*	100	356.4	4^{+}	[E1]		0.00177	B(E1)(W.u.)=1.2×10^{-5} *8*
1401.3	(5^{-})	695.1 *4*	100 *21*	705.95	6^{+}	[E1]		0.00360	B(E1)(W.u.)=4.2×10^{-5} *17*
		1046 *1*	70 *18*	356.4	4^{+}	[E1]		0.00165	B(E1)(W.u.)=9.E−6 *5*
1628.5	(6)$^{-}$	263.8 *4*	25 *6*	1364.7	(4^{-})	[E2]		0.127	B(E2)(W.u.)=120 *40*
		922.4 *2*	100 *7*	705.95	6^{+}	E1(+M2)	≤0.38		δ: from α(K)exp, (^{16}O,4nγ). From RUL one expects δ<0.1.
1637.5	10^{+}	498.6 *2*	100	1138.9	8^{+}	E2		0.0213	B(E2)(W.u.)=160 *30*
1672.0		965.3 *7*	≈100	705.95	6^{+}				
1676.3	(7^{-})	275.0 *3*	≤56	1401.3	(5^{-})	[E2]		0.112	B(E2)(W.u.)≤400
		537.5 *2*	100 *18*	1138.9	8^{+}	[E1]		0.00612	B(E1)(W.u.)=0.00015 *6*
		970.5 *3*	59 *20*	705.95	6^{+}	[E1]		0.00189	B(E1)(W.u.)=1.5×10^{-5} *8*
1705.5		999.8 *4*	100	705.95	6^{+}				
1919.7		214.3 *3*	100	1705.5					
		247.6 *3*	≤83	1672.0					
1963.2	(8^{-})	287.2 *3*	≤21	1676.3	(7^{-})	[M1,E2]		0.18 *8*	
		334.5 *6*	100 *6*	1628.5	(6)$^{-}$	(E2)		0.0622	B(E2)(W.u.)=141 *18*
		824.2 *2*	32 *5*	1138.9	8^{+}	[E1]		0.00258	B(E1)(W.u.)=7.5×10^{-6} *15*
1999.1	9^{-}	322.7 *3*	54 *10*	1676.3	(7^{-})	(E2)		0.0690	B(E2)(W.u.)=310 *90*
		361.4 *3*	≤10	1637.5	10^{+}	[E1]		0.0148	B(E1)(W.u.)=5.E−5 *5*
		860.2 *2*	100 *6*	1138.9	8^{+}	E1		0.00237	B(E1)(W.u.)=7.0×10^{-5} *15* Mult.: from α(K)exp.
2189.4	12^{+}	551.9 *2*	100	1637.5	10^{+}	E2		0.0167	B(E2)(W.u.)=170 *40*
2329.9	(10^{-})	366.7 *2*	100 *6*	1963.2	(8^{-})	(E2)		0.0479	B(E2)(W.u.)=400 *120*
2396.4	(11^{-})	397.3 *2*	100	1999.1	9^{-}	(E2)		0.0384	B(E2)(W.u.)=390 *70*
		759.0 *3*	44 *3*	1637.5	10^{+}	(E1)		0.00302	B(E1)(W.u.)=8.7×10^{-5} *17*
2751.8	(12^{-})	421.9 *2*	100	2329.9	(10^{-})	(E2)		0.0327	B(E2)(W.u.)=370 *60*

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Adopted Levels, Gammas (continued)

$\gamma(^{174}W)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
2785.2	14^+	595.8 *3*	100	2189.4	12^+	E2	0.0139	B(E2)(W.u.)=210 *40*
2861.8	(13^-)	465.4 *2*	100	2396.4	(11^-)	(E2)	0.0253	B(E2)(W.u.)=310 *120*
3242.6	(14^-)	490.8 *2*	100	2751.8	(12^-)	(E2)	0.0221	B(E2)(W.u.)=200 *40*
3388.6	(15^-)	526.8 *3*	100	2861.8	(13^-)	(E2)	0.0187	B(E2)(W.u.)=260 *150*
3397.3	16^+	612.1 *3*	100	2785.2	14^+	E2	0.0131	B(E2)(W.u.)=230 *90*
3799.4	(16^-)	556.8 *5*	100	3242.6	(14^-)			
3968.6	(17^-)	580.0 *2*	100	3388.6	(15^-)	(E2)	0.0148	
3977.7	18^+	580.4 *2*	100	3397.3	16^+	(E2)	0.0148	
4415.6	(18^-)	616.2 *7*	100	3799.4	(16^-)			
4588.6	(19^-)	620.0 *7*	100	3968.6	(17^-)	[E2]	0.0127	
4606.2	(20^+)	628.5 *3*	100	3977.7	18^+	(E2)	0.0123	

[†] From (^{16}O,4nγ).

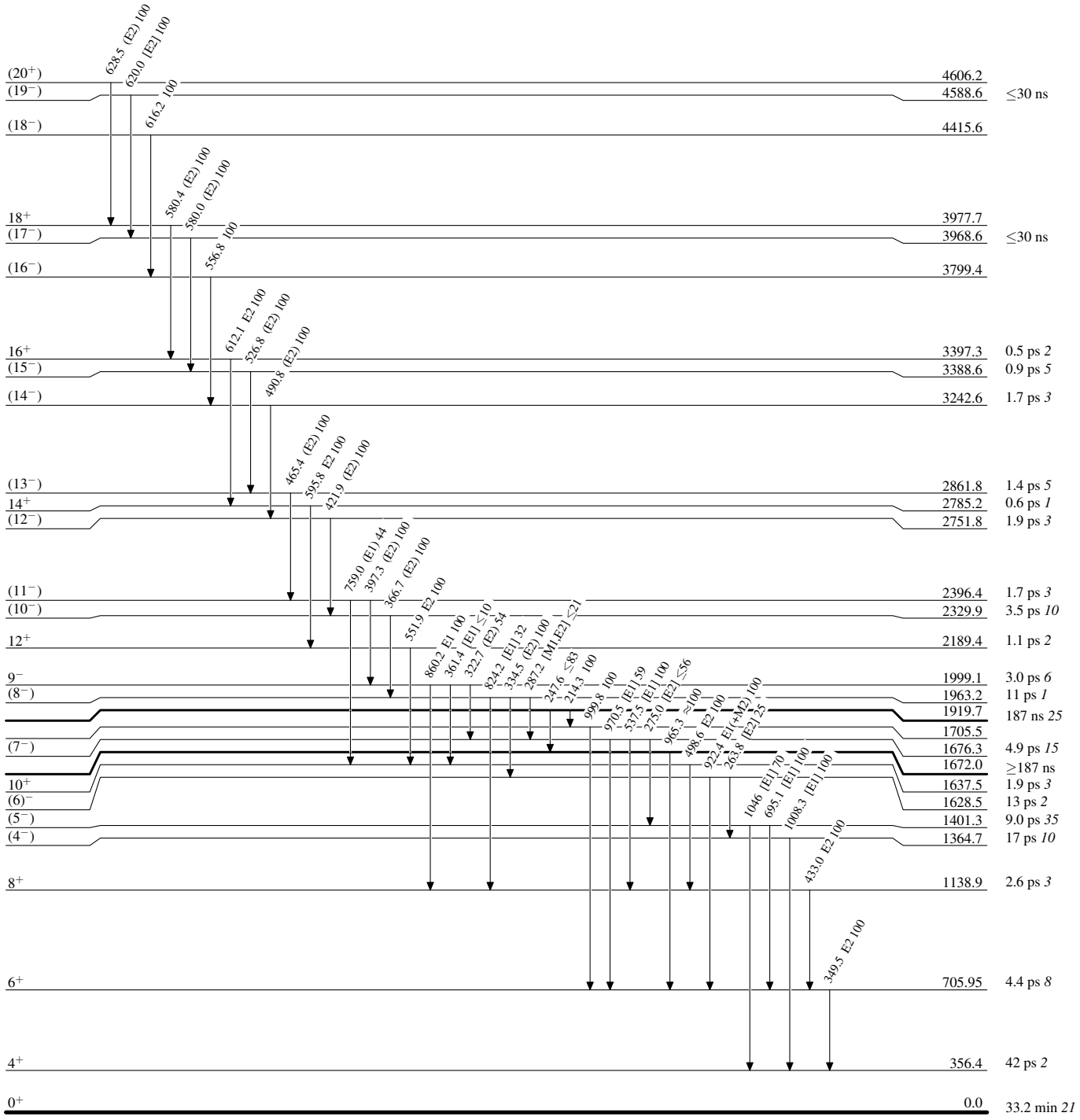
[‡] From $\gamma(\theta)$, and RUL for transitions with a known half-life, and DCO (directional correlation from oriented nuclei).

[#] 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

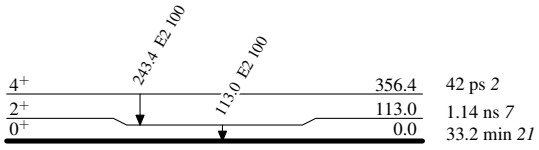


$^{174}_{74}W_{100}$

Adopted Levels, Gammas

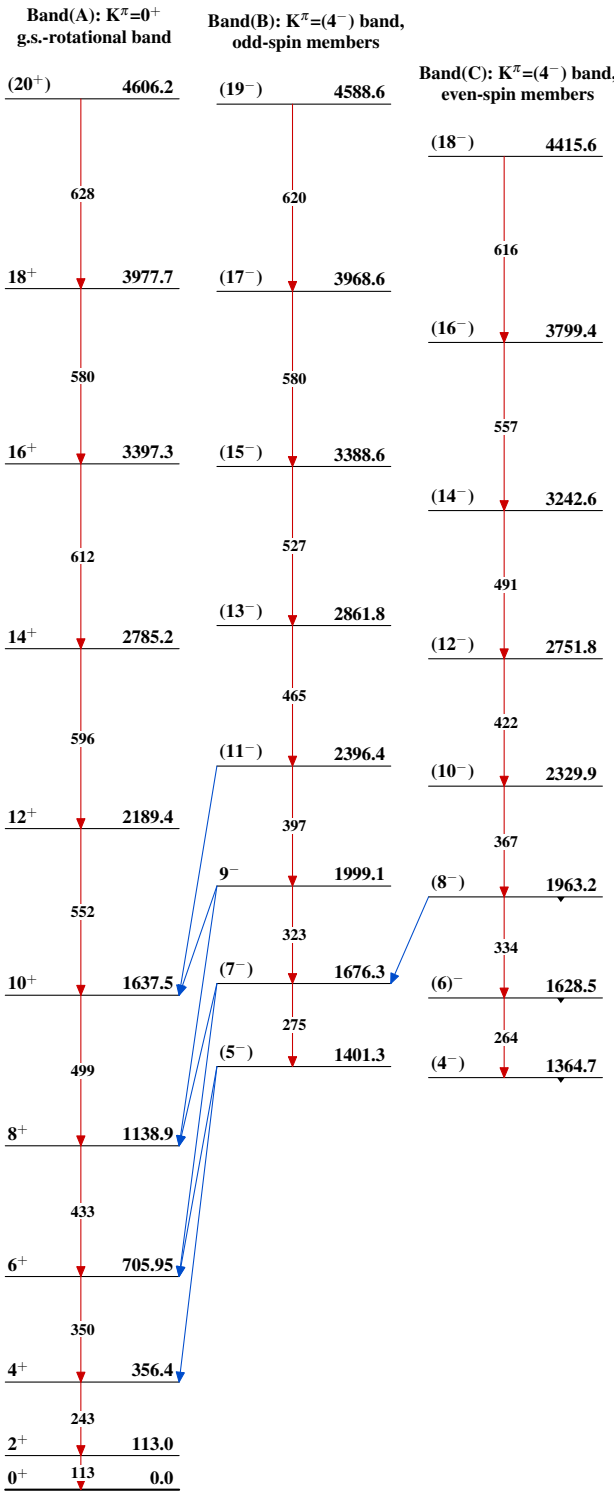
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{174}_{74}W_{100}$

Adopted Levels, Gammas



$^{174}_{74}W_{100}$