^{183}Re ε decay 1977Br22,1974TaZX,1972Br55

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 134, 149 (2016)	15-Apr-2015

Parent: ^{183}Re: E=0.0; J^π=5/2$^+$; $T_{1/2}$=70.0 d *14*; Q(ε)=556 *8*; %ε decay=100.0
Other references: 1962Ha24, 1970Ag06, 1973Kr01, 1974HeYW, 1980Ar22.
Total energy release for this decay scheme is 546 *49* cf. QxBR=556 *8*.

^{183}W Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0.0	1/2$^-$		
46.4841 *9*	3/2$^-$		
99.0802 *11*	5/2$^-$		
207.0153 *16*	7/2$^-$		
208.8114 *14*	3/2$^-$		
291.7286 *18*	5/2$^-$		
308.950 *4*	9/2$^-$		
412.1017 *20*	7/2$^-$		
453.0779 *19*	7/2$^-$	18.2 ns *5*	$T_{1/2}$: from 1967Me01. Other measurement 19 ns (1966Ho13).

† From least-squares fit to Eγ.
‡ From Adopted Levels.

ε radiations

E(decay)	E(level)	Iε[†]	Log *ft*	Comments
(103 *8*)	453.0779	4.7 *5*	6.78 *14*	εK=0.38 *9*; εL=0.45 *6*; εM+=0.168 *25*
(144 *8*)	412.1017	0.59 *14*	8.18 *13*	εK=0.60 *3*; εL=0.298 *18*; εM+=0.105 *8*
(247 *8*)	308.950	0.08 *3*	8.95[1u] *18*	εK=0.516 *17*; εL=0.352 *12*; εM+=0.131 *6*
(264 *8*)	291.7286	15.6 *15*	7.50 *6*	εK=0.739 *4*; εL=0.197 *3*; εM+=0.0649 *11*
(347 *8*)	208.8114	69 *7*	7.15 *6*	εK=0.7656 *19*; εL=0.1769 *14*; εM+=0.0574 *6*
(349 *8*)	207.0153	0.8 *6*	9.1 *4*	εK=0.7661 *19*; εL=0.1767 *14*; εM+=0.0573 *6*
(457 *8*)	99.0802	4.4 *13*	8.63 *13*	εK=0.7836 *10*; εL=0.1639 *7*; εM+=0.0525 *3*
(510 *8*)	46.4841	4 *8*	8.8 *9*	εK=0.7890 *8*; εL=0.1600 *6*; εM+=0.05101 *21*
(556 *8*)	0.0	1.7 *6*	9.22[1u] *16*	εK=0.7380 *19*; εL=0.1966 *14*; εM+=0.0655 *6* I(ε+β$^+$): from 1977Br22 based on measured I(K x ray)/Iγ. The log *ft* is comparable to that for the unique first-forbidden transition to the 309 level.

† Absolute intensity per 100 decays.

γ(^{183}W)

E_γ[‡]	I_γ[#a]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ	α[†]	Comments
40.976 *1*	0.8 *3*	453.0779	7/2$^-$	412.1017	7/2$^-$	M1		11.01	α(L)=8.52 *12*; α(M)=1.94 *3* α(N)=0.467 *7*; α(O)=0.0761 *11*; α(P)=0.00540 *8* I_γ: from 1977Br22. Mult.: L1:M1=0.98 *25*:0.22 *5*, α(L1)exp=9 *3* (1980Ar22). δ(M1,E2)≤0.6 from α(L1)exp.
46.484 *1*	235 *22*	46.4841	3/2$^-$	0.0	1/2$^-$	M1+E2	−0.084 *13*	8.4 *3*	α(L)=6.46 *22*; α(M)=1.49 *6*

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^{183}Re ε decay 1977Br22,1974TaZX,1972Br55 (continued)

γ(^{183}W) (continued)

E_γ[‡]	I_γ[#a]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ	α[†]	Comments
									α(N)=0.357 *13*; α(O)=0.0572 *18*; α(P)=0.00370 *6* Mult.: L1/L2=6.8 *4*, L2/L3=15.6 *11*, L2/L3=2.30 *25*, M1/M2=6.5 *6*, M1/M3=14.6 *14*, M2/M3=2.2 *3* (1970Ag06); L1:L2:L3:M:N=3000:490:220:950:280 (1962Ha24); L1:L2:M1:M2:M3:N:O=180 *20*:26 *3*:12 *2*:42 *4*:7.0 *10*:3.5 *5*:10 *1*:2.0 *3*, α(L1)exp=5.1 *6* (1980Ar22). %Iγ=8.0 *3* assuming adopted decay scheme normalization. δ: 0.084 *13* from subshell ratios from 1980Ar22; −0.05 *8* from γγ(θ) (1973Kr01). other:≤0.45 from α(L1)exp.
52.596 *1*	69.8 *18*	99.0802	5/2⁻	46.4841	3/2⁻	M1+E2	−0.127 *21*	6.2 *4*	α(L)=4.8 *3*; α(M)=1.11 *7* α(N)=0.267 *16*; α(O)=0.0422 *21*; α(P)=0.00256 *4* Mult.: L1/L2=5.3 *4*, L2/L3=8.6 *7*, L2/L3=1.60 *17* (1970Ag06); L1:L2:L3:M:N=870:155:100:260:65 (1962Ha24), L1:L2:L3:M1:M2:M3:N:O=36 *3*:7.0 *7*:4.2 *4*:8.5 *8*:2.5 *4*:1.0 *2*:2.1 *2*, α(L1)exp=3.6 *3* (1980Ar22). δ: 0.127 *21* from subshell ratios from 1980Ar22; −0.16 *9* from γγ(θ) (1973Kr01); <0.36 from α(L1)exp.
82.919 *2*	9.2 *7*	291.7286	5/2⁻	208.8114	3/2⁻	M1+E2	+0.64 *3*	8.21	α(K)=5.10 *13*; α(L)=2.37 *10*; α(M)=0.580 *24* α(N)=0.138 *6*; α(O)=0.0199 *8*; α(P)=0.000518 *14* I_γ: unweighted average of 8.0 *1* (1977Br22), 10.4 *4* (1974TaZX), 9.3 *6* (1972Br55). Mult.: K:L1:L2:M=>50:27:27:≈12 (1962Ha24); L1:L2=1.0 *2*:0.75 *14*, α(L1)exp=0.76 *16* (1980Ar22). I_γ: unweighted average of 27.5 *6* (1977Br22), 32 *2* (1974TaZX), 9.3 *6* (1972Br55). δ: sign from γγ(θ) 1973Kr01, magnitude from analysis of earlier ce data by 1973Kr01; 0.6 *3* from α(L1)exp.
84.712 *2*	30.7 *16*	291.7286	5/2⁻	207.0153	7/2⁻	M1+E2	+0.15[&] *1*	7.65	α(K)=6.22 *9*; α(L)=1.102 *20*; α(M)=0.254 *5* α(N)=0.0610 *12*; α(O)=0.00977 *17*; α(P)=0.000633 *9* Mult.: K:L1:L2:L3:M:N=>250:<120:9:≈5:20:5 (1962Ha24); L1:L2=3.8 *5*:0.5 *1*, α(L1)exp=0.87 *12* (1980Ar22). other δ: 0.25 +*27*−*25* from α(L1)exp.
99.080 *2*	85.7 *15*	99.0802	5/2⁻	0.0	1/2⁻	E2		4.05	α(K)=0.893 *13*; α(L)=2.39 *4*;

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^{183}Re ε decay 1977Br22,1974TaZX,1972Br55 (continued)

γ(^{183}W) (continued)

E_γ[‡]	I_γ[#a]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ	α[†]	Comments
									α(M)=0.605 9 α(N)=0.1424 20; α(O)=0.0195 3; α(P)=7.25×10^{-5} 11 Mult.: K:L1:L2:L3:M:N=175:18:270:240:120:30 (1962Ha24); K:L1:L2:L3=10.6 15:1.1 1:14.3 6:13.4 5, α(L2)exp=1.19 7 (1980Ar22). δ(M1,E2)>3.5 from α(L2)exp.
101.93 4	0.55 5	308.950	9/2$^-$	207.0153	7/2$^-$	M1+E2	−0.21 3	4.46	α(K)=3.61 7; α(L)=0.657 21; α(M)=0.152 6 α(N)=0.0365 13; α(O)=0.00581 17; α(P)=0.000364 7 Iγ: from 1977Br22. Mult.: K/L1=4.6 7, L1/L3=4.7 7 (1972Bb21). δ: from Adopted Gammas.
103.10 10	<0.17	412.1017	7/2$^-$	308.950	9/2$^-$	[M1,E2]		3.9 5	α(K)=2.2 14; α(L)=1.3 7; α(M)=0.32 19 α(N)=0.07 5; α(O)=0.011 6; α(P)=0.00022 15 Iγ: <0.12 5 from 1977Br22. other Iγ: 0.3 1 (1974TaZX).
107.933 2	68.8 13	207.0153	7/2$^-$	99.0802	5/2$^-$	M1+E2	−0.31 5	3.73	α(K)=2.95 8; α(L)=0.60 4; α(M)=0.140 9 α(N)=0.0336 19; α(O)=0.00526 25; α(P)=0.000297 9 Mult.: K:L1:M:N=470:70:19:≈6 (1962Ha24); α(K)exp=3.0 3 (1980Ar22). other δ: −0.22 10 (1973Kr01); <0.49 from α(K)exp.
109.731 2	91.5 15	208.8114	3/2$^-$	99.0802	5/2$^-$	M1+E2	+0.139[&] 22	3.62 6	α(K)=2.97 5; α(L)=0.499 10; α(M)=0.1144 24 α(N)=0.0275 6; α(O)=0.00445 8; α(P)=0.000301 5 Mult.: K:L1:L2:M=530:80:10:20 (1962Ha24); α(K)exp=3.0 3 (1980Ar22). other δ: 0.09 +32−9 from α(K)exp.
120.37 9	0.098 17	412.1017	7/2$^-$	291.7286	5/2$^-$	E2+M1	≈0.38	≈2.68	α(K)≈2.10; α(L)≈0.445; α(M)≈0.1043 α(N)≈0.0250; α(O)≈0.00389; α(P)≈0.000210 Iγ: from 1977Br22. other Iγ: <0.5 (1974TaZX). δ: from Adopted Gammas.
144.135 4	4.05 24	453.0779	7/2$^-$	308.950	9/2$^-$	M1+E2	+0.07 3	1.669	α(K)=1.383 20; α(L)=0.221 4; α(M)=0.0504 8 α(N)=0.01214 19; α(O)=0.00198 3; α(P)=0.0001395 21 Iγ: unweighted average of 3.66 7 (1977Br22), 4 1 (1974TaZX), 4.5 3

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^{183}Re ε decay 1977Br22,1974TaZX,1972Br55 (continued)

γ(^{183}W) (continued)

Eγ[‡]	Iγ[#a]	Ei(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ	α[†]	Comments
									(1974TaZX). Mult.: K:L1=13:1.9, L2 weak (1962Ha24); α(K)exp=1.44 *19* (1980Ar22). δ: from γγ(θ) (1973Kr01). Other:≤0.40 from α(K)exp.
160.532 *4*	18.6 *2*	207.0153	7/2⁻	46.4841	3/2⁻	E2		0.659	α(K)=0.302 *5*; α(L)=0.271 *4*; α(M)=0.0678 *10* α(N)=0.01601 *23*; α(O)=0.00223 *4*; α(P)=2.30×10^{-5} *4* Iγ: from 1977Br22. Mult.: K:L2:M=12:<9:2.2 (1962Ha24).
161.342 *14*	11.4 *15*	453.0779	7/2⁻	291.7286	5/2⁻	M1+E2	≈0.2	≈1.194	α(K)≈0.982; α(L)≈0.1638; α(M)≈0.0375 α(N)≈0.00903; α(O)≈0.001459; α(P)≈9.87×10^{-5} Iγ: from 1977Br22. other Iγ: 22 *3* from 1974TaZX. Mult.: K:L1=24:<9 (1962Ha24); α(K)exp=0.66 *19* (1980Ar22). δ: 1.0 +*8*−*4* from α(K)exp.
162.330 *5*	737 *4*	208.8114	3/2⁻	46.4841	3/2⁻	M1+E2	+0.41 *1*	1.115	α(K)=0.892 *14*; α(L)=0.1716 *25*; α(M)=0.0399 *6* α(N)=0.00957 *14*; α(O)=0.001509 *22*; α(P)=8.88×10^{-5} *14* Iγ: from 1977Br22. Mult.: K:L1:L2:L3:M:N=1300: 220:≈45:21:58:17 (1962Ha24); α(K)exp=0.960 *20* (1980Ar22). δ: sign from 1973Kr01; 0.22 *8* from α(K)exp.
192.646 *7*	8.28 *20*	291.7286	5/2⁻	99.0802	5/2⁻	M1+E2	+0.56[&] *5*	0.647 *16*	α(K)=0.512 *16*; α(L)=0.1034 *17*; α(M)=0.0242 *5* α(N)=0.00579 *11*; α(O)=0.000906 *14*; α(P)=5.06×10^{-5} *17* Mult.: K:L1:L2:L3:M=8:1.6: ≈0.5:≈0.3:0.5 (1962Ha24); α(K)exp=0.51 *9* (1980Ar22). other δ: 0.6 *3* from α(K)exp.
203.269 *12*	1.27 *17*	412.1017	7/2⁻	208.8114	3/2⁻	E2		0.292	α(K)=0.1615 *23*; α(L)=0.0991 *14*; α(M)=0.0246 *4* α(N)=0.00583 *9*; α(O)=0.000823 *12*; α(P)=1.283×10^{-5} *18* Iγ: unweighted average of 1.44 *8* (1977Br22) and 1.1 *2* (1974TaZX).
205.081 *9*	3.9 *6*	412.1017	7/2⁻	207.0153	7/2⁻	M1+E2	0.18 *6*	0.611 *12*	α(K)=0.505 *11*; α(L)=0.0819 *12*; α(M)=0.0187 *3* α(N)=0.00450 *7*; α(O)=0.000730 *11*;

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^{183}Re ε decay 1977Br22,1974TaZX,1972Br55 (continued)

γ(^{183}W) (continued)

E_γ[‡]	I_γ[#a]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ	α[†]	Comments
									α(P)=5.07×10^{-5} *12* I_γ: unweighted average of 3.5 *1* (1977Br22), 5 *1* (1974TaZX), 3.2 *2* (1974TaZX). Mult.: K:L1=3.8<0.8, M weak (1962Ha24); α(K)exp=0.51 *6* (1980Ar22). δ: 0.13 +*34*−*13* from α(K)exp.
208.812 *2*	93.9 *4*	208.8114	3/2$^-$	0.0	1/2$^-$	M1+E2	−0.5 *1*	0.527 *23*	α(K)=0.423 *23*; α(L)=0.0797 *14*; α(M)=0.0185 *4* α(N)=0.00444 *9*; α(O)=0.000701 *11*; α(P)=4.19×10^{-5} *25* Mult.: K:L1:M:N=100:18:4.8:1.3 (1962Ha24); α(K)exp=0.46 *4* (1980Ar22). other δ: −0.29 *4* (1973Kr01); 0.32 +*20*−*32* from α(K)exp.
209.890 *7*	8.29 *20*	308.950	9/2$^-$	99.0802	5/2$^-$	E2		0.262	α(K)=0.1482 *21*; α(L)=0.0868 *13*; α(M)=0.0216 *3* α(N)=0.00510 *8*; α(O)=0.000721 *11*; α(P)=1.185×10^{-5} *17* I_γ: weighted average from 1977Br22 and 1974TaZX. Mult.: K:L3=2.4:<1.4 (1962Ha24); α(K)exp=0.146 *26* (1980Ar22). δ(M1,E2)≥3.8.
244.266 *3*	13.0 *3*	453.0779	7/2$^-$	208.8114	3/2$^-$	E2		0.1603	α(K)=0.0985 *14*; α(L)=0.0470 *7*; α(M)=0.01160 *17* α(N)=0.00275 *4*; α(O)=0.000393 *6*; α(P)=8.12×10^{-6} *12* Mult.: K:L3=3.4:<5.4 (1962Ha24); α(K)exp=0.099 *17* (1980Ar22). δ(M1,E2)≥3.4 from α(K)exp.
245.243 *6*	8.0 *8*	291.7286	5/2$^-$	46.4841	3/2$^-$	M1		0.380	α(K)=0.316 *5*; α(L)=0.0496 *7*; α(M)=0.01127 *16* α(N)=0.00272 *4*; α(O)=0.000443 *7*; α(P)=3.16×10^{-5} *5* I_γ: weighted average from 1977Br22 and 1974TaZX. Mult.: K:L1=≈6:≈0.8 (1962Ha24); α(K)exp=0.31 *8* (1980Ar22). δ: ≤0.8 from α(K)exp.
246.062 *2*	41.7 *11*	453.0779	7/2$^-$	207.0153	7/2$^-$	M1+E2	−0.069[&] *26*	0.375	α(K)=0.312 *5*; α(L)=0.0491 *7*; α(M)=0.01117 *16* α(N)=0.00269 *4*; α(O)=0.000439 *7*; α(P)=3.12×10^{-5} *5* I_γ: weighted average from 1977Br22 and 1974TaZX. Mult.: K:L1=29:<5.4 (1962Ha24); α(K)exp=0.31 *3* (1980Ar22). other δ:≤0.42 from α(K)exp.

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^{183}Re ε decay 1977Br22,1974TaZX,1972Br55 (continued)

$\gamma(^{183}W)$ (continued)

E_γ[‡]	I_γ[#a]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ	α[†]	Comments
291.723 *7*	100.0 *3*	291.7286	5/2⁻	0.0	1/2⁻	E2		0.0924	α(K)=0.0613 *9*; α(L)=0.0237 *4*; α(M)=0.00580 *9* α(N)=0.001376 *20*; α(O)=0.000200 *3*; α(P)=5.23×10^{-6} *8* I_γ: from 1977Br22. Mult.: K:L2:L3:M:N=14:3.2:1.6:1.5:0.45 (1962Ha24).
313.021 *5*	13.19 *27*	412.1017	7/2⁻	99.0802	5/2⁻	M1+E2	+0.225[&] *8*	0.190	α(K)=0.1572 *23*; α(L)=0.0250 *4*; α(M)=0.00571 *8* α(N)=0.001374 *20*; α(O)=0.000223 *4*; α(P)=1.567×10^{-5} *23* Mult.: K:L1:M=5.5:0.9:0.25 (1962Ha24); α(K)exp=0.16 *4* (1980Ar22). other δ:≤0.78 from α(K)exp.
353.998 *5*	17.0 *3*	453.0779	7/2⁻	99.0802	5/2⁻	M1+E2	−0.192[&] *18*	0.1373 *21*	α(K)=0.1141 *17*; α(L)=0.0180 *3*; α(M)=0.00409 *6* α(N)=0.000984 *14*; α(O)=0.0001604 *23*; α(P)=1.135×10^{-5} *17* Mult.: K:L1:M=4.4:0.8:0.2 (1962Ha24); α(K)exp=0.11 *3* (1980Ar22). other δ:≤0.93 from α(K)exp.
365.614 *9*	2.54 *22*	412.1017	7/2⁻	46.4841	3/2⁻	E2		0.0480	α(K)=0.0342 *5*; α(L)=0.01050 *15*; α(M)=0.00254 *4* α(N)=0.000603 *9*; α(O)=8.92×10^{-5} *13*; α(P)=3.03×10^{-6} *5* I_γ: unweighted average of 2.13 *9* (1977Br22), 2.9 *5* (1974TaZX), 2.6 *2* (1974TaZX).
406.593 *16*	1.03 *24*	453.0779	7/2⁻	46.4841	3/2⁻	(E2)		0.0358	α(K)=0.0263 *4*; α(L)=0.00733 *11*; α(M)=0.001758 *25* α(N)=0.000419 *6*; α(O)=6.25×10^{-5} *9*; α(P)=2.35×10^{-6} *4* I_γ: unweighted average of 0.79 *5* (1977Br22), 1.5 *2* (1972Br55), 0.8 *4* (1974TaZX).

[†] Additional information 1.
[‡] From 1977Br22.
[#] intensity relative to I(291γ)=100; weighted average of data from 1977Br22, 1974TaZX and 1972Br55, except As noted. other Iγ: 1974HeYW.
[@] From subshell ratios, α, and γγ(θ) measurements of 1962Ha24, 1970Ag06, 1980Ar22, except where noted. Conversion coefficients attributed to 1980Ar22 were calculated by the evaluator using I(ce) from 1980Ar22 and Iγ adopted here, normalized so α(K)exp(99)=α(K)(E2 theory)=0.893 and α(K)exp(292)=α(K)(E2 theory)=0.0613.

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^{183}Re ε decay 1977Br22,1974TaZX,1972Br55 (continued)

$\gamma(^{183}W)$ (continued)

[&] From $\gamma\gamma(\theta)$ measurements (1973Kr01).
[a] For absolute intensity per 100 decays, multiply by 0.034 *3*.

^{183}Re ε decay 1977Br22,1974TaZX,1972Br55

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays