Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 172, 1 (2021)	31-Jan-2021

Q(β^-)=−3636 *18*; S(n)=9673.32 *3*; S(p)=9188.5 *9*; Q(α)=−2857.4 *4* 2017Wa10
S(2n)=17145 *6*, S(2p)=15689.4 *4* (2017Wa10).
Other reactions:
See ^{99}Ru(n,γ),(n,n):resonances dataset for 40 neutron resonances between 10.05 and 994.6 eV.
(HI,X): 1976Mi13, 1974We04.
^{100}Ru(^{32}S,^{32}S′); ^{100}Ru(^{32}S,X): 1993Co11, measured $\sigma(\theta)$.
^{100}Mo(^{32}S,^{28}Si): 1995He17, measured cross section.
^{99}Ru(p,n): 1969Fr18, search for IAR.
(μ^-,X): 1980HoZV.
^{103}Rh(p,4nγ): 1972KoZE, E=44 MeV, measured Eγ, Iγ, I(ce). Deduced E0/E2 branching for the first excited 0^+ state.
Additional information 1.
Theory references: consult the NSR database (www.nndc.bnl.gov/nsr/) for 127 primary references ealing with nuclear structure calculations.

^{100}Ru Levels

Band assignments are from (^{36}S,α2nγ) (2000Ti07) and from (α,2nγ) (2000Ge01).
In J^π assignments from ^{99}Tc(^{3}He,d); ^{99}Ru(d,p) and ^{101}Ru(p,d), the target J^π′s are: $9/2^+$ for ^{99}Tc; $5/2^+$ for ^{99}Ru and ^{101}Ru.

Cross Reference (XREF) Flags

A	^{100}Tc β^- decay (15.65 s)	H	^{99}Tc(^{3}He,d)	O	^{100}Ru(α,α')
B	^{100}Rh ε decay (20.5 h)	I	^{99}Ru(n,γ) E=th	P	^{101}Ru(p,d)
C	^{100}Rh ε decay (4.6 min)	J	^{99}Ru(n,γ) E=res	Q	^{101}Ru(d,t)
D	^{100}Mo $2\beta^-$ decay (7.01×10^{18} y)	K	^{99}Ru(d,p)	R	^{102}Ru(p,t)
E	^{70}Zn(^{36}S,α2nγ),^{88}Sr(^{14}C,2nγ)	L	^{100}Mo(α,4nγ)	S	^{103}Rh(p,α)
F	^{76}Ge(^{34}S,2α2nγ)	M	^{100}Ru(n,n′γ),(n,n′)	T	Coulomb excitation
G	^{98}Mo(α,2nγ)	N	^{100}Ru(p,p′)		

E(level)†	J$^\pi$‡	T$_{1/2}$#	XREF	Comments
0.0[a]	0^+	stable	ABCDEFGHIJKLM OPQRST	Evaluated rms charge radius <r^2>$^{1/2}$=4.4531 fm *31* (2013An02). Evaluated δr^2(^{100}Ru,^{104}Ru)=−0.506 fm^2 *3* (2013An02). μ=+0.858 *46* (2011Ch23,2014StZZ) Q=−0.44 *7* (2016St14,1998Hi01); Q=−0.27 *7* (2016St14,1998Hi01) XREF: D(?). J$^\pi$: E2 539.5γ to 0^+. T$_{1/2}$: from B(E2)=0.4938 *40* in Coul. ex.; weighted average of 0.493 *4* (1998Hi01,1980HiZV); 0.494 *6* and 0.482 *26* (1980La01); 0.520 *44* (1968Mc08); and 0.572 *40* (1958St32). B(E2)=0.30 *6* (1956Te26) seems discrepant. All the values are from determination of Coulomb excitation probability. 2016Pr01 evaluation gives B(E2)=0.4927 *41* and T$_{1/2}$=12.51 ps *10* Other: B(E2)=0.471 *14*, deduced from δ(charge)=β_2R=1.154 *17* (1996Go36; (α,α')); T$_{1/2}$=22.0 ps *17* from RDDS in (^{14}C,2nγ) (2017Ko03) is discrepant. μ: from g=+0.429 *23* measured using transient-field in Coulomb excitation (2011Ch23). Other: +0.88 *6* (2011Ta06, transient-field in Coulomb excitation) from g=+0.44 *3*, average of two measured values of +0.45 *2* and +0.43 *1* with absolute
539.5103[a] *20*	2^+	12.54 ps *10*	ABCDEFGHIJKLM OPQRST	

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Adopted Levels, Gammas (continued)

^{100}Ru Levels (continued)

E(level)[†]	Jπ[‡]	T$_{1/2}$[#]	XREF	Comments
				uncertainty of 0.03 in g factor; +1.02 *13* from γγ(θ,H,t) in ^{100}Rh ε decay (1966Au06, value of g=0.55 *7* given for T$_{1/2}$=11.0 ps); 0.94 *30* from γ(θ,H,t) (1974Hu01) in Coul. ex. Q: =−0.44 *4* for constructive or −0.27 *7* for destructive interference (2016St14 evaluation based on 1998Hi01 (also 1980HiZV) experiment of reorientation effect in Coulomb excitation. 1998Hi01 give respective values of −0.54 *7* or −0.33 *7*. Others by the same method: −0.43 *7* or −0.20 *7* (1980La01); −0.40 *12* (1978Fa08); −0.13 *7* (1977Ma41). $\beta_2(\alpha,\alpha')$=0.204 *3* (from β_2R(charge)=1.154 *17*, β_2R(nuclear)=1.12 *5* (1996Go36)). β_2(Coul. ex.)=0.209 *2* (from B(E2) (1980La01,1980HiZV)).
1130.305 *7*	0$^+$	8.2 ps *+15−11*	AB D GHIJKLM PQRST	XREF: L(?). Jπ: spin=0 from γγ(θ) in ^{100}Tc β$^-$ decay; ΔJ=2, E2 590.8γ to 2$^+$. T$_{1/2}$: from B(E2)=0.0191 *29* in Coul. ex.
1226.467[a] *5*	4$^+$	2.6 ps *2*	BC EFGHIJKLM OPQR T	Jπ: spin=4 from γ(θ) in (α,xnγ); ΔJ=2, E2 686.97γ to 2$^+$; band assignment. T$_{1/2}$: from B(E2)=0.260 *22* in Coulomb excitation. Other: 2.5 ps *6* from RDDS in (^{14}C,2nγ) (2017Ko03).
1362.166[b] *5*	2$^+$	0.95 ps *+24−16*	ABCD GHIJKLM OPQRST	XREF: D(?). Jπ: 1362.2γ E2 to 0$^+$. T$_{1/2}$: Other: 1.34 ps *+19−15*, from B(E2)(from g.s.)=0.0190 *23* in Coul. ex. and adopted branching %I(1362.2γ)=42.2 *1*.
1741.011 *8*	0$^+$	>1.39 ps	AB D GHIJK M P R	XREF: D(?)P(?). Jπ: 378.9γ E2 to 2$^+$; E0 transitions to 0$^+$.
1828 *2*	0$^+$		QR	XREF: Q(1840). Jπ: from σ(θ) ratio in (p,t).
1865.110 *5*	2$^+$	0.66 ps *+20−12*	AB D GhIJK M PQR	XREF: D(?)h(1870)P(1887). Jπ: 638.6γ to 4$^+$ and 734.8γ to 0$^+$ have mult=M1,E2 from ce data; 1865.1γ E2 to 0$^+$ in ^{100}Rh ε decay (20.8 h).
1881.043[b] *5*	3$^+$	0.90 ps *+40−22*	BC GhIJKLM PQ	XREF: h(1870). Jπ: 654.6γ M1+E2 to 4$^+$ and 1341.5γ M1+E2 to 2$^+$; band assignment.
2051.661 *7*	0$^+$	1.0 ps *+11−4*	AB D G IJ M QR	XREF: D(?). Jπ: spin=0 from γγ(θ) in ^{100}Tc β$^-$; ΔJ=2, E2 1512.1γ to 2$^+$.
2062.651[b] *7*	4$^+$	0.56 ps *+92−22*	C GhIJKLM QR	XREF: h(2077). Jπ: ΔJ=2, E2 1523.1γ to 2$^+$; M1+E2 836.2γ to 4$^+$; L(d,p)=L(d,t)=2 from 5/2$^+$; band assignment.
2075.675[a] *15*	6$^+$	>0.28 ps	C EFGhIJ LM R	XREF: C(?)h(2077). Jπ: spin from γ(θ) in (α,xnγ); ΔJ=2, E2 849.2γ to 4$^+$; band assignment.
2099.103 *6*	2$^+$	0.39 ps *+7−6*	AB GhIJK M PQR	Jπ: M1 1559.5γ to 2$^+$; 968.8γ and 2099.1γ to 0$^+$; 872.7γ to 4$^+$; L(d,p)=0+2 and L(p,d)=2 from 5/2$^+$.
2131 *10*	2$^+$,3$^+$		P	Jπ: L(p,d)=0(+2) from 5/2$^+$.
2166.879[e] *5*	3$^-$	34 ps *+12−8*	B G IJKLMNO QR T	XREF: L(?). Jπ: L(α,α′)=L(p,p′)=3 from 0$^+$; band assignment. T$_{1/2}$: from B(E3)=0.053 *9* in Coul. ex. and adopted γ-ray branching ratio. Other: >0.97 ps from DSA method in (n,n′γ).

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Adopted Levels, Gammas (continued)

^{100}Ru Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	XREF	Comments
				B(E3)=0.052 *9* (2002Ki06, evaluation). β_3R(nuclear)(α,α')=0.76 *2* (1996Go36). β_3(Coul. ex.)=0.127 *11*.
2194? *10*			P	
2240.804 *7*	2^+	83 ps *6*	AB G IJK M QR	Jπ: L(d,p)=2 from $5/2^+$; spin from $\gamma(\theta)$ in (α,2nγ) and (n,n$'\gamma$); 1701.3γ D to 2^+; 228.6γ E1 from 2^-;
2268 *5*	$2^+,3^+$		P	Jπ: L(p,d)=2+0 from $5/2^+$.
2313.5 *3*	$(3^-,4^+)$		C	Jπ: 951.5γ to 2^+ and 1087.1γ to 4^+; probable ε feeding from (5^+) suggests Jπ not $2^+,3^+$.
2324.6 *4*	$(3^-$ to $6^+)$		C	Jπ: 262.3γ and 1097.8γ to 4^+; probable ε feeding from (5^+) suggest $3^-,4,5,6^+$.
2351.240 *6*	4^+	0.42 ps *+26−12*	G IJK M QR	Jπ: 1811.6γ E2, ΔJ=2 to 2^+; 1124.8γ M1+E2 to 4^+.
2366.588 *7*	4^+	0.78 ps *+76−26*	C G I K MNO QR T	Jπ: L(p,p$'$)=4; ΔJ=2, E2 1827.1γ to 2^+; 1139.9γ to 4^+. In (n,γ) E=th, 1988Co18 assigned $J^\pi=2^+$ on the basis of a 2366.3γ (Iγ=32 *4*) to g.s. But the placement of 2366.3γ is considered incorrect (evaluators) since no such γ is reported in ^{100}Rh ε decay (4.6 min). β_4R(nuclear)(α,α')=0.038 *8* (1996Go36). Large value of β_4(p,p$'$)=0.10 (1989Si15) suggests this state as hexadecapole excitation.
2387.22 *7*	0^+	>0.52 ps	AB D I M PQR	XREF: D(?)P(2394). Jπ: spin=0 from cross-section ratio in (p,t) and $\gamma\gamma(\theta)$ in ^{100}Tc β^- decay (15.46 s); L(p,d)=2 from $5/2^+$; allowed β feeding (log *ft*=5.4) from 1^+ parent.
2413.86 *11*	(4^+)	87 fs *+7−6*	G IJK M QR	Jπ: ΔJ=(2), (E2) 1874.4γ to 2^+; primary 7259.6γ from $2^+,3^+$.
2438 *5*	$2^+,3^+$		P	Jπ: L(p,d)=2+0 from $5/2^+$.
2469.389[c] *5*	2^-	0.44 ps *+51−16*	B G IJ M R	Jπ: M2 2469.3γ to 0^+, E1 588.3γ to 3^+.
2493.06 *4*	$(3,4,5^+)$	>0.83 ps	G I K M R	Jπ: 1266.4γ D(+Q) to 4^+; 612.0γ to 3^+. But possible γ to 2^+ disfavors 5^+.
2512.411 *11*	$(4)^+$	0.41 ps *+55−15*	B G I k M P	XREF: P(2515). Jπ: ΔJ=(2), (E2) 1972.9γ to 2^+; M1+E2 631.4γ to 3^+; L(p,d)=2+4 from $5/2^+$.
2516.827 *6*	1^-	105 fs *+43−26*	B IJk M R	Jπ: 651.7γ E1 to 2^+; 1386.5γ and 1154.5γ, D to 0^+.
2527.247[e] *9*	5^-	0.6 ps *+14−3*	E G IJ LM R	Jπ: ΔJ=2, E2 360.4γ to 3^-; ΔJ=1, E1 1300.8γ to 4^+.
2536.194 *12*	3	0.7 ps *+12−3*	B G I M	Jπ: spin from $\gamma(\theta)$ in (α,2nγ) and (n,n$'\gamma$).
2543.71 *3*	2^+	0.38 ps *+49−15*	B G I K M P R	XREF: P(2560). Jπ: M1+E2 1181.4γ to 2^+; 2543.6γ to 0^+; L(p,d)=2+0 from $5/2^+$.
2569.912[c] *7*	$(3)^-$	>0.30 ps	B G IJ M R	Jπ: M1,E2 499.6γ from $(1,2)^-$; D+Q 403.0γ to 3^-; 1343.5γ to 4^+, 1207.7γ to 2^+; band assignment.
2576.872[b] *15*	$5^{(+)}$	>125 fs	G I M	Jπ: ΔJ=2, Q 695.8γ to 3^+; D+Q 1350.4γ to 4^+; band assignment.
2591.817[d] *6*	4^-	0.26 ps *+62−12*	G IJ M	Jπ: (M1+E2) 424.9γ to 3^-; D(+Q) 1365.4γ to 4^+; ΔJ=2, E2 371.8γ from 6^-; band assignment.
2606.07 *8*	(2,3)	71 fs *+10−8*	I K M p R	XREF: p(2610). Jπ: from $\gamma(\theta)$ in (n,n$'\gamma$).
2617.14 *4*	$1,2^+$	121 fs *+26−19*	B I M p	XREF: p(2610). Jπ: 2617.1γ to 0^+ and RUL.

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Adopted Levels, Gammas (continued)

^{100}Ru Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	XREF	Comments
2634 *10*	(0 to 5)$^+$		P	Jπ: L(p,d)=2 from 5/2$^+$.
2660.140 *17*	1,2$^+$	48 fs *+6–5*	AB I k M	Jπ: 2660.1γ to 0$^+$ and RUL.
2660.82 *4*	5$^{(+)}$		G I k	Jπ: ΔJ=2, Q 779.8γ to 3$^+$; D+Q 1434.3γ to 4$^+$.
2666.29 *3*	(2,3)	55 fs *+6–5*	B IJk M R	Jπ: from γ(θ) in (n,n′γ). Possible γ to 0$^+$ disfavors 3$^+$.
2705.52[b] *3*	6$^+$		G K P R	XREF: P(2695)R(2703.4). Jπ: L(p,d)=4 from 5/2$^+$; ΔJ=2, Q 642.8γ to 4$^+$; 629.8γ to 6$^+$.
2738.678 *6*	(2$^+$,3,4$^+$)		hI M R	XREF: h(2750). Jπ: 873.7γ to 2$^+$ and 372.1γ to 4$^+$.
2745.60 *5*	(1,2$^+$)	132 fs *+42–28*	B h k M	XREF: h(2750)k(2748). Jπ: 1615.4γ and 693.9γ to 0$^+$; M2 is disfavored for 693.9γ by RUL.
2747.495[c] *10*	4$^{(-)}$		GhIJK	XREF: h(2750). Jπ: ΔJ=0, D 155.7γ to 4$^-$; band assignment; 580.6γ possibly (M1+E2) to 3$^-$.
2764.943 *18*	2$^+$,3$^+$	>0.17 ps	GhIJK M P R	XREF: h(2750)R(2759.4). Jπ: L(p,d)=2+0 from 5/2$^+$.
2775.179 *18*	(5$^-$)		G M	XREF: M(?). E(level): see comment for 2775.34 level. Jπ: ΔJ=(0) 247.9γ to 5$^-$, most likely (M1+E2).
2775.34 *6*	2$^+$,3$^+$	0.30 ps *+24–10*	B GhIJ M P	XREF: G(?)h(2750)P(2783). E(level): in (n,n′γ), 248, 1413, 1548 and 2236 gammas are reported from this level (2001Ge03), whereas in (α,2nγ) 248, 712 and 1548 gammas are reported from this level. In ^{100}Rh ε decay (20.8 h), only the 1548 γ is reported. But Iγ(248)/Iγ(1548)=116/23 in (α,2nγ) and 13/15 in (n,n′γ). This large discrepancy suggests that there are likely two levels, one high-spin decaying through the 248γ and the other low spin populated in (n,n′γ) and ^{100}Rh ε decay. The 248γ is placed from a high-spin level in (α,2nγ) whereas the 1548γ can be from both the levels. Jπ: 2236.1γ to 2$^+$ and 1548.7γ to 4$^+$; L(p,d)=2+0 from 5/2$^+$.
2785.193 *22*	6$^{(+)}$		G	Jπ: ΔJ=2, Q 1558.8γ to 4$^+$; 709.4γ to 6$^+$, most likely (M1+E2).
2800.84 *5*	(2$^+$,3)	0.13 ps *+5–3*	M r	Jπ: 1438.7γ D(+Q) to 2$^+$, 1574.2γ to 4$^+$.
2801.48 *5*	(1$^+$,2,3)	97 fs *+17–13*	B IJK M r	Jπ: 2262.3γ D+Q to 2$^+$; 920.6γ to 3$^+$.
2816 *10*	2$^+$,3$^+$		P	Jπ: L(p,d)=2+0 from 5/2$^+$.
2832.8 *17*	0$^+$@		J R	E(level): from (n,γ) E=res. Jπ: from σ(θ) ratio in (p,t).
2837.71 *12*	(1$^+$,2$^+$)	116 fs *+21–17*	A I K M	Jπ: probable allowed β feeding from 1$^+$; 2298.2γ D+Q to 2$^+$.
2862.52 *9*	(0$^+$ to 4$^+$)	0.25 ps *+51–10*	I M	Jπ: 763.3γ and 1500.4γ to 2$^+$.
2877.57 *8*	2$^+$,3$^+$		G IJK M P	XREF: P(2865). Jπ: L(p,d)=2+0 from 5/2$^+$.
2878.44 *4*	2$^+$,3,4$^+$	140 fs *+30–21*	M	Jπ: 779.5γ to 2$^+$ and 1651.9γ to 4$^+$, with mult=M2 ruled out by RUL.
2890 *10*	2$^+$,3$^+$		P	Jπ: L(p,d)=2+0 from 5/2$^+$.
2905.14 *20*	(4$^+$)	0.21 ps *+8–5*	I K M R	XREF: R(2902.6). Jπ: ΔJ=(2), (E2) 2365.5γ to 2$^+$.
2911.47[c] *3*	5$^{(-)}$		G K	Jπ: ΔJ=0, D+Q 384.2γ to 5$^-$; band assignment.
2915.545 *5*	2$^-$	0.35 ps *+29–11*	B IJ M	Jπ: spin=2 from γγ(θ) in ^{100}Rh ε decay (20.8 h);

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Adopted Levels, Gammas (continued)

^{100}Ru Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
				1553.3γ and 2375.98γ E1 to 2⁺; allowed β feeding from 1⁻ parent.
2933.65 *10*	(1,2)⁺		AB P	XREF: P(2926). Jπ: 2933.6γ to 0⁺; L(p,d)=2 from 5/2⁺.
2951.10 *8*	2⁺,3,4⁺	87 fs *+14–10*	K M	XREF: K(2953). Jπ: 2411.4γ to 2⁺ and 1724.6γ to 4⁺, with mult=M2 ruled out by RUL.
2951.552[e] *13*	7⁻		E G L	Jπ: ΔJ=1, E1 876.3γ to 6⁺; ΔJ=2, Q 424.3γ to 5⁻; band assignment.
2963.626[d] *13*	6⁻		E G L	Jπ: ΔJ=0, E1(+M2) 887.4γ to 6⁺.
2967.57 *3*	6⁽⁺⁾		G	Jπ: ΔJ=2, Q 1741.2γ to 4⁺; 262.1γ to 6⁺; 891.7γ (M1+E2) to 6⁺.
2983.04 *7*	(0 to 4)⁺		I J P	XREF: P(2971). Jπ: L(p,d)=2 from 5/2⁺; probable 2444.3γ to 2⁺.
2999.32 *11*	(0⁺ to 4⁺)	0.18 ps *+10–5*	I K M	Jπ: 2459.4γ to 2⁺.
3016.77 *16*	@		I J	E(level): from (n,γ) E=th.
3034.0 *4*			I K	E(level): from (n,γ) E=th.
3058.1 *10*	(2,3,4)		J p	XREF: p(3051). Jπ: primary 6614.6γ from 3⁽⁺⁾ and 2⁽⁺⁾. L(p,d)=2+0 from 5/2⁺ for a 3051 group suggests 2⁺,3⁺ for 3058 and/or 3060 level.
3060.051[a] *17*	8⁺		E F G H k L	XREF: k(3065.5). Jπ: ΔJ=2, E2 984.8γ to 6⁺; band assignment.
3060.14 *5*	1,2⁺	11 fs *3*	B k M p	XREF: k(3065.5)p(3051). Jπ: 3060.2γ to 0⁺, with mult=M2 ruled out by RUL. See also Jπ comment for 3058 level.
3064.61 *7*	4⁺	37 fs *+10–7*	I k M	XREF: k(3065.5). Jπ: ΔJ=2, E2 γ to 2⁺; primary 6608.5γ from 2⁺,3⁺.
3069.525 *6*	(1,2)⁻	>0.45 ps	B I J k M	XREF: I(3071.6)k(3065.5). Jπ: M1,E2 600.1γ to 2⁻; M1,E2 499.6γ to (3)⁻; 2529.97γ D+Q to 2⁺; weak 3069.4γ to 0⁺.
3072.268 *19*	2⁺	0.20 ps *+14–6*	B M P	XREF: P(3080). Jπ: 3071.8γ to 0⁺; L(p,d)=0+2 from 5/2⁺.
3102 *4*			K	
3110.57 *11*	(2⁺,3⁺)	>0.26 ps	G I J M P	XREF: P(3124). Jπ: L(p,d)=2+0 from 5/2⁺ for a level at 3124; 943.7γ to 3⁻.
3118.67 *13*	(0⁺ to 4⁺)	37 ps *+8–6*	I M P	XREF: P(3132). Jπ: 1756.2γ to 2⁺.
3139.303 *14*	7⁻		E G L	Jπ: ΔJ=2, E2 612.1γ to 5⁻; 187.8γ to 7⁻.
3177.07 *23*	2⁺,3⁺		I P	Jπ: L(p,d)=0 from 5/2⁺. E(level): from (n,γ) E=th.
3218.111 *23*	(8)⁻		G	Jπ: ΔJ=2, E2 254.5γ to 6⁻;
3231.79 *17*			I	
3263.664[f] *18*	8⁽⁺⁾		E F G L	XREF: L(3266.1). Jπ: ΔJ=0, D 203.6γ to 8⁺; ΔJ=2, Q 557.98γ and 1188.0γ to 6⁺; 6 levels; γ from 10⁺; probable γ to 6⁺.
3266.3 *3*	(0 to 5)⁺		H I P	XREF: H(3240)P(3268). E(level): from (n,γ) E=th. Jπ: L(p,d)=2 from 5/2⁺; L(^{3}He,d)=4 from 9/2⁺.
3272.1 *3*			I P	XREF: P(3278).
3300.62 *8*	2⁺,3⁺		I J P	XREF: P(3315). Jπ: L(p,d)=2+0 from 5/2⁺.
3308.08 *14*			I	

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Adopted Levels, Gammas (continued)

^{100}Ru Levels (continued)

E(level)†	Jπ‡	XREF	Comments
3323.70 *5*	(1,2$^+$)	B	Jπ: 3323.9γ to 0$^+$.
3326.27 *8*	@	IJ	
3332.40 *6*	@	IJ	
3348.13 *6*	@	IJ	
3354.637[d] *14*	8$^-$	E G L	Jπ: ΔJ=2, E2 390.98γ to 6$^-$; E2+M1 403.1γ to 7$^-$; band assignment.
3368.982[c] *21*	(7$^-$)	G	Jπ: 229.7γ to 7$^-$; 593.9γ to (5$^-$); band assignment.
3375.01 *13*	@	IJ	
3419.13 *17*	(2$^+$)	B IJ P	XREF: P(3403). Jπ: 3419.4γ to 0$^+$; L(p,d)=0 from 5/2$^+$ for a 3403 group favors 2$^+$.
3441 *10*	2$^+$,3$^+$	P	Jπ: L(p,d)=0 from 5/2$^+$.
3446.56[b] *6*	7$^{(+)}$	G	Jπ: ΔJ=2, Q 869.7γ to 5$^{(+)}$; D+Q 1370.95γ to 6$^+$.
3460.4 *15*	@	J	
3463.43 *12*	(1$^+$,2)	B IJ	Jπ: weak 3464.8γ to 0$^+$; weak 1582.9γ to 3$^+$; primary 6212.3γ from 3$^{(+)}$.
3503.365[e] *15*	9$^-$	E G L	Jπ: Δ=2, E2 364.1γ and 551.9γ to 7$^-$; E1(+M2) 443.3γ to 8$^+$.
3517 *10*	2$^+$,3$^+$	P	Jπ: L(p,d)=2+0 from 5/2$^+$.
3550.10[b] *3*	8$^{(+)}$	G	Jπ: ΔJ=2, Q 1474.4γ to 6$^+$; 490.1γ to 8$^+$; band assignment.
3575.51[h] *3*	9$^-$	E G L	Jπ: ΔJ=2, E2 623.9γ to 7$^-$; D(+Q) 515.5γ to 8$^+$.
3576.43 *6*	7$^{(+)}$	G	Jπ: ΔJ=2, Q 999.5γ to 5$^{(+)}$, most likely E2; D+Q 870.99γ to 6$^+$; 312.6γ to 8$^{(+)}$.
3585 *10*	2$^+$,3$^+$	P	Jπ: L(p,d)=2+0 from 5/2$^+$.
3599.301[c] *23*	(8$^-$)	G	Jπ: D+Q 460.0γ and 647.8γ to 7$^-$; band assignment.
3608 *10*	2$^+$,3$^+$	P	Jπ: L(p,d)=2+0 from 5/2$^+$.
3609.96 *8*	7$^{(+)}$	G	Jπ: ΔJ=2, Q 948.98γ to 5$^{(+)}$, most likely E2; D+Q 1534.4γ to 6$^+$.
3661.48 *13*	(4,5,6)	G	Jπ: D+Q 1134.2γ to 5$^-$.
3693 *10*	(0 to 5)$^+$	P	Jπ: L(p,d)=2 from 5/2$^+$.
3731.88 *13*	@	J	
3779.72 *13*	(1 to 4)$^+$	IJ P	Jπ: L(p,d)=2 from 5/2$^+$; primary 5894.2γ from 2$^{(+)}$ and 3$^{(+)}$.
3851.5 *4*	(4$^+$,5,6,7$^+$)	G	Jπ: 883.8γ to 6$^{(+)}$, 1274.7γ to 5$^{(+)}$.
3877.75 *17*	2$^+$,3$^+$	IJ P	Jπ: L(p,d)=2+0 from 5/2$^+$.
3883.0 *3*	@	IJ	
3929.64 *6*	(8$^+$)	G	Jπ: ΔJ=2, Q 961.9γ to (6$^+$).
3960.36[c] *4*	(9$^-$)	G	Jπ: D+Q 742.3γ to (8)$^-$; band assignment.
3973.6 *5*	(0$^+$ to 5$^+$)	IJ	Jπ: primary 5699.6γ from 2$^+$,3$^+$.
3983.0 *7*	(1$^+$ to 4$^+$)	IJ	Jπ: primary 5699.3γ from 2$^{(+)}$ and 3$^{(+)}$.
3992.13[d] *5*	10$^-$	E G L	Jπ: ΔJ=2, E2 637.5γ to 8$^-$; E2+M1 488.7γ to 9$^-$.
4000.70 *20*	@	IJ	
4049.5 *12*	@	J	
4075.93 *11*	(8,9$^-$)	G	Jπ: D(+Q) 572.4γ to 9$^-$; 936.9γ to 7$^-$.
4083.30[f] *4*	10$^+$	EFG L	Jπ: ΔJ=2, E2 1023.8γ to 8$^+$; band assignment.
4091.5 *14*	@	J	
4097.38 *6*	(9$^-$)	G	Jπ: D+Q 521.9γ to 9$^-$; 728.5γ to 7$^-$; 565.7γ from (11$^-$).
4102.9 *11*	@	J	
4148.6 *20*	@	J	
4187.6 *3*	(1$^+$ to 4$^+$)	IJ	Jπ: primary 5486.8γ from 2$^{(+)}$ and 3$^{(+)}$.
4230.56[e] *6*	11$^-$	E G L	Jπ: ΔJ=2, E2 727.3γ to 9$^-$; D+Q 238.4γ to 10$^-$.
4235.82[c] *5*	(10$^-$)	G	Jπ: D+Q 732.5γ to 9$^-$; ΔJ=2, (Q) 636.5γ to (8$^-$); band assignment.
4235.84[a] *3*	10$^{(+)}$	E G	XREF: E(4239.7). Jπ: ΔJ=2, Q 1175.8γ to 8$^+$; 152.6γ to 10$^+$; band assignment.
4248.49 *7*	(7$^-$,8,9)	G	Jπ: D+Q 893.8γ to 8$^-$; 673.1γ to 9$^-$.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{100}Ru Levels (continued)

E(level)†	Jπ‡	XREF	Comments
4257.1 *3*	@	IJ	
4273.5 *16*	@	J	
4307.4 *10*	@	J	
4315.73[h] *4*	11^-	E G L	Jπ: ΔJ=2, E2 740.2γ to 9^-; band assignment.
4337.6 *18*	@	J	
4343.44[b] *8*	$9^{(+)}$	G	Jπ: ΔJ=2, Q 896.8γ to 7^+; D+Q 1079.98γ to $8^{(+)}$.
4353.36[i] *4*	(10^+)	EFG	Jπ: ΔJ=(2), (Q) 803.3γ to $8^{(+)}$; 270.1γ to 10^+; band assignment.
4366.4 *18*	$(1^+$ to $4^+)$	J	Jπ: primary 5306.3γ from $2^{(+)}$ and $3^{(+)}$.
4376.1 *11*	@	J	
4381.83 *8*	$(7,8,9^+)$	G	Jπ: D+Q 1117.99γ to 8^+; 935.4γ to 7^+.
4403.6 *12*	@	J	
4408.63 *8*	$(9^-,10^-)$	G	Jπ: 1054.0γ to 8^-; 178.1γ to 11^-.
4503.48 *4*	(10^+)	G	Jπ: ΔJ=(2), (Q) 953.4γ to $8^{(+)}$; 419.9γ to 10^+.
4519.6 *9*	@	J	
4530 *3*	@	J	
4543.7 *18*	@	J	
4585.6 *12*	@	J	
4601.2 *12*	@	J	
4650.7 *20*	@	J	
4663.44[c] *7*	(11^-)	G	Jπ: ΔJ=(2), (Q) 1160.1γ to 9^-; 433.0γ to 11^-; band assignment.
4791.59 *5*	$(8^+,9,10^+)$	G	Jπ: 1731.7γ to 8^+; 708.5γ to 10^+.
4798.15[d] *5*	$12^{(-)}$	E G L	Jπ: ΔJ=2, (E2) 806.0γ to 10^-; 567.5γ to 11^-; band assignment.
4818.58 *6*	(10^+)	G	Jπ: ΔJ=(0), (D+Q) 582.8γ γ to $10^{(+)}$, most likely (M1+E2).
4917.97[f] *13*	12^+	EFG L	XREF: L(?). Jπ: ΔJ=2, E2 834.95γ to 10^+; band assignment.
5010.49 *6*	$(8^+,9,10,11)$	G	Jπ: 927.6γ to 10^+; D+Q 218.9γ to $(8^+,9,10^+)$.
5066.19[c] *6*	(12^-)	G	Jπ: 830.4γ to $10^{(-)}$; band assignment.
5126.3 *10*	(12^+)	G L	Jπ: 1043γ to 10^+; proposed from a band member of the g.s band in $(\alpha,2n\gamma)$; γ(θ) in $(\alpha,4n\gamma)$ give J=10,11,12.
5162.52[e] *13*	13^-	E G L	Jπ: ΔJ=2, E2 932.2γ to 11^-; band assignment.
5274.67[h] *12*	(13^-)	E G L	Jπ: ΔJ=2, Q 1043.8γ to 11^-; ΔJ=(2), (E2) 959.1γ to 11^-; band assignment.
5307.2[i] *5*	(12^+)	E	Jπ: 1223.9γ to 10^+; band assignment.
5713.31[f] *14*	14^+	EFG L	XREF: L(?). Jπ: ΔJ=2, E2 795.3γ to 12^+; band assignment.
5784.4[d] *3*	(14^-)	E	Jπ: 986.2γ to $12^{(-)}$; band assignment.
6167.2[e] *4*	(15^-)	E	Jπ: ΔJ=2, Q 1004.7γ to 13^-; band assignment.
6283.7[h] *6*	(15^-)	E	Jπ: 1009.0γ to (13^-); band assignment.
6365.2[i] *7*	(14^+)	E	Jπ: 1058.0γ to (12^+); band assignment.
6714.81[f] *18*	16^+	EF	Jπ: ΔJ=2, E2 1001.5γ to 14^+; band assignment.
6885.1[d] *6*	(16^-)	E	Jπ: 1100.7γ to (14^-); band assignment.
7203.7[e] *5*	(17^-)	E L	E(level): a 6202 level is proposed in $(\alpha,4n\gamma)$ to decay by the 1036.5γ. Jπ: ΔJ=2, (E2) 1036.5γ to (15^-); band assignment.
7408.6[i] *9*	(16^+)	E	Jπ: 1043.4γ to (14^+); band assignment.
7827.02[f] *20*	18^+	EF	Jπ: ΔJ=2, E2 1112.2γ to 16^+; band assignment.
8018.2[d] *8*	(18^-)	E	Jπ: 1133.1γ to (16^-); band assignment.
8450.6[i] *10*	(18^+)	E	Jπ: 1042.0γ to (16^+); band assignment.
8458.7[e] *7*	(19^-)	E	Jπ: 1255.0γ to (17^-); band assignment.
9057.73[f] *23*	20^+	EF	Jπ: ΔJ=2, E2 1230.7γ to (18^+); band assignment.

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Adopted Levels, Gammas (continued)

^{100}Ru Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
9178.8[d] *10*	(20⁻)	E	Jπ: 1160.6γ to (18⁻); band assignment.
(9673.32 *3*)	2⁺,3⁺	I	E(level): S(n)=9673.32 *3* (2017Wa10). Jπ: s-wave neutron capture in ^{99}Ru g.s. with $J^\pi=5/2^+$.
(9673.33 *3*)	3(+)&	J	E(level): S(n)+E(n), where S(n)=9673.32 *3* (2017Wa10), and E(n)=10.05 eV.
(9673.35 *3*)	3(+)&	J	E(level): S(n)+E(n), where S(n)=9673.32 *3* (2017Wa10), and E(n)=25.2 eV.
(9673.38 *3*)	3(+)&	J	E(level): S(n)+E(n), where S(n)=9673.32 *3* (2017Wa10), and E(n)=57.1 eV.
(9673.40 *3*)	2(+)&	J	E(level): S(n)+E(n), where S(n)=9673.32 *3* (2017Wa10), and E(n)=81.6 eV.
(9763.42 *3*)	3(+)&	J	E(level): S(n)+E(n), where S(n)=9673.32 *3* (2017Wa10), and E(n)=104 eV.
9796.7[e] *9*	(21⁻)	E	Jπ: 1338.0γ to (19⁻); band assignment.
10378.14[f] *25*	22⁺	EF	Jπ: ΔJ=2, E2 1320.4γ to 20⁺; band assignment.
10403.3[d] *11*	(22⁻)	E	Jπ: 1224.5γ to (20⁻); band assignment.
11738.5[f] *3*	24(+)	EF	Jπ: ΔJ=2, (E2) 1360.4γ to 22⁺; band assignment.
11746.3[d] *12*	(24⁻)	E	Jπ: 1343.0γ to (22⁻); band assignment.
13170.0[f] *3*	26(+)	EF	Jπ: ΔJ=2, E2 1431.4γ to 24(+); band assignment.
13309.3[d] *13*	(26⁻)	E	Jπ: 1563.0γ to (24⁻); band assignment.
14738.2[f] *4*	28(+)	EF	Jπ: ΔJ=2, E2 1568.2γ to 26(+); band assignment.
14933.3[d] *14*	(28⁻)	E	Jπ: 1624.0γ to (26⁻); band assignment.
14938.1[g] *5*	(28⁺)	E	Jπ: ΔJ=2, Q 1768.1γ to 26(+); band assignment.
16105.8[g] *5*	(30⁺)	E	Jπ: ΔJ=2, Q 1167.7γ to (28⁺); band assignment.
16648.4[f] *6*	(30⁺)	E	Jπ: ΔJ=2, Q 1910.2γ to 28(+); band assignment.
17740.7[g] *6*	(32⁺)	E	Jπ: ΔJ=2, Q 1092.3γ to (30⁺); band assignment.
20197.7 *8*		E	Jπ: 2457.0γ to (32⁺).

[†] From least-squares fit to Eγ data for levels seen in γ-ray studies. In other cases weighted averages of available level energies are taken. About 31 γ rays amongst a total of about 450 γ rays are outside 3 times the quoted standard deviation, resulting in a reduced χ^2/n=5.7, much greater than the critical value=1.2. This indicates either low uncertainties for some of the γ rays or some systematic deviations in one or more datasets. So in the fitting procedure to reduce χ^2, the uncertainties of poor-fit γ rays are increased by factors as noted for those γ rays in the γ-ray table, resulting χ^2/n=1.8.

[‡] For high-spin states (J≥6), in using arguments based on available experimental data, it is assumed that the spin values increase as the excitation energy rises in reactions of the type: (HI,xnγ). This assumption is generally supported by the decay modes.

[#] From Doppler-shift attenuation method (DSAM) in (n,n′γ) (2001Ge03), unless otherwise stated.

[@] Primary γ from (3⁺) suggests $J^\pi=1^+,2,3,4,5^+$; the choices 1^+ and 5^+ are less likely if there is a strong primary transition.

[&] From 2018MuZY evaluation.

[a] Band(A): g.s. band.

[b] Band(B): Quasi-γ band.

[c] Band(C): 2^- band,

[d] Band(D): 4^- band, α=0. Configuration=$\pi g_{9/2}^4 \otimes \nu[(d_{5/2}g_{7/2})^5 h_{11/2}]$, with terminating state of 28^- when fully aligned ($g_{9/2}$ protons coupled to spin 12, and $d_{5/2}g_{7/2}$ neutrons coupled to spin 21/2).

[e] Band(d): 3^- band, α=1. Configuration=$\pi g_{9/2}^4 \otimes \nu[(d_{5/2}g_{7/2})^5 h_{11/2}]$.

[f] Band(E): Band based on $8^{(+)}$, α=0. Configuration=$\pi(g_{9/2}^5)_{25/2} \otimes \nu h_{11/2}$ coupled to one proton hole in N=3 shell, with the configuration of the terminating state of 30^+ as $\pi(g_{9/2}^5)_{25/2} \otimes \nu(d_{5/2}g_{7/2})^5_{23/2}(h_{11/2})$ coupled to one proton hole in N=3 shell. The upper part of this band may have an alternate configuration=$\pi g_{9/2}^4 \otimes \nu[(d_{5/2}^3)(g_{7/2})(h_{11/2}^2)]$, with terminating state of 30^+ when fully aligned ($g_{9/2}$ protons coupled to spin of 12, $d_{5/2}$ neutrons coupled to spin 9/2, and $h_{11/2}$ neutrons coupled to spin 10) (2000Ti07).

[g] Band(F): Band based on (28^+). This structure of three levels is related to band based on 8^+. Configuration of terminating state at 32+=$\pi g_{9/2}^4 \otimes \nu[(d_{5/2}g_{7/2})^4 h_{11/2}^2]$, ($g_{9/2}$ protons coupled to spin 12, and $d_{5/2}g_{7/2}$ neutrons coupled to spin 10, and $h_{11/2}$

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Adopted Levels, Gammas (continued)

^{100}Ru Levels (continued)

neutrons coupled to spin 10).
[h] Band(G): Band based on 9^-.
[i] Band(H): Band based on (10^+).

Adopted Levels, Gammas (continued)

γ(^{100}Ru)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	$I_{(\gamma+ce)}$	Comments
539.5103	2^+	539.509 *2*	100	0.0	0^+	E2		0.00428		B(E2)(W.u.)=35.7 *3* E_γ: weighted average of 539.512 *5* from ^{100}Rh ε decay (20.8 h) and 539.508 *2* from (n,γ) E=th. Others: 539.52 *11* from ^{100}Tc β^- decay (15.46 s), 539.7 *1* from (^{36}S,α2nγ), 539.509 *14* from (α,2nγ), 539.7 *3* from (α,4nγ), 539.506 *18* from (n,n′γ), and 539.6 *1* from Coulomb excitation. Mult.: from ce data in ^{100}Rh ε decay (20.8 h), γ(DCO) in (^{36}S,α2nγ) and (^{34}S,2α2nγ), γ(θ) in (α,2nγ) and (n,n′γ).
1130.305	0^+	590.786 *11*	100	539.5103	2^+	E2		0.00332		B(E2)(W.u.)=35 *5* E_γ: weighted average of 590.792 *6* from ^{100}Rh ε decay (20.8 h), 590.844 *20* from (α,2nγ), 590.765 *9* from (n,γ) E=th, and 590.774 *20* from (n,n′γ). Others: 590.77 *10* from ^{100}Tc β^- decay (15.46 s) and 590.8 *5* from Coulomb excitation. Mult.: M1,E2 from ce data and Q from γγ(θ) in ^{100}Rh ε decay (20.8 h).
		1130.3 *3*		0.0	0^+	E0			0.038 *3*	E_γ,Mult.: from ce data in ^{100}Rh ε decay (20.8 h). q^2_K(E0/E2)=0.098 *9*, X(E0/E2)=0.0104 *9*, ρ^2(E0)=0.0103 *18* (2005Ki02, evaluation). B(E0)(Wilkinson units)=0.048 *8*.
1226.467	4^+	686.972 *7*	100	539.5103	2^+	E2		0.00221		B(E2)(W.u.)=52 *4* E_γ: weighted average of 686.971 *7* from ^{100}Rh ε decay (20.8 h), 686.973 *17* from (α,2nγ), 686.972 *3* from (n,γ) E=th, and 686.963 *17* from (n,n′γ). Others: 687.5 *1* from (^{36}S,α2nγ), 687.4 *3* from (α,4nγ), and 686.9 *5* from Coulomb excitation. Mult.: M1,E2 from ce data and Q from γγ(θ) in ^{100}Rh ε decay (20.8 h); also from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(DCO) in (^{34}S,2α2nγ), γ(θ) in (α,2nγ), (α,4nγ) an d(n,n′γ).
1362.166	2^+	822.646 *9*	100.0 *5*	539.5103	2^+	E2+M1	+3.7 *3*	0.0014		B(M1)(W.u.)=0.0016 *+5−4*; B(E2)(W.u.)=31 *6* α(K)=0.001230 *17*; α(L)=0.0001439 *20*; α(M)=2.64×10^{-5} *4* α(N)=4.25×10^{-6} *6*; α(O)=2.185×10^{-7} *31* E_γ: weighted average of 822.6 *1* from ^{100}Tc β^- decay (15.46 s), 822.654 *7* from ^{100}Rh ε decay (20.8 h), 822.666 *17* from (α,2nγ), 822.614 *10* from (n,γ) E=th, 822.672 *16* from (n,n′γ), and 822.5 *2* from Coulomb excitation. I_γ: from (n,n′γ). Others: 100.0 *10* from ^{100}Rh ε decay (20.8 h), 100.0 *12* from (α,2nγ), 100 *4* from (n,γ) E=th. Mult.: from ce data and γγ(θ) in ^{100}Rh ε decay (20.8 h) and γ(θ) in (n,n′γ), 100 *8* from (n,γ) E=res. δ: weighted average of +3.7 *3* (2001Ge03) from γ(θ) in

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. f	α g	$I_{(\gamma+ce)}$	Comments
									(n,n′γ), +3.2 *8* (1978Ba29) and 3.7 *4* (1990KeZV) from γγ(θ) in ^{100}Rh ε decay (20.8 h).
1362.166	2+	1362.157 *10*	73.1 *2*	0.0	0+	E2			B(E2)(W.u.)=2.0 *4* E_γ: weighted average of 1362.152 *10* from ^{100}Rh ε decay (20.8 h), 1362.172 *23* from (α,2nγ), 1362.17 *3* from (n,γ) E=th, and 1362.160 *21* from (n,n′γ). Others: 1362.2 *1* from ^{100}Tc β− decay (15.46 s) and 1362.1 *2* from Coulomb excitation. I_γ: weighted average of 72.95 *23* from ^{100}Rh ε decay (20.8 h), 73.3 *12* from (α,2nγ), and 73.6 *5* from (n,n′γ). Others: 68 *4* from (n,γ) E=th; 52 *5* in Coulomb excitation, 95 *3* in ^{100}Tc β− decay and 112 *11* in (n,γ) E=res are in disagreement. Mult.: from ce data and γγ(θ) in ^{100}Rh ε decay (20.8 h) and γ(θ) in (α,2nγ) and (n,n′γ).
1741.011	0+	378.90 *5*	75.4 *13*	1362.166	2+	E2	0.01250		α(K)=0.01081 *16*; α(L)=0.001388 *20*; α(M)=0.000255 *4* α(N)=4.05×10^{-5} *6*; α(O)=1.85×10^{-6} *3* E_γ: weighted average of 378.7 *1* from ^{100}Tc β− decay (15.46 s), 378.79 *5* from ^{100}Rh ε decay (20.8 h), 378.81 *11* from (α,2nγ), 379.10 *10* from (n,γ) E=th, and 378.94 *3* from (n,n′γ). I_γ: weighted average of 85 *6* from ^{100}Tc β− decay (15.46 s), 75.1 *11* from (n,n′γ), and 69 *12* from ^{100}Rh ε decay (20.8 h). Others: 130 *18* in (n,γ) E=th; 220 *20* in (α,2nγ) are in disagreement. Mult.: from ce data and γγ(θ) in ^{100}Rh ε decay (20.8 h).
		610.48 *10*		1130.305	0+	E0		0.08 *4*	E_γ,Mult.: from ce data in ^{100}Rh ε decay (20.8 h). q^2_K(E0/E2)=0.9 *5*, X(E0/E2)=1.1 *6*, ρ^2(E0)<0.090 (2005Ki02, evaluation).
		1201.503 *16*	100.0 *11*	539.5103	2+	(E2)			E_γ: weighted average of 1201.493 *16* from ^{100}Rh ε decay (20.8 h) and 1201.54 *3* from (n,n′γ). Others: 1201.5 *1* from ^{100}Tc β− decay (15.46 s), 1201.4 *3* from (α,2nγ), and 1201.44 *14* from (n,γ) E=th. I_γ: from (n,n′γ). Others: 100 *4* from ^{100}Tc β− decay (15.46 s), 100.0 *21* from ^{100}Rh ε decay (20.8 h), 100 *17* from (α,2nγ), 100 *18* from (n,γ) E=th. Mult.: (Q) from γγ(θ) in ^{100}Rh ε decay (20.8 h); polarity from no level-parity change.
		1740.6 *2*		0.0	0+	E0		0.16 *3*	E_γ,Mult.: from ce data in ^{100}Rh ε decay (20.8 h). q^2_K(E0/E2)=1.6 *9*, X(E0/E2)=0.6 *3*, ρ^2(E0)<0.048 (2005Ki02, evaluation).
1865.110	2+	502.905 *23*	14.1 *5*	1362.166	2+	M1,E2	0.0049 *4*		E_γ: weighted average of 502.907 *18* from ^{100}Rh ε decay (20.8 h), 502.7 *3* from (α,2nγ), 503.09 *10* from (n,γ) E=th, and 502.83 *6* from (n,n′γ). I_γ: weighted average of 16.0 *14* from ^{100}Rh ε decay (20.8 h), 21 *8* from (α,2nγ), 19.8 *28* from (n,γ) E=th, and 13.9 *3* from (n,n′γ). Mult.: from ce data in ^{100}Rh ε decay (20.8 h).

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. [f]	δ [f]	α [g]	Comments
1865.110	2+	638.631 *20*	18 *3*	1226.467	4+	E2		0.00268	B(E2)(W.u.)=17 *5* α(K)=0.002340 *33*; α(L)=0.000281 *4*; α(M)=5.15×10^{-5} *7* α(N)=8.27×10^{-6} *12*; α(O)=4.12×10^{-7} *6* E_γ: weighted average of 638.619 *14* from ^{100}Rh ε decay (20.8 h), 638.81 *13* from (α,2nγ), 638.70 *7* from (n,γ) E=th, and 638.72 *5* from (n,n′γ). I_γ: unweighted average of 14.2 *5* from ^{100}Rh ε decay (20.8 h), 21 *4* from (α,2nγ), 25 *3* from (n,γ) E=th, and 13.0 *3* from (n,n′γ). Mult.: M1,E2 from ce data in ^{100}Rh ε decay (20.8 h); ΔJ=2 requires E2.
		734.798 *7*	77.6 *9*	1130.305	0+	E2		0.00186	B(E2)(W.u.)=37 *+8−9* α(K)=0.001623 *23*; α(L)=0.0001921 *27*; α(M)=3.52×10^{-5} *5* α(N)=5.67×10^{-6} *8*; α(O)=2.87×10^{-7} *4* E_γ: weighted average of 734.806 *7* from ^{100}Rh ε decay (20.8 h), 734.789 *7* from (n,γ) E=th, and 734.810 *21* from (n,n′γ). Others: 734.8 *3* from ^{100}Tc β$^-$ decay (15.46 s) and 734.84 *8* from (α,2nγ). I_γ: weighted average of 76.8 *7* from ^{100}Rh ε decay (20.8 h), 78.3 *6* from (n,n′γ), and 69 *4* from (α,2nγ). Others: 114 *14* in ^{100}Tc β$^-$; 118 *3* in (n,γ) E=th, 104 *5* in (n,γ) E=res are in disagreement. Mult.: M1,E2 from ce data in ^{100}Rh ε decay (20.8 h); ΔJ=2 requires E2.
		1325.590 *17*	100.0 *7*	539.5103	2+	M1+E2	−1.0 *3*		B(M1)(W.u.)=0.0023 *+10−8*; B(E2)(W.u.)=1.24 *+43−53* E_γ: weighted average of 1325.8 *5* from ^{100}Tc β$^-$ decay (15.46 s), 1325.583 *13* from ^{100}Rh ε decay (20.8 h), 1325.56 *7* from (α,2nγ), 1325.45 *6* from (n,γ) E=th, and 1325.633 *22* from (n,n′γ). I_γ: from (n,n′γ). Others: 100.0 *10* from ^{100}Rh ε decay (20.8 h), 100 *4* from (α,2nγ), 100 *13* from (n,γ) E=th, 100 *7* from (n,γ) E=res, 100 *33* from ^{100}Tc β$^-$ decay. Mult.: from ce data and γγ(θ) in ^{100}Rh ε decay (20.8 h) and γ(θ) in (n,n′γ). δ: from γ(θ) in (n,n′γ), −2.5 *9* is also possible. Other: −1.6 *+14−7* from γγ(θ) in ^{100}Rh ε decay (20.8 h).
		1865.06 *6*	95.9 *12*	0.0	0+	E2			B(E2)(W.u.)=0.43 *10* E_γ: weighted average of 1864.9 *2* from ^{100}Tc β$^-$ decay (15.46 s), 1865.12 *15* from ^{100}Rh ε decay (20.8 h), 1865.12 *9* from (α,2nγ), 1865.04 *6* from (n,γ) E=th, and 1865.07 *6* from (n,n′γ). I_γ: weighted average of 93 *7* from ^{100}Tc β$^-$ decay (15.46 s), 90 *4* from (α,2nγ), and 96.4 *12* from (n,n′γ), 109 *13* from (n,γ) E=th, and 109 *23* from (n,γ) E=res. Other: 63 *6* in ^{100}Rh ε decay (20.8 h) is in disagreement. Mult.: Q from γ(θ) in (n,n′γ); M2 ruled out by RUL.

$^{100}_{44}Ru_{56}$-12

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. *f*	δ *f*	α *g*	Comments
1881.043	3+	518.881 *8*	16.9 *4*	1362.166	2+	M1+E2	+0.37 *7*	0.00432 *7*	B(M1)(W.u.)=0.020 *+7−6*; B(E2)(W.u.)=9.6 *+46−41* α(K)=0.00379 *6*; α(L)=0.000441 *7*; α(M)=8.08×10^{-5} *13* α(N)=1.307×10^{-5} *21*; α(O)=6.87×10^{-7} *10* E_γ: weighted average of 518.882 *5* from ^{100}Rh ε decay (20.8 h), 518.88 *6* from (α,2nγ), 519.11 *13* from (n,γ) E=th, and 518.82 *3* from (n,n′γ). I_γ: weighted average of 17.2 *2* from ^{100}Rh ε decay (20.8 h), 14.2 *13* from (α,2nγ), 22 *4* from (n,γ) E=th, and 16.1 *4* from (n,n′γ). Other: 86 *4* in (n,γ) E=res is in disagreement. Mult.: from ce data and γγ(θ) in ^{100}Rh ε decay (20.8 h) and γ(θ) in (n,n′γ) and (α,2nγ). δ: weighted average of +0.36 *8* from (n,n′γ) and +0.38 *6* from (α,2nγ).
		654.574 *6*	12.1 *9*	1226.467	4+	M1+E2	+2.3 *5*	0.00250	B(M1)(W.u.)=0.0013 *+8−5*; B(E2)(W.u.)=15 *5* α(K)=0.002188 *31*; α(L)=0.000260 *4*; α(M)=4.77×10^{-5} *7* α(N)=7.67×10^{-6} *11*; α(O)=3.87×10^{-7} *5* E_γ: weighted average of 654.571 *6* from ^{100}Rh ε decay (20.8 h), 654.587 *17* from (n,γ) E=th, and 654.60 *3* from (n,n′γ). Other: 654.78 *5* from (α,2nγ). I_γ: unweighted average of 10.5 *1* from ^{100}Rh ε decay (20.8 h), 12.7 *5* from (α,2nγ), 14.2 *8* from (n,γ) E=th, and 10.9 *3* from (n,n′γ). Other: 116 *31* in (n,γ) E=res is in disagreement. Mult.,δ: ce data in ^{100}Rh ε decay (20.8 h) gives mult=M1,E2; mixing ratio is weighted average of +3.2 *6* from γ(θ) in (n,n′γ) and +2.1 *3* from γ(θ) in (α,2nγ).
		1341.548 *21*	100.0 *6*	539.5103	2+	M1+E2	+5.7 *5*		B(M1)(W.u.)=0.00023 *+9−8*; B(E2)(W.u.)=3.9 *+13−12* E_γ: unweighted average of 1341.515 *9* from ^{100}Rh ε decay (20.8 h), 1341.601 *18* from (α,2nγ), 1341.560 *9* from (n,γ) E=th, and 1341.515 *22* from (n,n′γ). I_γ: from (n,γ) E=th. Others: 100.0 *10* from ^{100}Rh ε decay (20.8 h), 100.0 *13* from (α,2nγ), and 100.0 *8* from (n,n′γ), 100 *16* from (n,γ) E=res. Mult.: from ce data and γγ(θ) in ^{100}Rh ε decay (20.8 h), γ(θ) in (α,2nγ) and (n,n′γ). δ: weighted average of +6.7 *12* in (n,n′γ) and +5.5 *5* in (α,2nγ). Others: ce data give δ=4.4 *+∞−21* and γγ(θ) gives δ=6.8 *+13−19*; +0.37 *10* also from (n,n′γ) and +0.35 *2* also from (α,2nγ).
2051.661	0+	689.491 *5*	14.2 *19*	1362.166	2+	[E2]		0.00219	B(E2)(W.u.)=16 *+11−8* α(K)=0.001912 *27*; α(L)=0.0002276 *32*; α(M)=4.17×10^{-5} *6* α(N)=6.71×10^{-6} *9*; α(O)=3.37×10^{-7} *5*

Adopted Levels, Gammas (continued)

$\gamma(^{100}Ru)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
									E_γ: from ^{100}Rh ε decay (20.8 h). Others: 689.2 *1* from ^{100}Tc β^- decay (15.46 s), and 689.46 *9* from (n,n′γ).
									I_γ: unweighted average of 12.3 *4* from ^{100}Tc β^- decay (15.46 s) and 16.0 *12* from ^{100}Rh ε decay (20.8 h).
2051.661	0^+	1512.134 *16*	100.0 *13*	539.5103	2^+	E2			B(E2)(W.u.)=2.3 *+15−11*
									E_γ: weighted average of 1512.1 *1* from ^{100}Tc β^- decay (15.46 s), 1512.140 *16* from ^{100}Rh ε decay (20.8 h), 1512.01 *8* from (n,γ) E=th, and 1512.13 *4* from (n,n′γ). Other: 1512.10 *22* from (α,2nγ).
									I_γ: from ^{100}Rh ε decay (20.8 h). Others: 100 *15* from ^{100}Tc β^- decay (15.46 s).
									Mult.: Q from $\gamma\gamma(\theta)$ in ^{100}Tc β^- decay (15.46 s) and ^{100}Rh ε decay (20.8 h); M2 ruled out by RUL.
2062.651	4^+	700.51 *5*	44.9 *13*	1362.166	2^+	E2		0.0021	B(E2)(W.u.)=41 *+27−21*
									α(K)=0.001835 *26*; α(L)=0.0002181 *31*; α(M)=4.00×10^{-5} *6*
									α(N)=6.43×10^{-6} *9*; α(O)=3.24×10^{-7} *5*
									E_γ: weighted average of 700.52 *6* from (n,γ) E=th and 700.51 *5* from (n,n′γ). Other: 700.7 *6* from (α,2nγ).
									I_γ: weighted average of 47 *3* from (α,2nγ), 44.5 *8* from (n,n′γ), 60 *7* from (n,γ) E=th, and 88 *24* from (n,γ) E=res. Other: 200 *18* in ^{100}Rh ε decay (4.6 min) is in disagreement.
									Mult.: Q from $\gamma(\theta)$ in (α,2nγ); M2 ruled out by RUL.
		836.181 *4*	95 *6*	1226.467	4^+	M1+E2	+1.73 *21*	0.00136	B(M1)(W.u.)=0.007 *+5−4*; B(E2)(W.u.)=27 *+18−14*
									α(K)=0.001194 *17*; α(L)=0.0001389 *20*; α(M)=2.54×10^{-5} *4*
									α(N)=4.11×10^{-6} *6*; α(O)=2.132×10^{-7} *31*
									E_γ: weighted average of 836.187 *23* from (α,2nγ), 836.180 *3* from (n,γ) E=th, and 836.24 *3* from (n,n′γ).
									I_γ: unweighted average of 87.6 *18* from (α,2nγ), 104 *2* from (n,γ) E=th, 96 *12* from E=res. Other: 188 *18* in ^{100}Rh ε decay (4.6 min); 52.4 *2* in (n,n′γ) are in disagreement.
									Mult.: D+Q from $\gamma(\theta)$ in (n,n′γ) and (α,2nγ); M2 ruled out by RUL.
									δ: weighted average of +1.5 *3* from $\gamma(\theta)$ in (n,n′γ) and +1.85 *21* from $\gamma(\theta)$ from (α,2nγ).
		1523.14 *5*	100.0 *14*	539.5103	2^+	E2			B(E2)(W.u.)=1.9 *+13−10*
									E_γ: unweighted average of 1523.199 *24* from (α,2nγ), 1523.07 *3* from (n,γ) E=th, and 1523.08 *6* from (n,n′γ).
									I_γ: from (n,n′γ). Others: 100 *13* from ^{100}Rh ε decay (4.6 min), 100.0 *15* from (α,2nγ), 100 *5* from (n,γ) E=th, 100 *48* from (n,γ) E=res.
									Mult.: Q from $\gamma(\theta)$ in (n,n′γ) and (α,2nγ); M2 ruled out by RUL.
2075.675	6^+	849.22 *2*	100	1226.467	4^+	E2			E_γ: unweighted average of 849.241 *15* from (α,2nγ), and 849.188 *7*

$^{100}_{44}Ru_{56}$-14

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. f	α g	Comments
								from (n,γ) E=th, and 849.241 *15* from (n,n′γ). Others: 849.9 *1* from (^{36}S,α2nγ), 849.9 *3* from (α,4nγ). Mult.: from γ(DCO) and γ(lin pol) in (^{36}S,α2nγ), ce data and γ(θ) in (α,4nγ), γ(θ) in (α,2nγ), γ(DCO) in (^{34}S,2α2nγ).
2099.103	2+	234.0@i *5*	0.19@ *7*	1865.110	2+			
		358.080‡ *9*	3.9‡ *4*	1741.011	0+	[E2]	0.015	B(E2)(W.u.)=2.7×10^2 *+6−5* α(K)=0.01295 *18*; α(L)=0.001677 *23*; α(M)=0.000309 *4* α(N)=4.89×10^{-5} *7*; α(O)=2.204×10^{-6} *31*
		736.99 *4*	13.17 *13*	1362.166	2+	(M1,E2)		E_γ: weighted average of 736.966 *20* from ^{100}Rh ε decay (20.8 h), 736.93 *18* from (α,2nγ), 737.20 *13* from (n,γ) E=th, and 737.15 *6* from (n,n′γ). I_γ: weighted average of 13.16 *13* from ^{100}Rh ε decay (20.8 h), 13.2 *7* from (n,n′γ), and 17 *3* from (n,γ) E=th. Others: 57 *9* in (α,2nγ); 89 *20* in (n,γ) E=res are in disagreement. Mult.: from ce data in ^{100}Rh ε decay (20.8 h).
		872.67 *5*	2.3 *6*	1226.467	4+	[E2]	0.00121	B(E2)(W.u.)=1.9 *+6−5* α(K)=0.001063 *15*; α(L)=0.0001241 *17*; α(M)=2.274×10^{-5} *32* α(N)=3.67×10^{-6} *5*; α(O)=1.888×10^{-7} *26* E_γ: weighted average of 872.62 *5* from ^{100}Rh ε decay (20.8 h), 872.71 *5* from (n,γ) E=th, and 872.67 *16* from (n,n′γ). I_γ: unweighted average of 2.10 *24* from ^{100}Rh ε decay (20.8 h), 3.6 *3* from (n,γ) E=th, and 1.59 *25* from (n,n′γ).
		968.83 *3*	4.0 *8*	1130.305	0+	[E2]		B(E2)(W.u.)=1.9 *5* E_γ: weighted average of 968.85 *3* from ^{100}Rh ε decay (20.8 h), 968.80 *5* from (n,γ) E=th, and 968.68 *10* from (n,n′γ). Other: 969.2 *5* from (α,2nγ). I_γ: unweighted average of 3.95 *24* from ^{100}Rh ε decay (20.8 h), 6.4 *4* from (n,γ) E=th, and 3.18 *25* from (n,n′γ). Other: 22 *13* in (α,2nγ) is in severe disagreement.
		1559.54 *3*	100.0 *9*	539.5103	2+	M1		B(M1)(W.u.)=0.0117 *+21−18* E_γ: weighted average of 1558.9 *3* from ^{100}Tc β$^-$ decay (15.46 s), 1559.554 *21* from ^{100}Rh ε decay (20.8 h), 1560.1 *6* from (α,2nγ), 1559.37 *6* from (n,γ) E=th, and 1559.56 *3* from (n,n′γ). I_γ: from (n,n′γ). Others: 100.0 *10* from ^{100}Rh ε decay (20.8 h), 100 *9* from ^{100}Tc β$^-$ decay (15.46 s), 100 *13* from (α,2nγ), 100 *12* from (n,γ) E=th, and 100 *23* from (n,γ) E=res. Mult.: from ce data in ^{100}Rh ε decay (20.8 h).
		2099.14 *7*	4.0 *4*	0.0	0+	[E2]		B(E2)(W.u.)=0.040 *+9−7* E_γ: weighted average of 2099.16 *7* from ^{100}Rh ε decay (20.8 h), 2099.4 *5* from (n,γ) E=th, and 2099.03 *15* from (n,n′γ). I_γ: weighted average of 3.3 *4* from ^{100}Rh ε decay (20.8 h), 10 *4* from (n,γ) E=th, and 4.28 *25* from (n,n′γ).

$^{100}_{44}Ru_{56}$-15

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. [f]	δ [f]	α [g]	Comments
2166.879	3⁻	301.769 *3*	12.67 *24*	1865.110	2⁺	(E1(+M2))	+0.04 *3*	0.00620 *23*	B(E1)(W.u.)=3.5×10^{-5} *10*; B(M2)(W.u.)=2.8 *+63−22* α(K)=0.00544 *20*; α(L)=0.000626 *26*; α(M)=0.000114 *5* α(N)=1.84×10^{-5} *8*; α(O)=9.4×10^{-7} *4* E_γ: weighted average of 301.771 *8* from ^{100}Rh ε decay (20.8 h), 301.769 *1* from (n,γ) E=th. Others: 301.63 *3* from (α,2nγ), 301.82 *3* from (n,n′γ). I_γ: weighted average of 12.7 *9* from ^{100}Rh ε decay (20.8 h), 13.5 *12* from (α,2nγ), and 12.63 *24* from (n,n′γ). Other: 21.8 *4* in (n,γ) E=th is in disagreement. Mult.: D(+Q) from γ(θ) in (n,n′γ) and (α,2nγ); polarity from level-parity change. δ: weighted average of +0.04 *4* from γ(θ) in (n,n′γ) and +0.03 *6* from γ(θ) in (α,2nγ).
		804.85 *12*	2.2 *13*	1362.166	2⁺	[E1]			B(E1)(W.u.)=3.2×10^{-7} *+22−17* E_γ: unweighted average of 804.73 *8* from ^{100}Rh ε decay (20.8 h) and 804.96 *7* from (n,γ) E=th. I_γ: unweighted average of 0.93 *9* from ^{100}Rh ε decay (20.8 h) and 3.5 *4* from (n,γ) E=th.
		940.75‡ [d] *8*	2.2‡ *4*	1226.467	4⁺	[E1]			B(E1)(W.u.)=2.0×10^{-7} *+7−6*
		1627.36 *3*	100.0 *5*	539.5103	2⁺	E1			B(E1)(W.u.)=1.7×10^{-6} *5* E_γ: weighted average of 1627.340 *11* from ^{100}Rh ε decay (20.8 h), 1627.462 *22* from (α,2nγ), 1627.35 *4* from (n,γ) E=th, 1627.34 *4* from (n,n′γ), and 1626.4 *5* from Coulomb excitation. I_γ: from ^{100}Rh ε decay (20.8 h). Others: 100.0 *15* from (α,2nγ), 100.0 *7* from (n,γ) E=th, and 100.0 *10* from (n,n′γ). Mult.: from ce data and γγ(θ) in ^{100}Rh ε decay (20.8 h). δ(M2/E1)=−0.008 *24* in (n,n′γ), +0.02 *3* in (α,2nγ).
		2166.81 *4*	5.9 *7*	0.0	0⁺	(E3)			B(E3)(W.u.)=13 *4* E_γ: weighted average of 2166.80 *3* from ^{100}Rh ε decay (20.8 h), 2166.65 *16* from (α,2nγ), 2166.94 *7* from (n,γ) E=th, and 2166.61 *21* from (n,n′γ). I_γ: unweighted average of 4.98 *25* from ^{100}Rh ε decay (20.8 h), 7.3 *8* from (α,2nγ), and 5.4 *4* from (n,n′γ). Other: 10.9 *13* from (n,γ) E=th, is in severe disagreement. Mult.: (O) from γ(θ) in (n,n′γ); polarity from level-parity change.
2240.804	2⁺	375.686 *8*	3.1 *15*	1865.110	2⁺				E_γ: from (n,γ) E=th. Other: 375.73 *9* from (n,n′γ). I_γ: unweighted average of 4.6 *3* from (n,γ) E=th and 1.6 *3* from (n,n′γ).
		499.8 [i]	≈50	1741.011	0⁺	[E2]		0.00535	B(E2)(W.u.)=2.1 *10*

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
									α(K)=0.00465 *7*; α(L)=0.000574 *8*; α(M)=0.0001054 *15* α(N)=1.684×10^{-5} *24*; α(O)=8.09×10^{-7} *11* E_γ: from ^{100}Tc β^- decay only.
2240.804	2$^+$	878.55[‡] *9*	2.4[‡] *3*	1362.166	2$^+$				
		1013.69[‡c] *7*	25[‡] *3*	1226.467	4$^+$	[E2]			B(E2)(W.u.)=0.030 *+6−5*
		1110.66[@i] *11*	8.3[@] *21*	1130.305	0$^+$	[E2]			B(E2)(W.u.)=0.0064 *+19−18* Placement is questioned (by evaluators) since with reported intensity of ≈8% in ^{100}Rh ε decay, this γ should have been seen in (n,γ) E=th.
		1701.292 *21*	100.0 *3*	539.5103	2$^+$	(M1)			B(M1)(W.u.)=2.84×10^{-5} *+46−39* E_γ: weighted average of 1701.0 *10* from ^{100}Tc β^- decay (15.46 s), 1701.310 *18* from ^{100}Rh ε decay (20.8 h), 1701.30 *15* from (α,2nγ), 1701.14 *6* from (n,γ) E=th, and 1701.28 *3* from (n,n′γ). I_γ: from (n,n′γ). Others: 100.0 *16* from ^{100}Rh ε decay (20.8 h), 100 *12* from (n,γ) E=th. Mult.: D from γ(θ) in (α,2nγ), δ(Q/D)=−0.014 *50* from γ(θ) in (n,n′γ), δ(Q/D)=0.12 *40* from γγ(θ) in ^{100}Rh ε decay (20.8 h); polarity from no level-parity change.
		2240.1[@i] *5*	0.7[@] *6*	0.0	0$^+$	[E2]			B(E2)(W.u.)=1.6×10^{-5} *+16−9*
2313.5	(3$^-$,4$^+$)	951.5[#] *5*	24[#] *14*	1362.166	2$^+$				
		1087.1[#] *5*	33[#] *14*	1226.467	4$^+$				
		1773.8[#] *5*	100[#] *14*	539.5103	2$^+$				
2324.6	(3$^-$ to 6$^+$)	262.3[#] *5*	100[#] *16*	2062.651	4$^+$				
		1097.8[#] *5*	24[#] *8*	1226.467	4$^+$				
2351.240	4$^+$	470.188[‡] *17*	2.31[‡] *23*	1881.043	3$^+$				
		486.121[‡] *5*	7.5[‡] *4*	1865.110	2$^+$	[E2]		0.0058	B(E2)(W.u.)=77 *+32−29* α(K)=0.00505 *7*; α(L)=0.000624 *9*; α(M)=0.0001147 *16* α(N)=1.832×10^{-5} *26*; α(O)=8.77×10^{-7} *12*
		1124.770 *8*	100.0 *18*	1226.467	4$^+$	M1+E2	−0.36 *5*		B(M1)(W.u.)=0.019 *7*; B(E2)(W.u.)=1.8 *+9−8* E_γ: weighted average of 1124.84 *3* from (α,2nγ), 1124.768 *5* from (n,γ) E=th, and 1124.77 *3* from (n,n′γ). I_γ: from (n,n′γ). Others: 100 *3* from (α,2nγ), 100 *5* from (n,γ) E=th, and 100 *30* from (n,γ) E=res. Mult.,δ: D+Q from γ(θ) in (n,n′γ); M2 ruled out by RUL.
		1811.63 *8*	64.5 *22*	539.5103	2$^+$	E2			B(E2)(W.u.)=0.9 *4* E_γ: weighted average of 1811.79 *8* from (α,2nγ), 1811.53 *6* from (n,γ) E=th, and 1811.66 *8* from (n,n′γ). I_γ: weighted average of 62 *3* from (α,2nγ), 52 *6* from (n,γ) E=th, 81 *25* from (n,γ) E=res, and 66.4 *18* from

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	α[g]	Comments
								(n,n′γ). Mult.: Q from γ(θ) in (n,n′γ); M2 ruled out by RUL.
2366.588	4$^+$	485.547[‡] *15* 1139.91[e] *6*	3.5[‡] *5* 14.3 *24*	1881.043 1226.467	3$^+$ 4$^+$			E_γ: weighted average of 1139.8 *7* from (α,2nγ), 1139.96 *7* from (n,γ) E=th, and 1139.88 *6* from (n,n′γ). level-energy difference=1140.12. I_γ: unweighted average of 15.0 *13* from ^{100}Rh ε decay (4.6 min), 8 *7* from (α,2nγ), 14.4 *18* from (n,γ) E=th, and 19.8 *7* from (n,n′γ).
		1827.13 *4*	100.0 *7*	539.5103	2$^+$	E2		B(E2)(W.u.)=1.1 *+6−5* E_γ: weighted average of 1827.13 *5* from (α,2nγ), 1827.16 *4* from (n,γ) E=th, and 1827.04 *6* from (n,n′γ). I_γ: from (n,n′γ). Others: 100.0 *25* from (α,2nγ), 100 *8* from ^{100}Rh ε decay (4.6 min) and 100 *8* from (n,γ) E=th. Mult.: Q from γ(θ) in (α,2nγ) and (n,n′γ); M2 ruled out by RUL.
2387.22	0$^+$	288.81[‡i] *10*	360[‡] *60*	2099.103	2$^+$	[E2]	0.0305	α(K)=0.0262 *4*; α(L)=0.00354 *5*; α(M)=0.000653 *9* α(N)=0.0001028 *14*; α(O)=4.38×10^{-6} *6* E_γ: level-energy difference=288.28.
		1025.13 *17*	100 *2*	1362.166	2$^+$	[E2]		E_γ: unweighted average of 1024.9 *1* from ^{100}Tc β$^-$ decay (15.46 s), 1024.98 *3* from ^{100}Rh ε decay (20.8 h), 1025.62 *9* from (n,γ) E=th, and 1025.00 *5* from (n,n′γ). I_γ: from (n,n′γ). Other: 100 *22* from (n,γ) E=th, 100 *4* from ^{100}Rh ε decay (20.8 h), 100 *4* from ^{100}Tc β$^-$ decay (15.46).
		1847.68 *7*	78 *4*	539.5103	2$^+$	[E2]		E_γ: weighted average of 1847.6 *2* from ^{100}Tc β$^-$ decay (15.46 s), 1847.57 *8* from ^{100}Rh ε decay (20.8 h), 1847.76 *7* from (n,γ) E=th, and 1847.73 *11* from (n,n′γ). I_γ: unweighted average of 76 *9* from ^{100}Tc β$^-$ decay (15.46 s), 102 *8* from ^{100}Rh ε decay (20.8 h), and 76.7 *20* from (n,n′γ). Other: 200 *22* in (n,γ) E=th is in disagreement.
2413.86	(4$^+$)	1051.68 *14*	14.1 *23*	1362.166	2$^+$	[E2]		B(E2)(W.u.)=23 *5* E_γ: unweighted average of 1051.51 *6* from (α,2nγ), 1051.57 *7* from (n,γ) E=th, and 1051.96 *7* from (n,n′γ). I_γ: unweighted average of 9.5 *10* from (n,γ) E=th and 15.2 *5* from (n,n′γ). Other: 312 *19* from (α,2nγ) is in severe disagreement.
		1874.38 *17*	100.0 *5*	539.5103	2$^+$	(E2)		B(E2)(W.u.)=8.9 *7* E_γ: unweighted average of 1874.70 *23* from (α,2nγ), 1874.15 *5* from (n,γ) E=th, and 1874.29 *6* from (n,n′γ). I_γ: from (n,n′γ). Others: 100 *13* from (α,2nγ), 100 *15* from (n,γ) E=th. Mult.: (Q), ΔJ=2 from γ(θ) in (n,n′γ); ΔJ=0 is also possible; M2 ruled out by RUL.
2469.389	2$^-$	228.581[@] *8*	1.07[@] *1*	2240.804	2$^+$	E1	0.01306	α(K)=0.01146 *16*; α(L)=0.001322 *19*; α(M)=0.000241 *4* α(N)=3.87×10^{-5} *6*; α(O)=1.94×10^{-6} *3* B(E1)(W.u.)=0.00027 *+16−13* Mult.: from α(K)exp in ^{100}Rh ε decay (20.8 h).

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	E_γ †	I_γ †	E_f	J^π_f	Mult. f	δ f	α g	Comments
2469.389	302.512 *7*	5.34 *11*	2166.879	3−	M1+E2	1.8 *+12−5*	0.0237 *14*	α(K)=0.0205 *12*; α(L)=0.00268 *19*; α(M)=0.00049 *4* α(N)=7.8×10^{-5} *6*; α(O)=3.49×10^{-6} *17* B(M1)(W.u.)=0.010 *+8−7*; B(E2)(W.u.)=3.2×10^{2} *+19−16* E_γ: weighted average of 302.507 *6* from ^{100}Rh ε decay (20.8 h) and 302.522 *8* from (n,γ) E=th. I_γ: from ^{100}Rh ε decay (20.8 h). Other: 8.1 *6* from (n,γ) E=th is in disagreement. Mult.,δ: from ce data in ^{100}Rh ε decay (20.8 h).
	370.280 *5*	5.54 *6*	2099.103	2+	E1		0.00355	α(K)=0.00312 *4*; α(L)=0.000357 *5*; α(M)=6.52×10^{-5} *9* α(N)=1.051×10^{-5} *15*; α(O)=5.40×10^{-7} *8* B(E1)(W.u.)=0.00033 *+20−16* E_γ: weighted average of 370.275 *7* from ^{100}Rh ε decay (20.8 h) and 370.283 *5* from (n,γ) E=th. I_γ: from ^{100}Rh ε decay (20.8 h). Other: 10.4 *11* from (n,γ) E=th is in disagreement. Mult.: from ce data in ^{100}Rh ε decay (20.8 h) and RUL.
	588.343 *6*	36.9 *4*	1881.043	3+	E1		0.00115	B(E1)(W.u.)=0.00055 *+32−26* α(K)=0.001010 *14*; α(L)=0.0001145 *16*; α(M)=2.092×10^{-5} *29* α(N)=3.38×10^{-6} *5*; α(O)=1.771×10^{-7} *25* E_γ: weighted average of 588.343 *5* from ^{100}Rh ε decay (20.8 h), 588.30 *10* from (α,2nγ), 588.47 *8* from (n,γ) E=th, and 588.25 *8* from (n,n′γ). I_γ: weighted average of 36.9 *4* from ^{100}Rh ε decay (20.8 h), and 36.6 *9* from (n,n′γ). Others: 68 *11* from (α,2nγ), 71 *9* from (n,γ) E=th are in disagreement. Mult.: from ce data and γγ(θ) in ^{100}Rh ε decay (20.8 h), γ(θ) in (n,n′γ), and RUL. δ(Q/D)=+0.14 *16* from (n,n′γ) would give an unreasonably large B(M2)(W.u.) exceeding RUL.
	604.33@ *5*	1.70@ *8*	1865.110	2+	E1		0.00108	B(E1)(W.u.)=2.3×10^{-5} *+13−11* α(K)=0.000950 *13*; α(L)=0.0001076 *15*; α(M)=1.967×10^{-5} *28* α(N)=3.18×10^{-6} *4*; α(O)=1.667×10^{-7} *23* Mult.: from ce data in ^{100}Rh ε decay (20.8 h).
	1107.222 *14*	100.0 *10*	1362.166	2+	E1			B(E1)(W.u.)=0.00022 *+13−11* E_γ: weighted average of 1107.223 *8* from ^{100}Rh ε decay (20.8 h), 1107.10 *12* from (α,2nγ), 1107.07 *6* from (n,γ) E=th, and 1107.29 *5* from (n,n′γ). I_γ: from ^{100}Rh ε decay (20.8 h). Others: 100.0 *16* from (n,n′γ), 100 *11* from (α,2nγ) and 100 *12* from (n,γ) E=th. Mult.: from ce data and γγ(θ) in ^{100}Rh ε decay (20.8 h), γ(θ) in (n,n′γ), and RUL. δ(Q/D)=−0.10 *13* from (n,n′γ) would give an unreasonably large B(M2)(W.u.) exceeding RUL.
	1929.804 *20*	85.2 *8*	539.5103	2+	E1			B(E1)(W.u.)=3.6×10^{-5} *+21−17*

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
									E_γ: weighted average of 1929.811 *20* from ^{100}Rh ε decay (20.8 h), 1929.74 *6* from (n,γ) E=th, and 1929.80 *7* from (n,n′γ). I_γ: weighted average of 85.6 *8* from ^{100}Rh ε decay (20.8 h) and 84.1 *16* from (n,n′γ). Other: 111 *13* from (n,γ) E=th. Mult.: from ce data and γγ(θ) in ^{100}Rh ε decay (20.8 h), γ(θ) in (n,n′γ), and RUL. δ(Q/D)=−0.8 *9* from (n,n′γ) would give an unreasonably large B(M2)(W.u.) exceeding RUL.
2469.389	2^-	2469.328[@] *22*	1.08[@] *8*	0.0	0^+	M2			B(M2)(W.u.)=0.16 *+10−8* Mult.: from ce data in ^{100}Rh ε decay (20.8 h).
2493.06	$(3,4,5^+)$	430.42 *9*	45.5 *18*	2062.651	4^+				E_γ: unweighted average of 430.34 *4* from (α,2nγ), 430.61 *7* from (n,γ) E=th, and 430.32 *6* from (n,n′γ). I_γ: from (n,n′γ). Other: 100 *13* in (n,γ) E=th is in disagreement.
		612.02 *5*	18.9 *18*	1881.043	3^+				E_γ: weighted average of 612.03 *6* from (n,γ) E=th, and 612.01 *5* from (n,n′γ). Other: 612.055 *18* from (α,2nγ) for a doublet. I_γ: from (n,n′γ). Others: 37 *4* in (n,γ) E=th; doublet in (α,2nγ).
		627.83[‡i] *8*	56[‡] *7*	1865.110	2^+				Placement is considered suspect, since with the reported intensity in (n,γ) E=th, it should have been seen in other studies.
		1266.46 *14*	100.0 *20*	1226.467	4^+	D(+Q)	+0.4 *6*		E_γ: unweighted average of 1266.52 *22* from (α,2nγ), 1266.20 *8* from (n,γ) E=th, and 1266.66 *10* from (n,n′γ). I_γ: from (n,n′γ). Other: 100 *13* from (n,γ) E=th. Mult.,δ: from γ(θ) in (n,n′γ).
2512.411	$(4)^+$	345.518[‡] *12*	5.0[‡] *8*	2166.879	3^-	[E1]		0.00425	α(K)=0.00374 *5*; α(L)=0.000428 *6*; α(M)=7.82×10^{-5} *11* α(N)=1.259×10^{-5} *18*; α(O)=6.45×10^{-7} *9* B(E1)(W.u.)=0.00047 *+28−24*
		413.42 *7*	16.6 *13*	2099.103	2^+	[E2]		0.0095	B(E2)(W.u.)=3.5×10^2 *+21−18* α(K)=0.00823 *12*; α(L)=0.001042 *15*; α(M)=0.0001916 *27* α(N)=3.05×10^{-5} *4*; α(O)=1.416×10^{-6} *20* E_γ: weighted average of 413.43 *7* from (n,γ) E=th and 413.28 *25* from (n,n′γ). I_γ: weighted average of 24 *4* from (n,γ) E=th and 16.4 *7* from (n,n′γ).
		450.04[‡] *19*	4.7[‡] *12*	2062.651	4^+				
		631.382 *20*	100.0 *17*	1881.043	3^+	M1+E2	+0.41 *5*	0.00270	B(M1)(W.u.)=0.09 *+6−5*; B(E2)(W.u.)=36 *+24−19* α(K)=0.002365 *33*; α(L)=0.000273 *4*; α(M)=5.01×10^{-5} *7* α(N)=8.10×10^{-6} *11*; α(O)=4.29×10^{-7} *6* E_γ: weighted average of 631.35 *3* from ^{100}Rh ε decay (20.8 h), 631.41 *5* from (α,2nγ), 631.393 *20* from (n,γ) E=th, and 631.38 *3* from (n,n′γ). I_γ: from (n,n′γ). Others: 100 *3* from ^{100}Rh ε decay (20.8 h),

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π	Mult. [f]	α [g]	Comments
								100 *6* from (n,γ) E=th, and 100 *14* from (α,2nγ).
								Mult.,δ: D+Q from γ(θ) in (n,n′γ); M2 ruled out by RUL.
2512.411	(4)$^+$	1150.44 *10*	10 *4*	1362.166	2$^+$	[E2]		B(E2)(W.u.)=1.3 *+9−8*
								E_γ: weighted average of 1150.6 *3* from (n,γ) E=th and 1150.42 *10* from (n,n′γ).
								I_γ: unweighted average of 5.8 *12* from (n,γ) E=th and 13.4 *11* from (n,n′γ).
		1285.82[‡] *15*	12.4[‡] *19*	1226.467	4$^+$			
		1972.91 *6*	49 *6*	539.5103	2$^+$	(E2)		B(E2)(W.u.)=0.41 *+25−20*
								E_γ: weighted average of 1972.91 *6* from ^{100}Rh ε decay (20.8 h), 1972.83 *25* from (α,2nγ), 1972.96 *7* from (n,γ) E=th, and 1972.85 *9* from (n,n′γ).
								I_γ: unweighted average of 63 *4* from ^{100}Rh ε decay (20.8 h), 41 *10* from (α,2nγ), 36 *5* from (n,γ) E=th, and 54.3 *13* from (n,n′γ).
								Mult.: (Q), ΔJ=(2) from γ(θ) in γ(θ) in (n,n′γ), ΔJ=0 is also possible; M2 ruled out by RUL.
2516.827	1$^-$	349.960[@] *16*	6.71[@] *23*	2166.879	3$^-$	[E2]	0.0161	α(K)=0.01394 *20*; α(L)=0.001813 *25*; α(M)=0.000334 *5*
								α(N)=5.29×10^{-5} *7*; α(O)=2.368×10^{-6} *33*
								B(E2)(W.u.)=7.3×10^2 *+25−22*
								B(E2)(W.u.)=730 exceeds RUL=300; this γ could be questionable.
		465.148 *17*	27 *3*	2051.661	0$^+$	[E1]	0.0020	α(K)=0.001759 *25*; α(L)=0.0002003 *28*; α(M)=3.66×10^{-5} *5*
								α(N)=5.91×10^{-6} *8*; α(O)=3.07×10^{-7} *4*
								B(E1)(W.u.)=0.0024 *+8−7*
								E_γ: weighted average of 465.15 *3* from ^{100}Rh ε decay (20.8 h), 465.148 *17* from (n,γ) E=th, and 465.11 *15* from (n,n′γ).
								I_γ: unweighted average of 22.7 *2* from ^{100}Rh ε decay (20.8 h), 25.7 *19* from (n,γ) E=th, 33 *3* from (n,n′γ) is in disagreement.
		651.708 *10*	100.0 *10*	1865.110	2$^+$	E1		B(E1)(W.u.)=0.0032 *+11−9*
								E_γ: weighted average of 651.707 *6* from ^{100}Rh ε decay (20.8 h), 651.88 *7* from (n,γ) E=th, and 651.72 *4* from (n,n′γ).
								I_γ: from ^{100}Rh ε decay (20.8 h). Others: 100 *3* from (n,n′γ), 100 *14* from (n,γ) E=th.
								Mult.: from ce data in ^{100}Rh ε decay (20.8 h) and RUL.
		775.832 *11*	20 *6*	1741.011	0$^+$	[E1]		B(E1)(W.u.)=0.00038 *16*
								E_γ: weighted average of 775.831 *11* from ^{100}Rh ε decay (20.8 h), 775.97 *23* from (n,γ) E=th, and 775.95 *13* from (n,n′γ).
								I_γ: unweighted average of 21.0 *3* from ^{100}Rh ε decay (20.8 h), 10 *5* from (n,γ) E=th, and 29.0 *19* from (n,n′γ).
		1154.50 *15*	52.3 *5*	1362.166	2$^+$	(E1)		B(E1)(W.u.)=3.0×10^{-4} *+10−9*
								E_γ: unweighted average of 1154.680 *10* from ^{100}Rh ε decay (20.8 h), 1154.21 *13* from (n,γ) E=th, and 1154.60 *8* from (n,n′γ).
								I_γ: weighted average of 52.4 *5* from ^{100}Rh ε decay (20.8 h), 52 *10* from (n,γ) E=th, and 49 *3* from (n,n′γ).
								Mult.: D from γγ(θ) in ^{100}Rh ε decay (20.8 h); polarity from level-parity change.

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. [f]	α [g]	Comments
2516.827	1⁻	1386.51 *6*	78 *16*	1130.305	0⁺	(E1)		B(E1)(W.u.)=0.00026 *9* E_γ: weighted average of 1386.521 *10* from ^{100}Rh ε decay (20.8 h) and 1386.43 *6* from (n,n′γ). Other: 1385.86 *8* from (n,γ) E=th. I_γ: unweighted average of 86.0 *7* from ^{100}Rh ε decay (20.8 h) and 100 *3* from (n,n′γ), 48 *5* from (n,γ) E=th. Mult.: D from γγ(θ) in ^{100}Rh ε decay (20.8 h); polarity from level-parity change.
		1977.37 *16*	51 *9*	539.5103	2⁺	(E1)		B(E1)(W.u.)=5.8×10^{-5} *+20−19* E_γ: unweighted average of 1977.24 *4* from ^{100}Rh ε decay (20.8 h), 1977.69 *13* from (n,γ) E=th, and 1977.18 *13* from (n,n′γ). I_γ: unweighted average of 57.5 *11* from ^{100}Rh ε decay (20.8 h), 33 *5* from (n,γ) E=th, and 61.3 *22* from (n,n′γ). Mult.: δ(Q/D)=0.11 *15* from γγ(θ) in ^{100}Rh ε decay (20.8 h); polarity from level-parity change.
		2516.86@ *5*	5.08@ *16*	0.0	0⁺	[E1]	0.0010	α(K)=7.24×10^{-5} *10*; α(L)=8.00×10^{-6} *11*; α(M)=1.459×10^{-6} *20* α(N)=2.368×10^{-7} *33*; α(O)=1.281×10^{-8} *18*; α(IPF)=0.000953 *13* B(E1)(W.u.)=2.8×10^{-6} *+10−8*
2527.247	5⁻	175.84[a] *6*	2.08[a] *18*	2351.240	4⁺	[E1]	0.0274	α(K)=0.02403 *34*; α(L)=0.00279 *4*; α(M)=0.000509 *7* α(N)=8.13×10^{-5} *11*; α(O)=3.99×10^{-6} *6* B(E1)(W.u.)=0.0016 *+17−10*
		360.371 *9*	6.0 *6*	2166.879	3⁻	E2	0.01468	α(K)=0.01268 *18*; α(L)=0.001642 *23*; α(M)=0.000302 *5* α(N)=4.79×10^{-5} *7*; α(O)=2.16×10^{-6} *3* B(E2)(W.u.)=2.7×10^{2} *+29−16* E_γ: weighted average of 360.331 *23* from (α,2nγ) and 360.373 *5* from (n,γ) E=th. I_γ: unweighted average of 5.43 *9* from (α,2nγ) and 6.6 *4* from (n,γ) E=th. Mult.: Q from γ(θ) in (α,2nγ); M2 ruled out by RUL.
		451.58‡ *3*	1.36‡ *12*	2075.675	6⁺	[E1]	0.00215	α(K)=0.001891 *26*; α(L)=0.0002155 *30*; α(M)=3.94×10^{-5} *6* α(N)=6.35×10^{-6} *9*; α(O)=3.30×10^{-7} *5* B(E1)(W.u.)=6×10^{-5} *+7−4*
		464.9‡*i* *10*	14‡ *7*	2062.651	4⁺	[E1]	0.0020	α(K)=0.001761 *26*; α(L)=0.0002006 *30*; α(M)=3.67×10^{-5} *5* α(N)=5.91×10^{-6} *9*; α(O)=3.07×10^{-7} *5* B(E1)(W.u.)=0.0006 *+7−4*
		1300.780 *19*	100.0 *9*	1226.467	4⁺	E1		B(E1)(W.u.)=0.00019 *+20−11* E_γ: weighted average of 1300.792 *12* from (α,2nγ), 1300.764 *18* from (n,γ) E=th, and 1300.71 *4* from (n,n′γ). Others: 1301.3 *3* from (^{36}S,α2nγ) and 1301.6 *3* from (α,4nγ). I_γ: from (α,2nγ). Mult.: δ(Q/D)=+0.004 *6* from γ(θ) in (α,2nγ), +0.05 *7* from γ(θ) in (n,n′γ); δ(M2/E1)=−0.07 *3* from γ(θ) and γ(lin pol) in (α,4nγ).
2536.194	3	295.49‡*i* *8*	32‡ *5*	2240.804	2⁺			Placement is considered suspect (by evaluators) since with the reported intensity in (n,γ) E=th, it should have been seen in other studies.

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	Comments
2536.194	3	655.156[‡] *12*	8.9[‡] *6*	1881.043	3^+			
		671.2 *3*	1.8 *4*	1865.110	2^+			E_γ: weighted average of 671.3 *6* from ^{100}Rh ε decay (20.8 h) and 671.2 *3* from (n,γ) E=th. I_γ: weighted average of 1.8 *4* from ^{100}Rh ε decay (20.8 h) and 2.2 *11* from (n,γ) E=th.
		1173.99[‡] *9*	5.6[‡] *11*	1362.166	2^+			
		1309.65 *14*	11.4 *6*	1226.467	4^+			E_γ: weighted average of 1309.8 *3* from ^{100}Rh ε decay (20.8 h), 1309.5 *3* from (α,2nγ), 1309.41 *13* from (n,γ) E=th, and 1309.94 *14* from (n,n′γ). I_γ: weighted average of 13.5 *25* from ^{100}Rh ε decay (20.8 h), 10.0 *11* from (n,γ) E=th, and 11.7 *6* from (n,n′γ). Other: 42 *8* in (α,2nγ) is in disagreement.
		1996.62 *3*	100.0 *6*	539.5103	2^+	D(+Q)	+0.02 *3*	E_γ: weighted average of 1996.59 *3* from ^{100}Rh ε decay (20.8 h), 1996.81 *13* from (α,2nγ), 1996.69 *6* from (n,γ) E=th, and 1996.62 *8* from (n,n′γ). I_γ: from (n,n′γ). Others: 100.0 *16* from ^{100}Rh ε decay (20.8 h), 100 *8* from (α,2nγ) and 100 *12* from (n,γ) E=th. Mult.,δ: from γ(θ) in (n,n′γ). Other: δ=−0.2 *3* from γ(θ) in (α,2nγ).
2543.71	2^+	662.68 *17*	11.0 *22*	1881.043	3^+			E_γ: weighted average of 662.99 *21* from ^{100}Rh ε decay (20.8 h), 662.54 *17* from (n,γ) E=th, and 662.56 *25* from (n,n′γ). I_γ: weighted average of 12 *3* from ^{100}Rh ε decay (20.8 h), 6.6 *3.4* from (n,γ) E=th, and 12.3 *22* from (n,n′γ).
		678.62 *3*	65 *3*	1865.110	2^+			E_γ: weighted average of 678.65 *3* from ^{100}Rh ε decay (20.8 h), 678.54 *14* from (α,2nγ), 678.60 *7* from (n,γ) E=th, and 678.59 *4* from (n,n′γ). I_γ: weighted average of 78 *6* from ^{100}Rh ε decay (20.8 h), 71 *12* from (α,2nγ), 55 *7* from (n,γ) E=th, and 64.0 *22* from (n,n′γ).
		1181.42 *7*	100.0 *22*	1362.166	2^+	M1+E2	−0.12 *9*	B(M1)(W.u.)=0.011 *+7−6*; B(E2)(W.u.)=0.11 *+26−9* E_γ: unweighted average of 1181.49 *5* from ^{100}Rh ε decay (20.8 h), 1181.43 *12* from (α,2nγ), 1181.21 *7* from (n,γ) E=th, and 1181.53 *4* from (n,n′γ). I_γ: from (n,n′γ). Others: 100 *6* from (α,2nγ), 100 *14* from (n,γ) E=th, 100 *5* from ^{100}Rh ε decay (20.8 h). Mult.: D+Q from γ(θ) in (n,n′γ); M2 ruled out by RUL. δ: from γ(θ) in (n,n′γ), with +3.5 *12* is possible.
		1413.19[‡][i] *7*	46[‡] *7*	1130.305	0^+			Placement is considered suspect (by evaluators) since with the reported intensity in (n,γ) E=th, it should have been seen in other studies.
		2004.31 *9*	48 *5*	539.5103	2^+			E_γ: weighted average of 2004.30 *13* from ^{100}Rh ε decay (20.8 h), 2004.01 *13* from (α,2nγ), 2004.44 *7* from (n,γ) E=th, and 2004.20 *12* from (n,n′γ). I_γ: unweighted average of 53 *4* from ^{100}Rh ε decay (20.8 h) and 42.6 *17* from (n,n′γ). Others: 147 *12* in (α,2nγ) and 179 *23* in (n,γ) E=th are in disagreement.
		2543.58 *9*	38 *7*	0.0	0^+			E_γ: weighted average of 2543.60 *9* from ^{100}Rh ε decay (20.8 h), 2543.5 *3* from (n,γ) E=th, and 2543.4 *3* from (n,n′γ). I_γ: weighted average of 49.4 *24* from ^{100}Rh ε decay (20.8 h), 36 *7* from (n,γ) E=th, and 27.3 *17* from (n,n′γ).

$^{100}_{44}Ru_{56}$-23

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
2569.912	(3)$^-$	329.058[‡e] *12*	1.44[‡] *21*	2240.804	2$^+$				E_γ: level-energy difference=329.096.
		403.042 *24*	100.0 *19*	2166.879	3$^-$	(M1+E2)	+1.58 *7*	0.00958 *15*	α(K)=0.00832 *12*; α(L)=0.001037 *16*; α(M)=0.0001905 *29* α(N)=3.04×10^{-5} *5*; α(O)=1.452×10^{-6} *21* E_γ: weighted average of 403.07 *11* from ^{100}Rh ε decay (20.8 h), 403.092 *15* from (α,2nγ), 403.013 *10* from (n,γ) E=th, and 403.14 *4* from (n,n′γ). I_γ: from (n,n′γ). Others: 100 *5* from (n,γ) E=th, 100 *20* from ^{100}Rh ε decay (20.8 h), 100 *13* from (n,nγ) E=res. Mult.: D+Q from γ(θ) in (α,2nγ) and (n,n′γ); polarity from no level-parity change. δ: from (α,2nγ). Other: +0.08 *8* or +1.36 *20* from (n,n′γ).
		470.82 *3*	3.2 *4*	2099.103	2$^+$				E_γ: weighted average of 470.98 *17* from ^{100}Rh ε decay (20.8 h) and 470.82 *3* from (n,γ) E=th. I_γ: weighted average of 3.7 *8* from ^{100}Rh ε decay (20.8 h) and 3.1 *4* from (n,γ) E=th.
		688.89 *3*	3.9 *3*	1881.043	3$^+$				E_γ: weighted average of 689.3 *5* from (α,2nγ) and 688.89 *3* from (n,γ) E=th. I_γ: from (n,γ) E=th.
		1207.68 *6*	61 *13*	1362.166	2$^+$				E_γ: unweighted average of 1207.50 *3* from ^{100}Rh ε decay (20.8 h), 1207.70 *5* from (α,2nγ), 1207.74 *7* from (n,γ) E=th, and 1207.78 *6* from (n,n′γ). I_γ: unweighted average of 52 *7* from ^{100}Rh ε decay (20.8 h), 31 *4* from (n,γ) E=th, 90 *30* from (n,γ) E=res, and 70.4 *21* from (n,n′γ).
		1343.47 *3*	56 *4*	1226.467	4$^+$				E_γ: weighted average of 1343.44 *5* from ^{100}Rh ε decay (20.8 h), 1343.49 *3* from (n,γ) E=th, and 1343.39 *10* from (n,n′γ). I_γ: weighted average of 60 *12* from ^{100}Rh ε decay (20.8 h), 58 *4* from (n,γ) E=th, and 51 *6* from (n,n′γ).
		2030.55 *8*	10.6 *14*	539.5103	2$^+$				E_γ: weighted average of 2030.56 *20* from ^{100}Rh ε decay (20.8 h), 2030.54 *8* from (n,γ) E=th, and 2030.7 *3* from (n,n′γ). I_γ: unweighted average of 11 *3* from ^{100}Rh ε decay (20.8 h), 8.0 *11* from (n,γ) E=th, and 12.9 *14* from (n,n′γ).
2576.872	5$^{(+)}$	695.783 *21*	72 *9*	1881.043	3$^+$	(E2)		0.00214	E_γ: from (n,γ) E=th. Other: 695.8 *3* from (α,2nγ). I_γ: unweighted average of 63 *3* from (α,2nγ) and 80 *6* from (n,γ) E=th. Mult.: Q from γ(θ) in (n,γ) E=th, mostly likely E2.
		1350.431 *20*	100.0 *21*	1226.467	4$^+$	D+Q			E_γ: weighted average of 1350.40 *3* from (α,2nγ), 1350.450 *20* from (n,γ) E=th, and 1350.37 *7* from (n,n′γ).

$^{100}_{44}Ru_{56}$-24

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
									I_γ: from (α,2nγ). Other: 100 *5* from (n,γ) E=th. Mult.,δ: δ(Q/D)=−3.4 *2* or −0.12 *4* from γ(θ) in (α,2nγ).
2591.817	4⁻	240.549[‡e] *8*	3.5[‡] *3*	2351.240	4⁺	[E1]		0.0113	α(K)=0.00994 *14*; α(L)=0.001146 *16*; α(M)=0.0002092 *29* α(N)=3.36×10^{-5} *5*; α(O)=1.684×10^{-6} *24* B(E1)(W.u.)=0.0013 *+11−7*
		424.874[e] *18*	42.7 *24*	2166.879	3⁻	(M1+E2)	+1.2 *3*	0.0080 *3*	B(M1)(W.u.)=0.08 *+8−5*; B(E2)(W.u.)=6×10^2 *+6−4* α(K)=0.00694 *24*; α(L)=0.00085 *4*; α(M)=0.000156 *7* α(N)=2.50×10^{-5} *11*; α(O)=1.223×10^{-6} *33* E_γ: from (n,γ) E=th. Others: 424.83 *21* from (α,2nγ), and 424.88 *17* from (n,n′γ). I_γ: weighted average of 61 *14* from (α,2nγ), 54 *6* from (n,γ) E=th, 85 *23* from (n,γ) E=res, and 41.7 *14* from (n,n′γ). Mult.,δ: (D+Q) from γ(θ) in (α,2nγ); M2 ruled out by RUL.
		710.771 *3*	100.0 *25*	1881.043	3⁺	(E1(+M2))	+0.03 *5*		B(E1)(W.u.)=0.0014 *+14−10* E_γ: from (n,γ) E=th. Others: 710.82 *5* from (α,2nγ), and 710.80 *3* from (n,n′γ). I_γ: from (n,n′γ). Others: 100 *5* from (α,2nγ), 100 *6* from (n,γ) E=th, 100 *12* from (n,γ) E=res. Mult.: D(+Q) from γ(θ) in (n,n′γ) and (α,2nγ); polarity from level scheme. δ: weighted average of +0.02 *5* from (n,n′γ) and +0.05 *8* from (α,2nγ).
		1229.46[‡i] *12*	3.1[‡] *6*	1362.166	2⁺	[M2]		0.00137	α(K)=0.001199 *17*; α(L)=0.0001387 *19*; α(M)=2.55×10^{-5} *4* α(N)=4.13×10^{-6} *6*; α(O)=2.209×10^{-7} *31*; α(IPF)=2.165×10^{-6} *31* this γ is considered questionable by evaluators due to unreasonably large B(M2)(W.u.) of 26 *+25−15*.
		1365.415[c] *12*	81 *6*	1226.467	4⁺	(E1(+M2))	−0.05 *12*		B(E1)(W.u.)=1.6×10^{-4} *+16−12* Unusually large B(E1)(W.u.) casts some doubt on the level half-life. E_γ: weighted average of 1365.40 *3* from (α,2nγ) and 1365.416 *12* from (n,γ) E=th. Other: 1365.49 *9* from (n,n′γ). I_γ: unweighted average of 73.9 *19* from (α,2nγ), 71 *4* from (n,γ) E=th, 96 *8* from (n,γ) E=res, and 85.0 *23* from (n,n′γ). Mult.: D(+Q) from γ(θ) in (α,2nγ); polarity from level scheme.
		1461.19[‡i] *14*	4.4[‡] *6*	1130.305	0⁺	[M4]		0.00289	Placement suspect as ΔJ=4 is involved. this γ is considered questionable by evaluators due to unreasonably large B(M4)(W.u.).
		2052.60[‡] *16*	1.9[‡] *6*	539.5103	2⁺	[M2]			B(M2)(W.u.)=1.2 *+12−8*

$^{100}_{44}Ru_{56}$-25

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.[f]	δ[f]	Comments
2606.07	(2,3)	2066.52 *8*	100	539.5103	2^+			E_γ: weighted average of 2066.55 *8* from (n,γ) E=th and 2066.49 *9* from (n,n′γ).
2617.14	$1,2^+$	752.0[@] *3*	6.8[@] *14*	1865.110	2^+			
		1255.12[‡] *9*	35[‡] *15*	1362.166	2^+			
		2617.09 *5*	100.0 *17*	0.0	0^+			E_γ: weighted average of 2617.07 *4* from ^{100}Rh ε decay (20.8 h), 2617.32 *12* from (n,γ) E=th, and 2617.09 *9* from (n,n′γ). I_γ: from ^{100}Rh ε decay (20.8 h). Other: 100 *9* from (n,γ) E=th.
2660.140	$1,2^+$	560.95[‡] *8*	12.3[‡] *13*	2099.103	2^+			
		2120.59 *7*	100.0 *11*	539.5103	2^+			E_γ: weighted average of 2120.61 *7* from ^{100}Rh ε decay (20.8 h), 2120.55 *11* from (n,γ) E=th, and 2120.57 *11* from (n,n′γ). Other: 2121.2 *7* from ^{100}Tc β^- decay (15.46 s). I_γ: from (n,n′γ). Others: 100 *20* from ^{100}Tc β^- decay (15.46 s), 100 *9* from ^{100}Rh ε decay (20.8 h), 100 *10* from (n,γ) E=th.
		2660.11 *12*	21.6 *11*	0.0	0^+			E_γ: weighted average of 2660.09 *12* from ^{100}Rh ε decay (20.8 h), 2660.0 *4* from (n,γ) E=th, and 2660.22 *20* from (n,n′γ). Other: 2659.5 *10* from ^{100}Tc β^- decay (15.46 s). I_γ: weighted average of 40 *20* from ^{100}Tc β^- decay (15.46 s), 20 *3* from ^{100}Rh ε decay (20.8 h), 23 *7* from (n,γ) E=th, and 21.7 *11* from (n,n′γ).
2660.82	$5^{(+)}$	309.52[a] *9*	11.1[a] *12*	2351.240	4^+			
		598.16[h] *6*	<46[h]	2062.651	4^+			E_γ: weighted average of 598.19 *6* from (n,γ) E=th and 598.11 *17* from (α,2nγ). I_γ: from (α,2nγ), <310 from (n,γ) E=th.
		779.79 *6*	100 *3*	1881.043	3^+	Q		E_γ: from (α,2nγ). Other: 778.980 *14* from (n,γ) E=th differs greatly with level-energy difference. I_γ: from (n,γ) E=th. Other: 100 *6* from (α,2nγ). Mult.: from γ(θ) in (α,2nγ).
		1434.28 *19*	104 *18*	1226.467	4^+	(M1+E2)	+0.38 *4*	E_γ: weighted average of 1434.21 *7* from (n,γ) E=th and 1434.81 *20* from (α,2nγ). I_γ: weighted average of 116 *15* from (n,γ) E=th and 78 *22* from (α,2nγ). Mult.,δ: D+Q from γ(θ) in (α,2nγ), most likely M1+E2.
2666.29	(2,3)	1535.12[‡i] *6*	63[‡] *7*	1130.305	0^+			E_γ: poor fit, level-energy difference=1535.82. Placement is considered suspect (by evaluators) since with the reported intensity in (n,γ) E=th, it should have been seen in other studies.
		2126.86 *7*	100 *13*	539.5103	2^+			E_γ: weighted average of 2126.92 *14* from ^{100}Rh ε decay (20.8 h), 2126.91 *6* from (n,γ) E=th, and 2126.68 *11* from (n,n′γ). I_γ: from (n,γ) E=th.
2705.52	6^+	128.3[a] *3*	1.9[a] *4*	2576.872	$5^{(+)}$			
		629.79[a] *5*	26.0[a] *11*	2075.675	6^+	(M1+E2)	+1.00 *7*	Mult.,δ: ΔJ=0, D+Q from γ(θ) in (α,2nγ).
		642.818[ad] *19*	100.0[a] *15*	2062.651	4^+	Q		Mult.: from γ(θ) in (α,2nγ).

$^{100}_{44}Ru_{56}$-26

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
2705.52	6^+	1479.143[e] *22*	68.0 *11*	1226.467	4^+	Q			Mult.: from γ(θ) in (α,2nγ).
2738.678	$(2^+,3,4^+)$	372.090[‡] *4*	45.2[‡] *23*	2366.588	4^+				
		387.436[‡] *3*	50.3[‡] *17*	2351.240	4^+				
		676.071[‡] *21*	67[‡] *6*	2062.651	4^+				
		857.621 *12*	100 *12*	1881.043	3^+				E_γ: from (n,γ) E=th. Other: 857.71 *23* from (n,n′γ).
		873.66[‡] *5*	48.6[‡] *23*	1865.110	2^+				
2745.60	$(1,2^+)$	693.89[@] *14*	11[@] *3*	2051.661	0^+				
		880.8[@] *3*	17[@] *5*	1865.110	2^+				
		1615.29 *5*	100.0 *14*	1130.305	0^+				E_γ: weighted average of 1615.29 *5* from ^{100}Rh ε decay (20.8 h) and 1615.4 *9* from (n,n′γ). I_γ: from (n,n′γ). Other: 100 *5* from ^{100}Rh ε decay (20.8 h).
		2205.95 *14*	40.5 *14*	539.5103	2^+				E_γ: weighted average of 2205.96 *14* from ^{100}Rh ε decay (20.8 h) and 2205.93 *19* from (n,n′γ). I_γ: weighted average of 35 *6* from ^{100}Rh ε decay (20.8 h) and 40.8 *14* from (n,n′γ).
2747.495	$4^{(-)}$	155.68[a] *4*	32.5[a] *25*	2591.817	4^-	D			Mult.: from γ(θ) in (α,2nγ) with ΔJ=0.
		580.600 *11*	44 *16*	2166.879	3^-	(M1+E2)	+0.62 *16*		E_γ: from (n,γ) E=th. Other: 580.52 *12* from (α,2nγ). I_γ: unweighted average of 27.5 *25* from (α,2nγ) and 60 *4* from (n,γ) E=th. Mult.,δ: D+Q from γ(θ) in (α,2nγ), most likely M1+E2.
		866.466 *12*	39.4 *18*	1881.043	3^+				E_γ: from (n,γ) E=th. Other: 866.29 *21* from (α,2nγ). I_γ: weighted average of 38 *8* from (α,2nγ) and 39.5 *18* from (n,γ) E=th.
		882.63[‡] *16*	1.8[‡] *5*	1865.110	2^+				
		1520.69[d] *8*	100 *5*	1226.467	4^+	(D+Q)	+0.38 *15*		E_γ: weighted average of 1520.83 *12* from (α,2nγ) and 1520.64 *7* from (n,γ) E=th. I_γ: from (α,2nγ). Other: 100 *13* from (n,γ) E=th. Mult.,δ: from γ(θ) in (α,2nγ).
2764.943	$2^+,3^+$	398.6[‡] *4*	33[‡] *11*	2366.588	4^+				
		413.703[‡] *19*	8.8[‡] *6*	2351.240	4^+				
		598.16[h] *6*	<103[h]	2166.879	3^-				I_γ: from (n,n′γ). Other: 208 *27* from (n,γ) E=th.
		883.88[‡] *9*	13[‡] *3*	1881.043	3^+				
		899.87[‡] *10*	13[‡] *3*	1865.110	2^+				
		1538.33 *7*	100 *3*	1226.467	4^+				E_γ: weighted average of 1538.38 *8* from (n,n′γ) and 1538.29 *7* from (n,γ) E=th. I_γ: from (n,n′γ). Other: 100 *13* from (n,γ) E=th.
2775.179	(5^-)	247.943 *17*	100.0 *17*	2527.247	5^-	(M1+E2)	+0.6 *2*	0.033 *4*	α(K)=0.029 *3*; α(L)=0.0037 *5*; α(M)=0.00067 *8* α(N)=0.000107 *13*; α(O)=5.1×10^{-6} *4* E_γ: from (α,2nγ). Other: 248.11 *7* from (n,n′γ).

$^{100}_{44}Ru_{56}$-27

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	Comments
								Mult.,δ: ΔJ=0, (D+Q) from γ(θ) in (α,2nγ), with ΔJ=2 also possible; most likely (M1+E2).
2775.179	(5$^-$)	712.76[a] *13*	20[a] *3*	2062.651	4$^+$			
		1548.70 *12*	<20	1226.467	4$^+$			E_γ,I_γ: from (α,2nγ).
2775.34	2$^+$,3$^+$	1413.18[&] *7*	63.2[&] *16*	1362.166	2$^+$			
		1548.73 *10*	<34	1226.467	4$^+$			E_γ: weighted average of 1548.74 *10* from (n,n′γ) and 1548.4 *8* from ^{100}Rh ε decay (20.8 h).
		2236.09[&] *17*	100.0[&] *25*	539.5103	2$^+$			
2785.193	6$^{(+)}$	709.43[ae] *3*	100.0[a] *22*	2075.675	6$^+$	(M1+E2)	+0.54 *8*	Mult.,δ: ΔJ=0, D+Q from γ(θ) in (α,2nγ), most likely (M1+E2); ΔJ=2 is also possible.
		722.677[ad] *22*	6.7[a] *11*	2062.651	4$^+$	(Q)		E_γ: poor fit, level-energy difference=722.566. Mult.: from γ(θ) in (α,2nγ).
		1558.80[a] *8*	41[a] *4*	1226.467	4$^+$	Q		Mult.: from γ(θ) in (α,2nγ).
2800.84	(2$^+$,3)	1438.69[&] *5*	100.0[&] *13*	1362.166	2$^+$	D(+Q)	+0.01 *5*	Mult.,δ: from γ(θ) in (n,n′γ).
		1574.24[&] *11*	45.4[&] *13*	1226.467	4$^+$			
2801.48	(1$^+$,2,3)	141.27[@] *5*	46[@] *8*	2660.140	1,2$^+$			
		920.6[&] *3*	19.8[&] *7*	1881.043	3$^+$			
		2262.26 *11*	100.0 *7*	539.5103	2$^+$	D+Q		E_γ: weighted average of 2262.1 *5* from ^{100}Rh ε decay (20.8 h), 2262.32 *7* from (n,γ) E=th, and 2261.88 *18* from (n,n′γ). I_γ: from (n,n′γ). Others: 100 *25* from ^{100}Rh ε decay (20.8 h). δ: δ(Q/D)=+0.42 *15* or +3.9 *8* from γ(θ) in (n,n′γ).
2837.71	(1$^+$,2$^+$)	1475.67[&] *19*	9.3[&] *6*	1362.166	2$^+$			
		2298.22 *20*	100.0 *6*	539.5103	2$^+$	D+Q		E_γ: weighted average of 2298.4 *4* from ^{100}Tc β^- decay (15.46 s) and 2298.17 *20* from (n,n′γ). I_γ: from (n,n′γ). δ: δ(Q/D)=+3.0 *5* or −0.07 *4* from γ(θ) in (n,n′γ).
2862.52	(0$^+$ to 4$^+$)	763.33[&] *17*	14[&] *3*	2099.103	2$^+$			
		1500.38[&] *10*	100[&] *3*	1362.166	2$^+$			
2877.57	2$^+$,3$^+$	996.56[a] *15*	97[a] *10*	1881.043	3$^+$	(D(+Q))	+0.05 *20*	Mult.,δ: from γ(θ) in (α,2nγ).
		1515.41 *20*	100 *7*	1362.166	2$^+$			E_γ: unweighted average of 1515.54 *12* from (α,2nγ) and 1515.10 *19* from (n,n′γ). I_γ: from (α,2nγ).
		2337.98[‡i] *22*		539.5103	2$^+$			
2878.44	2$^+$,3,4$^+$	779.54[&] *10*	21.6[&] *10*	2099.103	2$^+$			
		997.41[&] *5*	72.6[&] *14*	1881.043	3$^+$			
		1651.89[&] *5*	100.0[&] *18*	1226.467	4$^+$			
2905.14	(4$^+$)	2365.50 *25*	100	539.5103	2$^+$	(E2)		B(E2)(W.u.)=1.3 *4* Mult.: ΔJ=2, Q from γ(θ) in (n,n′γ); M2 ruled out by RUL. ΔJ=0 is also possible.
2911.47	5$^{(-)}$	384.22[a] *3*	89[a] *4*	2527.247	5$^-$	D+Q		Mult.: ΔJ=0, from γ(θ) in (α,2nγ).

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
2911.47	5(−)	544.91[a] *14*	100[a] *19*	2366.588	4+				
		1685.30[a] *24*	89[a] *15*	1226.467	4+				
2915.545	2−	249.25[@] *3*	0.0373[@] *15*	2666.29	(2,3)				E_γ: poor fit, level-energy difference=249.39.
		255.417[@] *17*	0.0519[@] *12*	2660.140	1,2+				
		298.55[@] *11*	0.0148[@] *22*	2617.14	1,2+				
		345.654[@] *8*	0.243[@] *4*	2569.912	(3)−				
		379.24[@] *5*	0.16[@] *3*	2536.194	3				
		398.716[@] *6*	0.429[@] *5*	2516.827	1−				
		403.07[@i] *11*	0.22[@] *7*	2512.411	(4)+	[M2]		0.0289	α(K)=0.02502 *35*; α(L)=0.00316 *4*; α(M)=0.000586 *8* α(N)=9.45×10^{-5} *13*; α(O)=4.85×10^{-6} *7* This γ is considered questionable by evaluators due to unreasonably large B(M2)(W.u.)=4.0×10^{2} *+38−26*.
		446.153 *5*	36.7 *4*	2469.389	2−	M1(+E2)	<0.45	0.00624 *15*	B(M1)(W.u.)=0.12 *+7−6* α(K)=0.00546 *12*; α(L)=0.000638 *19*; α(M)=0.0001170 *35* α(N)=1.89×10^{-5} *5*; α(O)=9.93×10^{-7} *19* Mult.,δ: from ce data in ^{100}Rh ε decay (20.8 h).
		748.666[@] *7*	2.77[@] *3*	2166.879	3−	M1,E2		0.00179	α(K)=0.001572 *32*; α(L)=0.0001825 *26*; α(M)=3.34×10^{-5} *5* α(N)=5.40×10^{-6} *8*; α(O)=2.82×10^{-7} *9* Mult.: from ce data in ^{100}Rh ε decay (20.8 h).
		816.454[@] *16*	1.146[@] *12*	2099.103	2+	(E1+M2)	0.7 *6*	0.0017 *11*	α(K)=0.0014 *9*; α(L)=1.7×10^{-4} *11*; α(M)=3.1×10^{-5} *20* α(N)=5.0×10^{-6} *33*; α(O)=2.7×10^{-7} *17* B(E1)(W.u.)=6.0×10^{-6} *+31−37*; B(M2)(W.u.)=20 *+23−16* Mult.,δ: D+Q from γγ(θ) in ^{100}Rh ε decay (20.8 h); polarity from spin-parity change.
		1034.510[@] *8*	4.74[@] *5*	1881.043	3+	(E1)			B(E1)(W.u.)=1.8×10^{-5} *+9−8* Mult.: from ce data in ^{100}Rh ε decay (20.8 h).
		1553.348 *10*	63.3 *6*	1362.166	2+	E1			B(E1)(W.u.)=7.2×10^{-5} *+33−31* Mult.: from ce data in ^{100}Rh ε decay (20.8 h).
		2375.976 *16*	100.0 *10*	539.5103	2+	E1			B(E1)(W.u.)=3.2×10^{-5} *+15−14* Mult.: from ce data in ^{100}Rh ε decay (20.8 h).
		2915.42[@] *7*	0.22[@] *7*	0.0	0+	[M2]			B(M2)(W.u.)=0.020 *+12−11*
2933.65	(1,2)+	2933.60 *10*	100	0.0	0+				
2951.10	2+,3,4+	1589.1[&] *3*	14.2[&] *15*	1362.166	2+				
		1724.62[&] *8*	100.0[&] *22*	1226.467	4+				E_γ: poor fit, level-energy difference=1724.99.

$^{100}_{44}Ru_{56}$-29

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
2951.10	2+,3,4+	2411.41[&] *21*	70.6[&] *24*	539.5103	2+				
2951.552	7−	166.38[a] *15*	0.19[a] *6*	2785.193	6(+)				
		245.97[a] *8*	0.84[a] *6*	2705.52	6+				
		424.318 *14*	16.7 *11*	2527.247	5−	(E2)		0.00876	E_γ: from (α,2nγ). Others: 423.8 *5* from (^{36}S,α2nγ), and 424.3 *3* from (α,4nγ). I_γ: weighted average of 17 *4* from (^{36}S,α2nγ), 13.5 *19* from (α,2nγ), and 17.4 *9* from (α,4nγ). Mult.: Q from γ(DCO) in (^{36}S,α2nγ), γ(θ) in (α,2nγ) and (α,4nγ); ce data in (α,4nγ) indicates (E2).
		876.26 *24*	100.0 *8*	2075.675	6+	E1			E_γ: unweighted average of 876.2 *1* from (^{36}S,α2nγ), 875.878 *12* from (α,2nγ), and 876.7 *3* from (α,4nγ). I_γ: from (α,2nγ). Others: 100 *4* from (^{36}S,α2nγ), 100 *9* from (α,4nγ). Mult.: from γ(θ) in (α,2nγ), γ(DCO) and γ(pol) in (^{36}S,α2nγ), and γ(θ,pol) and ce data in (α,4nγ). δ(M2/E1)=−0.02 *3* from (α,2nγ).
2963.626	6−	188[a]	[a]	2775.179	(5−)				
		371.774[a] *19*	28.0[a] *5*	2591.817	4−	E2			Mult.: Q from γ(θ) in (α,2nγ); M2 ruled out since it would require an isomeric half-life by RUL, which is unlikely.
		436.352[h] *18*	<38[h]	2527.247	5−	(M1+E2)	+2.8 *20*	0.0079 *8*	E_γ,I_γ: from (α,2nγ). Others: Eγ=436.5 *5* and Iγ=50 *25* from (^{36}S,α2nγ), Eγ=436.4 *3* and Iγ=39.0 *25* from (α,4nγ). Mult.,δ: from γ(θ) and ce data in (α,4nγ). Other: δ(Q/D)=+0.69 *25* from γ(θ) in (α,2nγ) for a doublet.
		887.43 *24*	100.0 *14*	2075.675	6+	E1(+M2)	−0.08 *10*		E_γ: unweighted average of 888.5 *5* from (^{36}S,α2nγ), 887.981 *17* from (α,2nγ), and 888.8 *3* from (α,4nγ). I_γ: from (α,2nγ). Others: 100 *5* from (α,4nγ), 100 *25* from (^{36}S,α2nγ). Mult.,δ: ΔJ=0, δ(Q/D)=−0.08 *10* from γ(θ) in (α,2nγ); E1(+M2) from γ(θ,pol) and ce data in (α,4nγ), with δ(M2/E1)=+0.4 *7*.
2967.57	6(+)	262.08[a] *3*	34.1[a] *11*	2705.52	6+	(D(+Q))	+0.17 *22*		
		891.67[a] *8*	61[a] *3*	2075.675	6+	(M1+E2)	−0.17 *8*		Mult.: (D+Q) from γ(θ) in (α,2nγ), most likely (M1+E2) by RUL.
		904.80[a] *5*	100[a] *5*	2062.651	4+				
		1741.24[a] *7*	43.2[a] *23*	1226.467	4+	Q			
2983.04	(0 to 4)+	2444.25[‡i] *8*	100[‡]	539.5103	2+				E_γ: poor fit, level-energy difference=2443.78.

$^{100}_{44}Ru_{56}$-30

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. f	α g	Comments
2999.32	(0$^+$ to 4$^+$)	2459.39 & *24*	100 &	539.5103	2$^+$			
3060.051	8$^+$	984.81 *22*	100	2075.675	6$^+$	E2		E_γ: unweighted average of 984.8 *1* from (^{36}S,α2nγ), 984.439 *12* from (α,2nγ), and 985.2 *3* from (α,4nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(θ) and ce data in (α,4nγ), γ(θ) in (α,2nγ).
3060.14	1,2$^+$	1698.32 @ *24*	21 @ *3*	1362.166	2$^+$			
		2520.56 @ *5*	28.6 @ *9*	539.5103	2$^+$			
		3060.20 *11*	100.0 *17*	0.0	0$^+$			E_γ: weighted average of 3060.25 *11* from ^{100}Rh ε decay (20.8 h) and 3059.97 *24* from (n,n′γ).
3064.61	4$^+$	2525.26 & *17*	100 &	539.5103	2$^+$	E2		B(E2)(W.u.)=5.4 *+13−12* Mult.: Q from γ(θ) in (n,n′γ); M2 ruled out by RUL.
3069.525	(1,2)$^-$	154.007 @ *10*	1.03 @ *3*	2915.545	2$^-$			
		409.18 @ *8*	0.26 @ *3*	2660.140	1,2$^+$			
		499.599 @ *7*	4.41 @ *6*	2569.912	(3)$^-$	M1,E2	0.0050 *4*	Mult.: from ce data in ^{100}Rh ε decay (20.8 h).
		533.52 @ *7*	3.5 @ *6*	2536.194	3	[E1]		
		552.706 @ *8*	4.31 @ *4*	2516.827	1$^-$			
		600.124 @ *6*	9.20 @ *9*	2469.389	2$^-$	M1,E2	0.00310 *9*	Mult.: from ce data in ^{100}Rh ε decay (20.8 h).
		828.70 @ *4*	0.48 @ *8*	2240.804	2$^+$	[E1]		
		902.673 @ *19*	3.75 @ *16*	2166.879	3$^-$			
		1204.46 @ *5*	1.16 @ *8*	1865.110	2$^+$	[E1]		
		1707.44 @ *6*	6.61 @ *9*	1362.166	2$^+$	[E1]		
		2529.969 *20*	100.0 *8*	539.5103	2$^+$	D+Q		E_γ,I_γ: from ^{100}Rh ε decay (20.8 h). Other: Eγ=2530.06 *18*, Iγ=100 from (n,n′γ). Mult.: from γγ(θ) in ^{100}Rh ε decay (20.8 h).
		3069.44 *16*	0.09 *9*	0.0	0$^+$	[M2]		E_γ,I_γ: from ^{100}Rh ε decay (20.8 h). Other: a questionable strong 3070.2γ reported in (n,γ) E=th.
3072.268	2$^+$	555.42 @ *4*	7.6 @ *4*	2516.827	1$^-$	[E1]	0.00131	α(K)=0.001153 *16*; α(L)=0.0001308 *18*; α(M)=2.391×10^{-5} *33* α(N)=3.86×10^{-6} *5*; α(O)=2.019×10^{-7} *28* B(E1)(W.u.)=0.00031 *+18−15*
		602.91 @ *4*	17 @ *3*	2469.389	2$^-$	[E1]	0.00109	B(E1)(W.u.)=0.00054 *+25−23* α(K)=0.000955 *13*; α(L)=0.0001082 *15*; α(M)=1.978×10^{-5} *28* α(N)=3.20×10^{-6} *4*; α(O)=1.676×10^{-7} *23*
		831.272 @ i *19*	23.8 @ *6*	2240.804	2$^+$			
		905.60 @ *21*	24.1 @ *21*	2166.879	3$^-$	[E1]		B(E1)(W.u.)=0.00022 *+10−9*
		973.15 @ *4*	12.7 @ *11*	2099.103	2$^+$			
		1191.16 @ e *4*	15.1 @ *10*	1881.043	3$^+$			
		1207.50 @ c *3*	12 @ *3*	1865.110	2$^+$			E_γ,I_γ: for doublet in ^{100}Rh ε decay (20.8 h).
		1710.07 *3*	100.0 *21*	1362.166	2$^+$			E_γ: weighted average of 1710.07 *3* from ^{100}Rh ε decay (20.8

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
									h) and 1710.00 *12* from (n,n′γ). I_γ: from ^{100}Rh ε decay (20.8 h). Other: 100 *4* from (n,n′γ).
3072.268	2^+	3071.80[d] *12*	14.6 *9*	0.0	0^+	[E2]			B(E2)(W.u.)=0.024 *+11−10* E_γ: weighted average of 3071.80 *12* from ^{100}Rh ε decay (20.8 h) and 3071.86 *24* from (n,n′γ). I_γ: ^{100}Rh ε decay (20.8 h). Other: 106 *4* from (n,n′γ) is in disagreement. E_γ: level-energy difference=3072.20.
3110.57	$(2^+,3^+)$	943.70 *16*	100	2166.879	3^-	[E1]			E_γ: weighted average of 943.62 *16* from (α,2nγ) and 943.79 *16* from (n,n′γ).
3118.67	$(0^+$ to $4^+)$	1756.21[&] *21*	34.1[&] *22*	1362.166	2^+				
		2579.28[&] *16*	100.0[&] *22*	539.5103	2^+				
3139.303	7^-	175.55[a] *6*	5.3[a] *8*	2963.626	6^-				
		187.759 *13*	54 *4*	2951.552	7^-	(D+Q)	+0.17 *10*		E_γ: weighted average of 187.5 *5* from (^{36}S,α2nγ), 187.760 *13* from (α,2nγ), and 187.4 *3* from (α,4nγ). I_γ: weighted average of 76 *26* from (^{36}S,α2nγ), 56.1 *21* from (α,2nγ), and 43 *5* from (α,4nγ). Mult.,δ: from γ(θ) in (α,2nγ).
		228.1[a] *5*	2.0[a] *12*	2911.47	$5^{(-)}$				
		354.09[a] *4*	9.4[a] *4*	2785.193	$6^{(+)}$	D(+Q)	+0.04 *6*		Mult.,δ: from γ(θ) in (α,2nγ).
		612.057 *18*	100.0 *17*	2527.247	5^-	E2		0.00301	α(K)=0.00263 *4*; α(L)=0.000316 *4*; α(M)=5.80×10^{-5} *8* α(N)=9.31×10^{-6} *13*; α(O)=4.61×10^{-7} *6* E_γ: weighted average of 612.4 *5* from (^{36}S,α2nγ), 612.055 *18* from (α,2nγ), and 612.4 *3* from (α,4nγ). I_γ: from (α,2nγ) for a doublet, but most intensity belongs with 3140 level. Others: 100 *10* from (α,4nγ), 100 *26* from (^{36}S,α2nγ). Mult.: from γ(θ) in (α,2nγ), γ(θ) and ce data in (α,4nγ).
		1063.8 *4*	37.3 *8*	2075.675	6^+	D(+Q)	−0.03 *5*		E_γ: unweighted average of 1063.3 *5* from (^{36}S,α2nγ), 1063.67 *3* from (α,2nγ), and 1064.5 *3* from (α,4nγ). I_γ: from (α,2nγ). Others: <81 from (α,4nγ); 200 *50* from (^{36}S,α2nγ) is in disagreement. Mult.,δ: from γ(θ) in (α,2nγ).
3218.111	$(8)^-$	254.486 *19*	100	2963.626	6^-	E2		0.0469	α(K)=0.0401 *6*; α(L)=0.00559 *8*; α(M)=0.001032 *14* α(N)=0.0001618 *23*; α(O)=6.63×10^{-6} *9* E_γ: from (α,2nγ) only. Mult.: Q from γ(θ) in (α,2nγ); M2 ruled out since it would require an isomeric half-life (>0.45 μs) by RUL, which is unlikely.
3263.664	$8^{(+)}$	203.590 *24*	79.0 *25*	3060.051	8^+	D			E_γ: weighted average of 202.6 *5* from (^{36}S,α2nγ),

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
									203.590 *14* from (α,2nγ), and 204.0 *3* from (α,4nγ). I_γ: from (α,2nγ). Other: 100 *15* from (α,4nγ). Mult.: δ(Q/D)=+0.18 *20* from γ(θ) in (α,2nγ); ΔJ=0, D from γ(DCO) in (^{36}S,α2nγ).
3263.664	8(+)	478.467[a] *22*	52.2[a] *13*	2785.193	6(+)	Q			
		557.98[ad] *3*	34.4[a] *6*	2705.52	6+	Q			
		1188.012 *20*	100.0 *13*	2075.675	6+	Q			E_γ: weighted average of 1188.012 *20* from (α,2nγ) and 1188.1 *10* from (α,4nγ). I_γ: from (α,2nγ). Other: 100 *15* from (α,4nγ). Mult.: from γ(θ) in (α,2nγ).
3323.70	(1,2+)	806.93[@e] *6*	9.7[@] *10*	2516.827	1−				
		854.32[@] *6*	7.57[@] *10*	2469.389	2−				
		1224.63[@] *13*	6.9[@] *10*	2099.103	2+				
		1272.01[@] *11*	5.6[@] *10*	2051.661	0+				
		2193.40[@e] *4*	9.1[@] *9*	1130.305	0+				
		2784.29[@c] *5*	100.0[@] *10*	539.5103	2+	D+Q			Mult.,δ: δ(Q/D)=0.61 *+18−3* for J=2, and 5.1 *+120−25* or −0.05 *20* for J=1 from γγ(θ) in ^{100}Rh ε decay (20.8 h).
		3323.91[@] *22*	5.2[@] *3*	0.0	0+				
3354.637	8−	91.7[ai] *10*	2.4[a] *7*	3263.664	8(+)				
		215.48[ae] *3*	9.3[a] *5*	3139.303	7−				
		294.61[a] *3*	8.83[a] *24*	3060.051	8+	D(+Q)	+0.08 *20*		Mult.,δ: from γ(θ) in (α,2nγ) with ΔJ=0.
		390.981 *14*	100.0 *10*	2963.626	6−	E2		0.01131	α(K)=0.00979 *14*; α(L)=0.001251 *18*; α(M)=0.000230 *4* α(N)=3.66×10^{-5} *6*; α(O)=1.679×10^{-6} *24* E_γ: from (α,2nγ). Others: 390.9 *5* from (^{36}S,α2nγ) and 391.0 *3* from (α,4nγ). I_γ: from (α,2nγ). Others: 100 *6* from (α,4nγ), 100 *17* from (^{36}S,α2nγ). Mult.: from γ(θ,pol) and ce data in (α,4nγ), γ(DCO) in (^{36}S,α2nγ), and γ(θ) in (α,2nγ).
		403.092 *15*	<35	2951.552	7−	E2+M1	+1.58 *7*	0.00958 *15*	α(K)=0.00832 *12*; α(L)=0.001036 *16*; α(M)=0.0001905 *29* α(N)=3.04×10^{-5} *5*; α(O)=1.451×10^{-6} *21* E_γ: from (α,2nγ). Others: 403.7 *5* from (^{36}S,α2nγ) and 403.2 *3* from (α,4nγ). I_γ: from (α,2nγ). Others: 67 *17* from (^{36}S,α2nγ), 55 *3* from (α,4nγ). Mult.: from γ(θ,pol) and ce data in (α,4nγ).
3368.982	(7−)	229.69[a] *5*	14.7[a] *9*	3139.303	7−	(D(+Q))	+0.02 *15*		
		405.5[a] *5*	4.6[a] *28*	2963.626	6−				

$^{100}_{44}Ru_{56}$-33

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
3368.982	(7⁻)	417.407[a] *20*	100.0[a] *18*	2951.552	7⁻	(M1+E2)	−0.21 *7*	0.00728 *12*	α(K)=0.00638 *10*; α(L)=0.000744 *13*; α(M)=0.0001364 *25* α(N)=2.21×10^{-5} *4*; α(O)=1.163×10^{-6} *18*
		593.93[a] *5*	29.4[a] *18*	2775.179	(5⁻)				
3419.13	(2⁺)	2879.43[@] *20*	38[@] *4*	539.5103	2⁺				
		3419.4[@] *3*	100[@] *6*	0.0	0⁺				
3446.56	7(+)	785.70[a] *20*	39[a] *7*	2660.82	5(+)				
		869.69[a] *16*	100[a] *17*	2576.872	5(+)	Q			
		1370.95[a] *9*	83[a] *4*	2075.675	6⁺	D+Q	+0.12 *2*		
3463.43	(1⁺,2)	140.03[@c] *3*	100[@] *10*	3323.70	(1,2⁺)				
		1582.9[@] *5*	96[@] *58*	1881.043	3⁺				
		3464.8[@e] *5*	98[@] *15*	0.0	0⁺				
3503.365	9⁻	148.720 *14*	25.0 *11*	3354.637	8⁻	(M1+E2)	+0.05 *1*	0.1040	α(K)=0.0908 *13*; α(L)=0.01090 *16*; α(M)=0.00201 *3* α(N)=0.000324 *5*; α(O)=1.678×10^{-5} *24* E_γ: from (α,2nγ). Others: 148.1 *5* from (^{36}S,α2nγ) and 148.6 *3* from (α,4nγ). I_γ: weighted average of 17 *8* from (^{36}S,α2nγ), 24.7 *11* from (α,2nγ), and 25.8 *16* from (α,4nγ). Mult.,δ: D+Q from γ(θ) in (α,2nγ); polarity from no level-parity change. Other: δ(Q/D)=−1.5 *15* from γ(θ) in (α,4nγ).
		239.74[a] *5*	6.0[a] *4*	3263.664	8(+)				
		364.055 *15*	55.6 *11*	3139.303	7⁻	E2		0.01420	α(K)=0.01228 *18*; α(L)=0.001586 *23*; α(M)=0.000292 *4* α(N)=4.63×10^{-5} *7*; α(O)=2.09×10^{-6} *3* E_γ: from (α,2nγ). Others: 363.7 *5* from (^{36}S,α2nγ) and 364.2 *3* from (α,4nγ). I_γ: weighted average of 42 *8* from (^{36}S,α2nγ), 55.5 *7* from (α,2nγ), and 60 *3* from (α,4nγ). Mult.: from γ(θ,pol) and ce data in (α,4nγ), γ(θ) in (α,2nγ).
		443.317 *16*	75.8 *11*	3060.051	8⁺	E1(+M2)	+0.06 *6*	0.00232 *21*	α(K)=0.00204 *18*; α(L)=0.000233 *23*; α(M)=4.3×10^{-5} *4* α(N)=6.9×10^{-6} *7*; α(O)=3.56×10^{-7} *35* E_γ: from (α,2nγ). Others: 442.8 *5* from (^{36}S,α2nγ) and 443.3 *3* from (α,4nγ). I_γ: weighted average of 67 *17* from (^{36}S,α2nγ), 76.0 *11* from (α,2nγ), and 73 *5* from (α,4nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(θ,pol) and ce data (α,4nγ), γ(θ) in (α,2nγ). δ: from (α,2nγ). Other: −0.11 *5* from (α,4nγ).
		551.883[e] *17*	100.0 *11*	2951.552	7⁻	E2		0.00402	α(K)=0.00350 *5*; α(L)=0.000426 *6*; α(M)=7.83×10^{-5} *11*

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
									α(N)=1.253×10^{-5} *18*; α(O)=6.12×10^{-7} *9* E_γ: weighted average of 552.3 *3* from (^{36}S,α2nγ), 551.881 *14* from (α,2nγ), and 552.2 *3* from (α,4nγ). I_γ: from (α,2nγ). Others: 100 *7* from (α,4nγ), 100 *8* from (^{36}S,α2nγ).
3550.10	8$^{(+)}$	490.05[a] *4*	30.7[a] *11*	3060.051	8$^+$	(Q)			
		765.04[a] *6*	24.7[a] *11*	2785.193	6$^{(+)}$	Q			
		844.47[a] *7*	100[a] *11*	2705.52	6$^+$				
		1474.37[a] *7*	22.6[a] *11*	2075.675	6$^+$	Q			
3575.51	9$^-$	436.352[hac] *18*	<30[ha]	3139.303	7$^-$				
		515.47[a] *5*	11.6[a] *11*	3060.051	8$^+$	D(+Q)	+0.09 *12*		
		623.933[e] *14*	100.0 *9*	2951.552	7$^-$	E2		0.00286	α(K)=0.002492 *35*; α(L)=0.000300 *4*; α(M)=5.50×10^{-5} *8* α(N)=8.82×10^{-6} *12*; α(O)=4.38×10^{-7} *6* E_γ: from (α,2nγ). Others: 623.8 *3* from (^{36}S,α2nγ) and 624.2 *3* from (α,4nγ). I_γ: from (α,2nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(θ,pol) and ce data (α,4nγ), γ(θ) in (α,2nγ).
3576.43	7$^{(+)}$	129.94[a] *10*	7.1[a] *18*	3446.56	7$^{(+)}$				
		312.62[a] *15*	20[a] *4*	3263.664	8$^{(+)}$				
		608.9[a] *5*	9[a] *5*	2967.57	6$^{(+)}$				
		870.99[a] *21*	68[a] *18*	2705.52	6$^+$	D+Q	−0.12 *7*		
		999.54[a] *7*	100[a] *5*	2576.872	5$^{(+)}$	Q			E_γ: poor fit, level-energy difference=999.22.
3599.301	(8$^-$)	244.41[a] *13*	4.5[a] *7*	3354.637	8$^-$	(D(+Q))	+0.2 *3*		
		381.21[a] *18*	5.2[a] *7*	3218.111	(8)$^-$				
		460.01[a] *7*	14.8[a] *13*	3139.303	7$^-$	D+Q	−2.8 *2*		
		647.752[a] *20*	100.0[a] *19*	2951.552	7$^-$	D+Q	−0.30 *2*		
3609.96	7$^{(+)}$	948.98[a] *11*	35.4[a] *21*	2660.82	5$^{(+)}$	Q			
		1534.40[a] *10*	100[a] *4*	2075.675	6$^+$	D+Q	+2.6 *2*		
3661.48	(4,5,6)	886.5[a] *5*	33[a] *20*	2775.179	(5$^-$)				
		1134.21[a] *13*	100[a] *7*	2527.247	5$^-$	D+Q	−0.16 *6*		
3851.5	(4$^+$,5,6,7$^+$)	883.8[a] *5*	100[a] *20*	2967.57	6$^{(+)}$				
		1274.7[a] *5*	100[a] *20*	2576.872	5$^{(+)}$				
3929.64	(8$^+$)	666.15[a] *10*	36[a] *5*	3263.664	8$^{(+)}$				
		961.93[a] *8*	100[a] *7*	2967.57	6$^{(+)}$	Q			
3960.36	(9$^-$)	605.72[a] *4*	100[a] *3*	3354.637	8$^-$				
		742.27[a] *9*	80[a] *6*	3218.111	(8)$^-$	D+Q	+0.58 *12*		
3992.13	10$^-$	416.8[a] *3*	1.8[a] *11*	3575.51	9$^-$				
		488.671[d] *20*	54.3 *7*	3503.365	9$^-$	E2+M1	+0.37 *2*	0.00501	α(K)=0.00439 *6*; α(L)=0.000512 *7*; α(M)=9.39×10^{-5} *13*

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	α[g]	Comments
									α(N)=1.518×10^{-5} *22*; α(O)=7.96×10^{-7} *11* E_γ: weighted average of 489.0 *5* from (^{36}S,α2nγ), 488.671 *20* from (α,2nγ), and 489.3 *3* from (α,4nγ). I_γ: weighted average of 67 *17* from (^{36}S,α2nγ), 54.3 *7* from (α,2nγ), and 46 *8* from (α,4nγ). Mult.: from γ(θ,pol) and ce data in (α,4nγ), γ(θ) in (α,2nγ). δ: from (α,2nγ). Other: +4 *2* from (α,4nγ).
3992.13	10$^-$	637.47 *7*	100 *6*	3354.637	8$^-$	E2		0.00269	α(K)=0.002352 *33*; α(L)=0.000282 *4*; α(M)=5.18×10^{-5} *7* α(N)=8.31×10^{-6} *12*; α(O)=4.14×10^{-7} *6* E_γ: weighted average of 637.8 *5* from (^{36}S,α2nγ), 637.44 *7* from (α,2nγ), and 637.7 *2* from (α,4nγ). I_γ: from (α,4nγ). Others: 100 *11* from (α,2nγ), 100 *17* from (^{36}S,α2nγ). Mult.: from γ(θ,pol) and ce data in (α,4nγ), γ(θ) in (α,2nγ), γ(DCO) in (^{36}S,α2nγ).
4075.93	(8,9$^-$)	477.1[a] *5*	26[a] *16*	3599.301	(8$^-$)				
		572.41[a] *13*	53[a] *5*	3503.365	9$^-$	D(+Q)	+0.05 *7*		
		936.94[a] *21*	100[a] *16*	3139.303	7$^-$				
4083.30	10$^+$	819.63 *13*	6.9 *8*	3263.664	8$^{(+)}$				E_γ: weighted average of 821.4 *10* from (^{36}S,α2nγ) and 819.62 *7* from (α,2nγ). I_γ: weighted average of 3.7 *19* from (^{36}S,α2nγ) and 7.1 *5* from (α,2nγ).
		1023.75 *25*	100.0 *10*	3060.051	8$^+$	E2			E_γ: unweighted average of 1024.0 *1* from (^{36}S,α2nγ), 1023.252 *15* from (α,2nγ), and 1024.0 *3* from (α,4nγ). I_γ: from (α,2nγ). Other: 100 *8* from (^{36}S,α2nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(θ,pol) and ce data in (α,4nγ), γ(θ) in (α,2nγ).
4097.38	(9$^-$)	521.86[a] *5*	100[a] *6*	3575.51	9$^-$	D+Q	−0.25 *7*		
		728.48[a] *19*	29[a] *6*	3368.982	(7$^-$)				
4230.56	11$^-$	238.351[e] *16*	35.4 *7*	3992.13	10$^-$	D+Q			E_γ: from (α,2nγ). Others: 238.5 *10* from (^{36}S,α2nγ) and 238.2 *3* from (α,4nγ). I_γ: from (α,2nγ), but 6.7 *33* in (^{36}S,α2nγ) is in disagreement.
		727.34[c] *3*	100.0 *14*	3503.365	9$^-$	E2			E_γ: weighted average of 727.8 *3* from (^{36}S,α2nγ), 727.340 *20* from (α,2nγ), and 727.7 *3* from (α,4nγ). I_γ: from (α,2nγ). Other: 100 *6* from (α,4nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(θ) and ce data in (α,4nγ), γ(θ) in (α,2nγ).
4235.82	(10$^-$)	636.54[a] *15*	100[a] *31*	3599.301	(8$^-$)	(Q)			
		660.34[a] *11*	17.9[a] *25*	3575.51	9$^-$				
		732.46[a] *5*	53.7[a] *25*	3503.365	9$^-$	D+Q	−1.05 *12*		
4235.84	10$^{(+)}$	152.56[a] *4*	7.6[a] *6*	4083.30	10$^+$	(D(+Q))	+0.04 *9*		
		972.13 *9*	43.3 *23*	3263.664	8$^{(+)}$	(Q)			E_γ: weighted average of 973.6 *10* from (^{36}S,α2nγ), and

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π	Mult.[f]	δ[f]	Comments
								973.13 *6* from (α,2nγ).
								I_γ: from (α,2nγ), but 8 *4* in (^{36}S,α2nγ) is in disagreement.
4235.84	$10^{(+)}$	1175.776 *23*	100.0 *12*	3060.051	8^+	Q		E_γ: from (α,2nγ). Other: 1177.9 *3* in (^{36}S,α2nγ) is discrepant.
								I_γ: from (α,2nγ). Other: 100 *8* from (^{36}S,α2nγ).
4248.49	$(7^-,8,9)$	673.05[a] *8*	54[a] *4*	3575.51	9^-			
		893.77[a] *9*	100[a] *9*	3354.637	8^-	D+Q	+0.52 *5*	
4315.73	11^-	740.222 *19*	100.0 *13*	3575.51	9^-	E2		E_γ: from (α,2nγ). Others: 740.3 *5* from (^{36}S,α2nγ) and 740.6 *3* from (α,4nγ).
								I_γ: from (α,2nγ).
								Mult.: from γ(θ,pol) in (α,4nγ), γ(θ) in (α,2nγ).
		812.39[a] *8*	10.5[a] *9*	3503.365	9^-			E_γ: poor fit, level-energy difference=812.89.
4343.44	$9^{(+)}$	896.79[a] *8*	100[a] *8*	3446.56	$7^{(+)}$	Q		
		1079.98[a] *13*	45[a] *5*	3263.664	$8^{(+)}$	D+Q	+2.84 *8*	
4353.36	(10^+)	270.08[a] *8*	5.8[a] *7*	4083.30	10^+			
		803.26[a] *6*	20.7[a] *13*	3550.10	$8^{(+)}$	(Q)		
		1293.30 *4*	100.0 *19*	3060.051	8^+			E_γ: weighted average of 1293.9 *5* from (^{36}S,α2nγ) and 1293.30 *3* from (α,2nγ).
4381.83	$(7,8,9^+)$	935.37[a] *9*	100[a] *6*	3446.56	$7^{(+)}$			
		1117.99[a] *11*	65[a] *6*	3263.664	$8^{(+)}$	D+Q	−0.11 *7*	
4408.63	$(9^-,10^-)$	178.05[a] *9*	12.7[a] *18*	4230.56	11^-			
		1054.01[a] *11*	100[a] *9*	3354.637	8^-			
4503.48	(10^+)	419.92[a] *16*	18[a] *3*	4083.30	10^+			
		953.38[a] *3*	100[a] *3*	3550.10	$8^{(+)}$	(Q)		
4663.44	(11^-)	433.00[a] *15*	26[a] *5*	4230.56	11^-			
		565.7[a] *7*	13[a] *11*	4097.38	(9^-)			
		1160.05[a] *7*	100[a] *5*	3503.365	9^-	(Q)		
4791.59	$(8^+,9,10^+)$	288.08[a] *11*	22[a] *3*	4503.48	(10^+)			
		438.4[a] *3*	25[a] *6*	4353.36	(10^+)			
		555.69[a] *6*	81[a] *3*	4235.84	$10^{(+)}$			
		708.5[a] *5*	16[a] *9*	4083.30	10^+			
		861.93[a] *10*	100[a] *9*	3929.64	(8^+)			
		1731.7[a] *3*	25[a] *3*	3060.051	8^+			
4798.15	$12^{(-)}$	567.46 *9*	20 *2*	4230.56	11^-			
		806.021 *20*	100 *2*	3992.13	10^-	(E2)		Mult.: Q from γ(θ) in (α,2nγ) and (α,4nγ), polarity from ce data in (α,4nγ).
4818.58	(10^+)	465.33 *15*	35 *4*	4353.36	(10^+)			
		582.82 *8*	100 *9*	4235.84	$10^{(+)}$	(D+Q)	−0.26 *20*	Mult.: from γ(θ) in (α,2nγ) with ΔJ=(0).
4917.97	12^+	564.54 *15*	25 *4*	4353.36	(10^+)			E_γ: weighted average of 564.9 *5* from (^{36}S,α2nγ) and 564.51 *15* from (α,2nγ).
								I_γ: weighted average of 25 *4* from (^{36}S,α2nγ) and 24 *4* from (α,2nγ).
		681.5 *5*	29 *7*	4235.84	$10^{(+)}$	Q		E_γ,I_γ,Mult.: γ from (^{36}S,α2nγ) only, ΔJ=2.

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	δ[f]	Comments
4917.97	12$^+$	688.2		4230.56	11$^-$			E_γ: γ from (^{36}S,α2nγ) only.
		834.95 *25*	100 *6*	4083.30	10$^+$	E2		E_γ: unweighted average of 835.2 *1* from (^{36}S,α2nγ), 834.45 *8* from (α,2nγ), and 835.2 *3* from (α,4nγ). I_γ: from (α,2nγ). Other: 100 *7* from (^{36}S,α2nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(θ) and ce data in (α,4nγ), γ(θ) in (α,2nγ).
5010.49	(8$^+$,9,10,11)	191.93[a] *3*	100[a] *4*	4818.58	(10$^+$)			
		218.87[a] *4*	96[a] *4*	4791.59	(8$^+$,9,10$^+$)	D+Q	+0.078 *8*	
		774.4[a] *3*	64[a] *14*	4235.84	10$^{(+)}$			
		927.6[a] *5*	18[a] *11*	4083.30	10$^+$			
5066.19	(12$^-$)	750.8[a] *5*	10[a] *6*	4315.73	11$^-$			
		830.39[a] *4*	100[a] *4*	4235.82	(10$^-$)			
		835.20[a] *20*	9.8[a] *20*	4230.56	11$^-$			
5126.3	(12$^+$)	1043.0 *10*	100	4083.30	10$^+$			E_γ: unweighted average of 1042.03 *13* from (α,2nγ) and 1044.0 *3* from (α,4nγ).
5162.52	13$^-$	846.73 *14*	106 *6*	4315.73	11$^-$			E_γ: weighted average of 847.5 *5* from (^{36}S,α2nγ) and 846.71 *9* from (α,2nγ). I_γ: from (α,2nγ), but 33 *8* in (^{36}S,α2nγ) is in disagreement.
		932.2 *3*	100 *2*	4230.56	11$^-$	E2		E_γ: unweighted average of 932.7 *3* from (^{36}S,α2nγ), 931.72 *3* from (α,2nγ), and 932.4 *3* from (α,4nγ). I_γ: from (α,2nγ). Other: 100 *8* from (^{36}S,α2nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(θ) and ce data in (α,4nγ), γ(θ) in (α,2nγ).
5274.67	(13$^-$)	959.06 *13*	100 *9*	4315.73	11$^-$	(E2)		E_γ: weighted average of 959.6 *5* from (^{36}S,α2nγ) and 959.03 *12*. Other: 962.1 *3* in (α,4nγ) seems discrepant. I_γ: from (α,2nγ). Mult.: (Q) from γ(θ) in (α,2nγ); (E2,M1) from γ(θ) and ce data in (α,4nγ).
		1043.80[a] *20*	75[a] *16*	4230.56	11$^-$	Q		E_γ: poor fit, level-energy difference=1044.45.
5307.2	(12$^+$)	1223.9[b] *5*	100	4083.30	10$^+$			
5713.31	14$^+$	795.34 *6*	100	4917.97	12$^+$	E2		E_γ: weighted average of 795.5 *1* from (^{36}S,α2nγ), 795.30 *5* from (α,2nγ), and 795.5 *3* from (α,4nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(θ) and ce data in (α,4nγ), γ(θ) in (α,2nγ).
5784.4	(14$^-$)	986.2[b] *3*	100	4798.15	12$^{(-)}$			
6167.2	(15$^-$)	1004.7[b] *3*	100	5162.52	13$^-$	Q		
6283.7	(15$^-$)	1009.0[b] *5*	100	5274.67	(13$^-$)			
6365.2	(14$^+$)	1058.0[b] *5*	100	5307.2	(12$^+$)			
6714.81	16$^+$	1001.5 *1*	100	5713.31	14$^+$	E2		E_γ: from (^{36}S,α2nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(DCO) in (^{34}S,2α,2nγ).

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Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[f]	Comments
6885.1	(16$^-$)	1100.7[b] *5*	100	5784.4	(14$^-$)		
7203.7	(17$^-$)	1036.5 *3*	100	6167.2	(15$^-$)	(E2)	E_γ: weighted average of 1036.6 *3* from (^{36}S,α2nγ), and 1036.3 *3* from (α,4nγ). Mult.: Q from γ(DCO) in (^{36}S,α2nγ) and $\gamma(\theta)$ in (α,4nγ), polarity from ce data in (α,4nγ).
7408.6	(16$^+$)	1043.4[b] *5*	100	6365.2	(14$^+$)		
7827.02	18$^+$	1112.2 *1*	100	6714.81	16$^+$	E2	E_γ: from (^{36}S,α2nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(DCO) in (^{34}S,2α2nγ).
8018.2	(18$^-$)	1133.1[b] *5*	100	6885.1	(16$^-$)		
8450.6	(18$^+$)	1042.0[b] *5*	100	7408.6	(16$^+$)		
8458.7	(19$^-$)	1255.0[b] *5*	100	7203.7	(17$^-$)		
9057.73	20$^+$	1230.7 *1*	100	7827.02	18$^+$	E2	Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(DCO) in (^{34}S,2α2nγ).
9178.8	(20$^-$)	1160.6[b] *5*	100	8018.2	(18$^-$)		
(9673.32)	2$^+$,3$^+$	5416.1 *3*	7.1 *13*	4257.1			
		5485.6 *3*	5.9 *10*	4187.6	(1$^+$ to 4$^+$)		
		5672.46 *19*	4.5 *7*	4000.70			
		5690.2 *7*	3.4 *9*	3983.0	(1$^+$ to 4$^+$)		
		5699.6 *5*	8.1 *18*	3973.6	(0$^+$ to 5$^+$)		
		5790.2 *3*	4.6 *8*	3883.0			
		5795.41 *16*	9.4 *15*	3877.75	2$^+$,3$^+$		
		5893.43 *12*	40 *7*	3779.72	(1 to 4)$^+$		
		5941.27 *12*	30 *5*	3731.88			
		6210.36[c] *4*	70 *3*	3463.43	(1$^+$,2)		
		6254.6[i] *7*	3.3 *9*	3419.13	(2$^+$)		
		6298.11 *12*	38 *6*	3375.01			
		6324.99 *5*	39.6 *10*	3348.13			
		6340.72 *5*	100 *3*	3332.40			
		6346.85 *7*	31.9 *12*	3326.27			
		6365.04 *13*	10.4 *7*	3308.08			
		6372.50 *7*	29.4 *11*	3300.62	2$^+$,3$^+$		
		6401.0 *3*	3.8 *6*	3272.1			
		6406.8 *3*	3.3 *5*	3266.3	(0 to 5)$^+$		
		6441.32 *16*	6.9 *7*	3231.79			
		6496.04 *23*	4.3 *5*	3177.07	2$^+$,3$^+$		
		6554.4 *4*	2.2 *4*	3118.67	(0$^+$ to 4$^+$)		
		6562.55 *14*	8.9 *7*	3110.57	(2$^+$,3$^+$)		
		6602.37[c] *7*	21.3 *7*	3069.525	(1,2)$^-$		
		6608.53 *7*	24.7 *10*	3064.61	4$^+$		
		6639.1 *4*	2.0 *4*	3034.0			
		6656.33 *15*	7.3 *6*	3016.77			
		6673.70 *11*	11.5 *7*	2999.32	(0$^+$ to 4$^+$)		
		6690.06 *6*	51.6 *16*	2983.04	(0 to 4)$^+$		E_γ: level-energy difference=6689.8.
		6757.2 *3*	5.7 *10*	2915.545	2$^-$		

$^{100}_{44}Ru_{56}$-39

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
(9673.32)	$2^+,3^+$	6767.8 *3*	3.4 *5*	2905.14	(4^+)
		6795.54 *9*	18.2 *9*	2877.57	$2^+,3^+$
		6811.1 *6*	1.3 *4*	2862.52	$(0^+$ to $4^+)$
		6835.56 *19*	4.9 *5*	2837.71	$(1^+,2^+)$
		6871.62 *20*	4.8 *5*	2801.48	$(1^+,2,3)$
		6898.24[i] *18*	32 *5*	2775.34	$2^+,3^+$
		6908.29 *15*	7.1 *6*	2764.943	$2^+,3^+$
		6926.00 *18*	5.6 *5*	2747.495	$4^{(-)}$
		6934.0 *5*	1.6 *4*	2738.678	$(2^+,3,4^+)$
		7007.05 *9*	16.3 *8*	2666.29	(2,3)
		7013.4 *5*	1.9 *4*	2660.82	$5^{(+)}$
		7056.4 *6*	1.3 *4*	2617.14	$1,2^+$
		7066.7 *3*	10.2 *7*	2606.07	(2,3)
		7081.30 *15*	6.9 *6*	2591.817	4^-
		7103.14 *5*	90.8 *22*	2569.912	$(3)^-$
		7129.65 *26*	3.6 *5*	2543.71	2^+
		7136.6 *5*	1.9 *4*	2536.194	3
		7160.66 *19*	5.3 *5*	2512.411	$(4)^+$
		7180.00 *9*	15.9 *8*	2493.06	$(3,4,5^+)$
		7203.40[e] *9*	16.4 *8*	2469.389	2^-
		7259.6 *5*	1.7 *4*	2413.86	(4^+)
		7306.28 *9*	15.8 *8*	2366.588	4^+
		7432.2 *8*	0.9 *4*	2240.804	2^+
		7506.16 *6*	56.2 *17*	2166.879	3^-
		7574.00 *16*	6.2 *5*	2099.103	2^+
		7610.29 *7*	41.6 *14*	2062.651	4^+
		7791.80 *9*	11.5 *5*	1881.043	3^+
		7807.96 *11*	7.2 *4*	1865.110	2^+
		8310.78 *7*	17.9 *6*	1362.166	2^+
		8446.57 *8*	16.2 *6*	1226.467	4^+
		8543.8[i] *5*	0.6 *2*	1130.305	0^+
		9133.21 *8*	16.8 *4*	539.5103	2^+
		9673.4 *3*	0.5 *1*	0.0	0^+
(9673.33)	$3^{(+)}$	5021.6 *18*		4650.7	
		5071.5 *10*		4601.2	
		5087.1 *10*		4585.6	
		5129.0 *16*		4543.7	
		5142.6 *28*		4530	
		5153.2 *7*		4519.6	
		5269.1 *10*		4403.6	
		5296.6 *9*		4376.1	
		5306.3 *16*		4366.4	$(1^+$ to $4^+)$
		5336.8 *16*		4337.6	
(9673.33)	$3^{(+)}$	5365.3 *8*		4307.4	
		5399.2 *14*		4273.5	
		5416.1 *10*		4257.1	
		5486.8 *21*		4187.6	$(1^+$ to $4^+)$
		5581.2 *12*		4091.5	
		5673.6 *5*		4000.70	
		5688.3 *5*		3983.0	$(1^+$ to $4^+)$
		5700.4 *19*		3973.6	$(0^+$ to $5^+)$
		5797.0 *11*		3877.75	$2^+,3^+$
		5894.2 *21*		3779.72	$(1$ to $4)^+$
		5942.4 *7*		3731.88	
		6206.3 *5*		3463.43	$(1^+,2)$
		6212.3 *13*		3460.4	
		6296.1 *17*		3375.01	
		6325.2 *12*		3348.13	
		6340.2 *21*		3332.40	
		6346.8 *15*		3326.27	
		6371.6 *21*		3300.62	$2^+,3^+$
		6562.2 *5*		3110.57	$(2^+,3^+)$
		6602.3 *9*		3069.525	$(1,2)^-$
		6654.4 *5*		3016.77	
		6689.9 *8*		2983.04	$(0$ to $4)^+$
		6795.3 *6*		2877.57	$2^+,3^+$
		6899.6 *19*		2775.34	$2^+,3^+$
		7080.0 *4*		2591.817	4^-
		7102.7 *21*		2569.912	$(3)^-$
		7202.3 *12*		2469.389	2^-
		7504.5 *4*		2166.879	3^-
		7574.9 *5*		2099.103	2^+
		7611.0 *15*		2062.651	4^+
		7806.0 *10*		1865.110	2^+
		8308.5 *15*		1362.166	2^+
		8444.7 *5*		1226.467	4^+
(9673.35)	$3^{(+)}$	5021.6 *18*		4650.7	
		5129.0 *16*		4543.7	
		5142.6 *28*		4530	
		5296.6 *9*		4376.1	
		5336.8 *16*		4337.6	
		5365.3 *8*		4307.4	
		5399.2 *14*		4273.5	
		5416.1 *10*		4257.1	
		5523.6 *22*		4148.6	
		5570.8 *9*		4102.9	

$^{100}_{44}Ru_{56}$-40

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	E_f	J_f^π
(9673.35)	3(+)	5581.2 *12*	4091.5	
		5673.6 *5*	4000.70	
		5688.3 *5*	3983.0	(1+ to 4+)
		5700.4 *19*	3973.6	(0+ to 5+)
		5791.8 *5*	3883.0	
		5894.2 *21*	3779.72	(1 to 4)+
		5942.4 *7*	3731.88	
		6212.3 *13*	3460.4	
		6296.1 *17*	3375.01	
		6325.2 *12*	3348.13	
		6340.2 *21*	3332.40	
		6371.6 *21*	3300.62	2+,3+
		6562.2 *5*	3110.57	(2+,3+)
		6602.3 *9*	3069.525	(1,2)−
		6689.9 *8*	2983.04	(0 to 4)+
		6755.5 *6*	2915.545	2−
		6839.9 *15*	2832.8	0+
		6870.2 *15*	2801.48	(1+,2,3)
		6899.6 *19*	2775.34	2+,3+
		6908.2 *17*	2764.943	2+,3+
		6925.5 *6*	2747.495	4(−)
		7005.5 *7*	2666.29	(2,3)
		7102.7 *21*	2569.912	(3)−
		7158.1 *24*	2516.827	1−
		7504.5 *4*	2166.879	3−
		7574.9 *5*	2099.103	2+
		7611.0 *15*	2062.651	4+
		7624.4 *15*	2051.661	0+
		7790.8 *5*	1881.043	3+
		8308.5 *15*	1362.166	2+
		8447.7 *5*	1226.467	4+
		9135.9 *13*	539.5103	2+
(9673.38)	3(+)	5021.6 *18*	4650.7	
		5129.0 *16*	4543.7	
		5153.2 *7*	4519.6	
		5269.1 *10*	4403.6	
		5523.6 *22*	4148.6	
		5623.2 *10*	4049.5	
		5688.3 *5*	3983.0	(1+ to 4+)
		5791.8 *5*	3883.0	
		5797.0 *11*	3877.75	2+,3+
		5894.2 *21*	3779.72	(1 to 4)+
		6206.3 *5*	3463.43	(1+,2)

$^{100}_{44}Ru_{56}$-41

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. f	Comments
(9673.38)	$3^{(+)}$	6296.1 *17*		3375.01			
		6346.8 *15*		3326.27			
		6371.6 *21*		3300.62	$2^+,3^+$		
		6562.2 *5*		3110.57	$(2^+,3^+)$		
		6614.6 *8*		3058.1	(2,3,4)		
		6755.5 *6*		2915.545	2^-		
		6839.9 *15*		2832.8	0^+		
		6870.2 *15*		2801.48	$(1^+,2,3)$		
		6908.2 *17*		2764.943	$2^+,3^+$		
		7080.0 *4*		2591.817	4^-		
		7158.1 *24*		2516.827	1^-		
		7202.3 *12*		2469.389	2^-		
		7504.5 *4*		2166.879	3^-		
		7574.9 *5*		2099.103	2^+		
		7790.8 *5*		1881.043	3^+		
		7806.0 *10*		1865.110	2^+		
		8444.7 *5*		1226.467	4^+		
(9673.40)	$2^{(+)}$	5306.3 *16*		4366.4	$(1^+$ to $4^+)$		
		5486.8 *21*		4187.6	$(1^+$ to $4^+)$		
		5688.3 *5*		3983.0	$(1^+$ to $4^+)$		
		5700.4 *19*		3973.6	$(0^+$ to $5^+)$		
		5894.2 *21*		3779.72	$(1$ to $4)^+$		
		6602.3 *9*		3069.525	$(1,2)^-$		
		6614.6 *8*		3058.1	(2,3,4)		
		7102.7 *21*		2569.912	$(3)^-$		
		7624.4 *15*		2051.661	0^+		
		7790.8 *5*		1881.043	3^+		
(9763.42)	$3^{(+)}$	6252 *2*		3517	$2^+,3^+$		
9796.7	(21^-)	1338.0 [b] *5*	100	8458.7	(19^-)		
10378.14	22^+	1320.4 [b] *1*	100	9057.73	20^+	E2	E_γ: from (^{36}S,α2nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(DCO) in (^{34}S,2α2nγ).
10403.3	(22^-)	1224.5 [b] *5*	100	9178.8	(20^-)		
11738.5	$24^{(+)}$	1360.4 [b] *1*	100	10378.14	22^+	(E2)	E_γ: from (^{36}S,α2nγ). Mult.: Q from γ(DCO) in (^{36}S,α2nγ) and (^{34}S,2α2nγ); E2 indicated by γ(pol) in (^{36}S,α2nγ).
11746.3	(24^-)	1343.0 [b] *5*	100	10403.3	(22^-)		
13170.0	$26^{(+)}$	1431.4 [b] *1*	100	11738.5	$24^{(+)}$	E2	E_γ: from (^{36}S,α2nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(DCO) in (^{34}S,2α2nγ).
13309.3	(26^-)	1563.0 [b] *5*	100	11746.3	(24^-)		
14738.2	$28^{(+)}$	1568.2 [b] *3*	100	13170.0	$26^{(+)}$	E2	E_γ: from (^{36}S,α2nγ). Mult.: from γ(DCO) and γ(pol) in (^{36}S,α2nγ), γ(DCO) in (^{34}S,2α2nγ).

$^{100}_{44}Ru_{56}$-42

Adopted Levels, Gammas (continued)

γ(^{100}Ru) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. [f]	Comments
14933.3	(28$^-$)	1624.0[b] 5	100	13309.3	(26$^-$)		
14938.1	(28$^+$)	1768.1[b] 5	100	13170.0	26$^{(+)}$	Q	
16105.8	(30$^+$)	1167.7[b] 5	60[b] 20	14938.1	(28$^+$)	Q	
		1367.6[b] 5	100[b] 20	14738.2	28$^{(+)}$		
16648.4	(30$^+$)	1910.2[b] 5	100	14738.2	28$^{(+)}$	Q	
17740.7	(32$^+$)	1092.3[b] 5	100[b] 33	16648.4	(30$^+$)	Q	
		1634.9[b] 5	100[b] 33	16105.8	(30$^+$)	Q	
20197.7		2457.0[b] 5	100	17740.7	(32$^+$)		

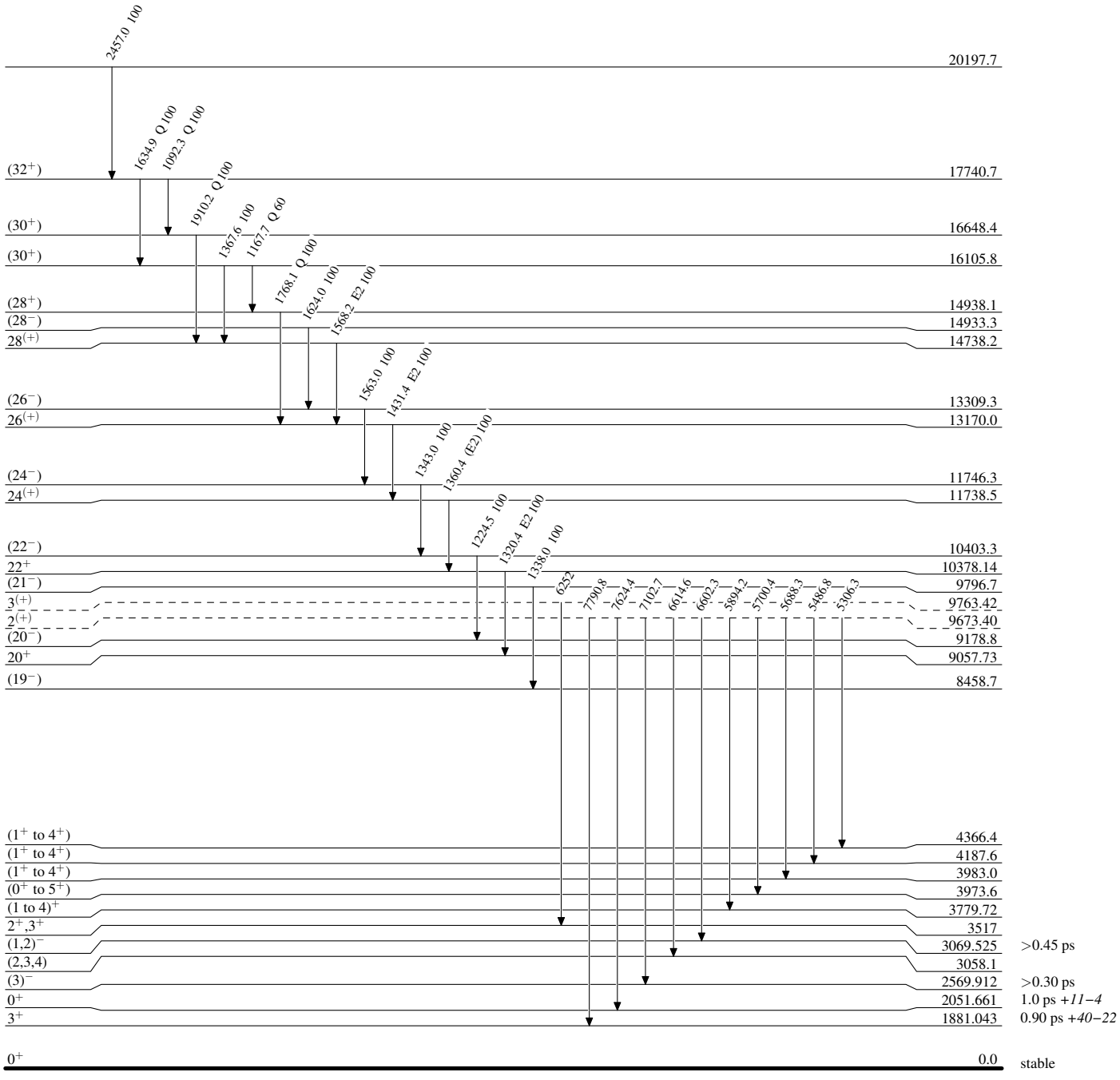
† Deduced from γ-ray energies available from different studies. Weighted averages taken when values of comparable accuracy exist. Iγ values are photon branching ratios. A minimum uncertainty of 1% is assigned (by evaluators) when quoted ΔIγ<1% for a transition from ^{100}Rh ε decay.
‡ γ from (n,γ) E=th only.
# γ from ^{100}Rh ε decay (4.6 m) only.
@ γ from ^{100}Rh ε decay (20.8 h) only.
& γ from (n,n′γ) only.
[a] γ from (α,2nγ) only.
[b] γ from (^{36}S,α2nγ) only.
[c] Uncertainty increased by a factor of 5 in the fitting procedure, as the γ ray fits poorly.
[d] Uncertainty increased by a factor of 4 in the fitting procedure, as the γ ray fits poorly.
[e] Uncertainty increased by a factor of 3 in the fitting procedure, as the γ ray fits poorly.
[f] The multipolarity assignments and mixing ratios are based on ce, γ(θ), γγ(θ) and γ(lin pol) in the following datasets: γγ(θ) and ce data in ^{100}Rh ε decay (20.8 h); γ(θ) and ce data in (α,4nγ); γγ(θ) and γ(lin pol) in (^{34}S,α2nγ); γ(θ) in (α,2nγ) and (n,n′γ). In addition lifetime data are used to rule out M2 transitions over E2 and assign M1+E2 when mixing ratio is significant. The multipolarity assignments and mixing ratios given here are from γ(θ) data in (α,2nγ) data, unless otherwise stated. For Eγ′s below 1 MeV or so, for ΔJ=1 transitions, M1+E2 multipolarity is assigned when δ has a significantly large value so that M2 component is less likely from Weisskopf estimates.
[g] 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.
[h] Multiply placed with undivided intensity.
[i] Placement of transition in the level scheme is uncertain.

$^{100}_{44}Ru_{56}$-43

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

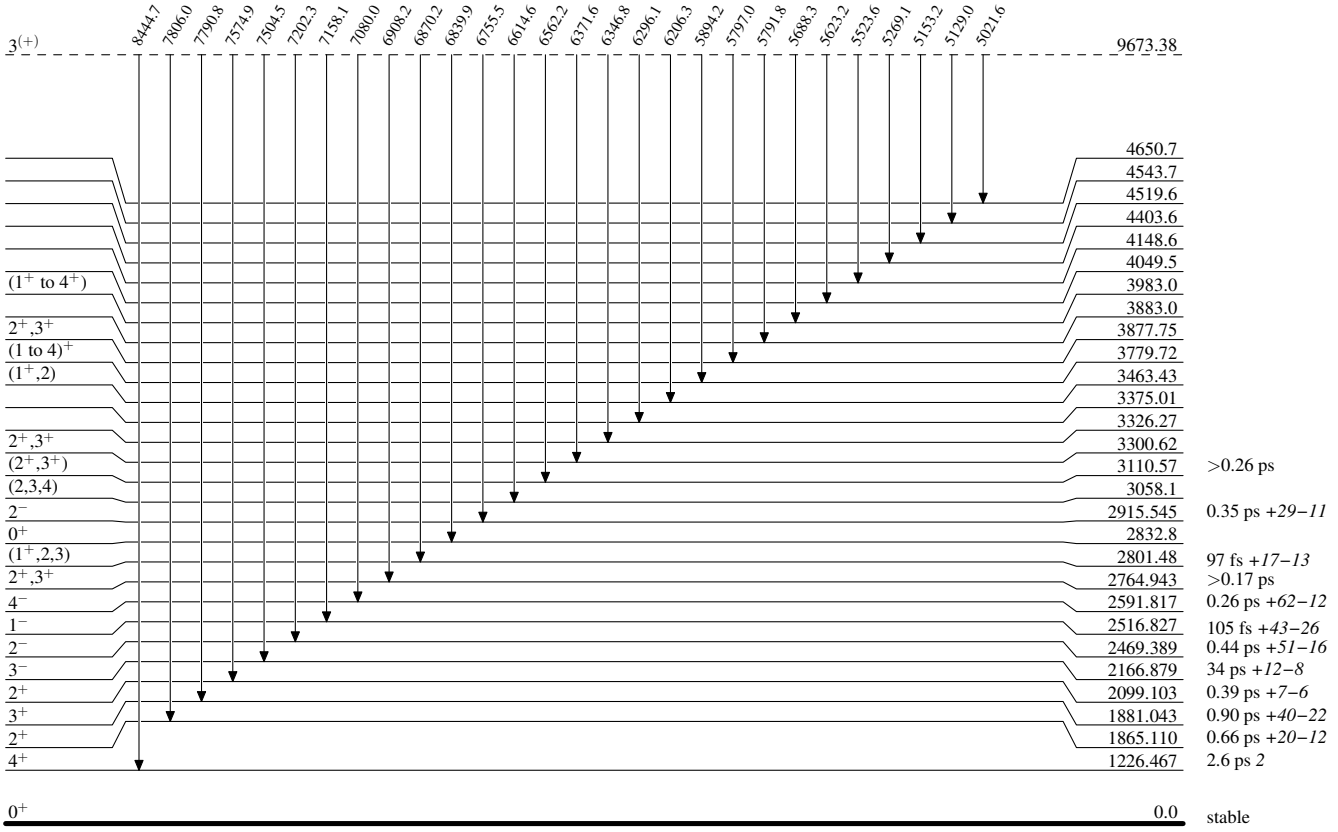


$^{100}_{44}Ru_{56}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

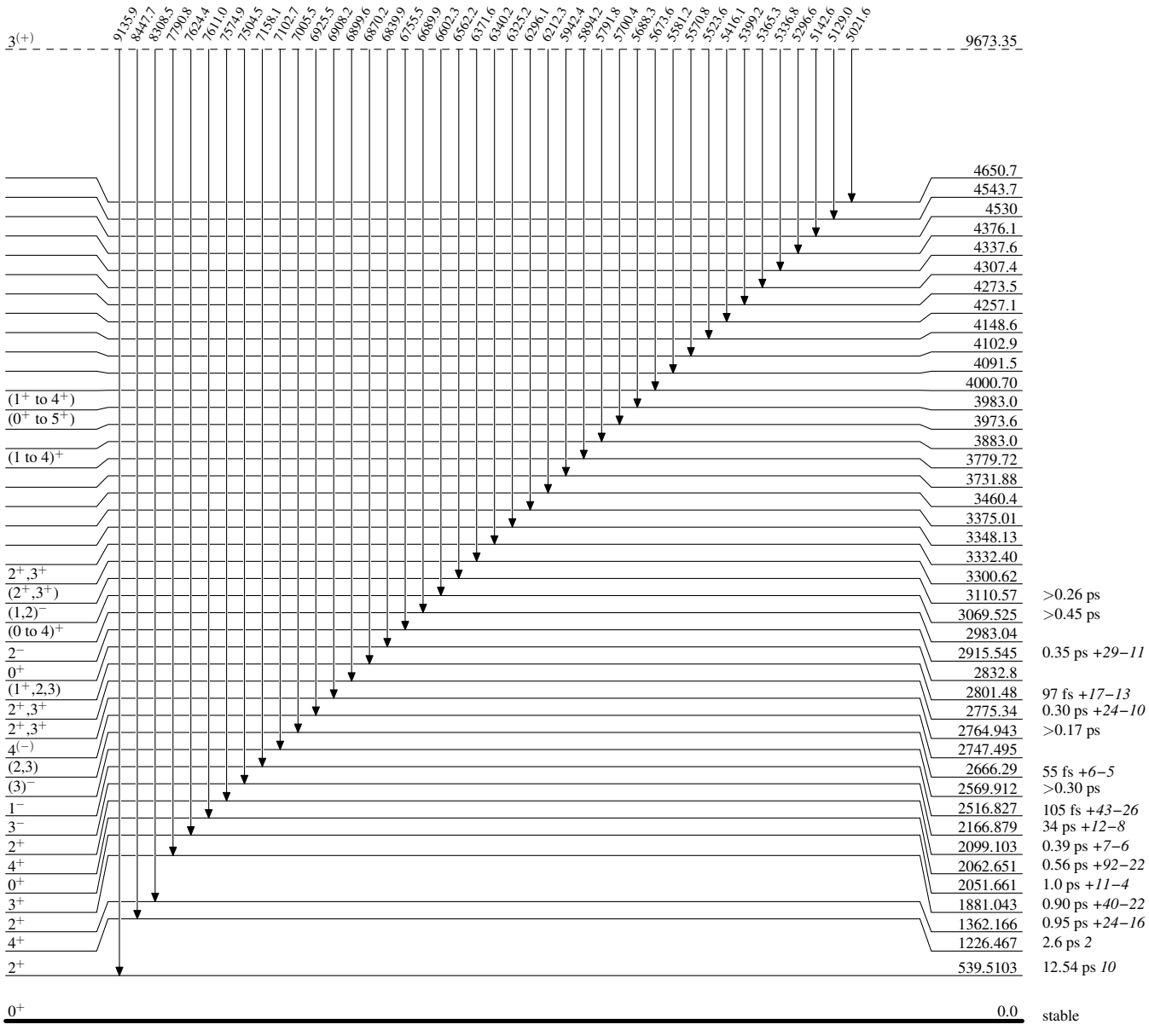


$^{100}_{44}Ru_{56}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

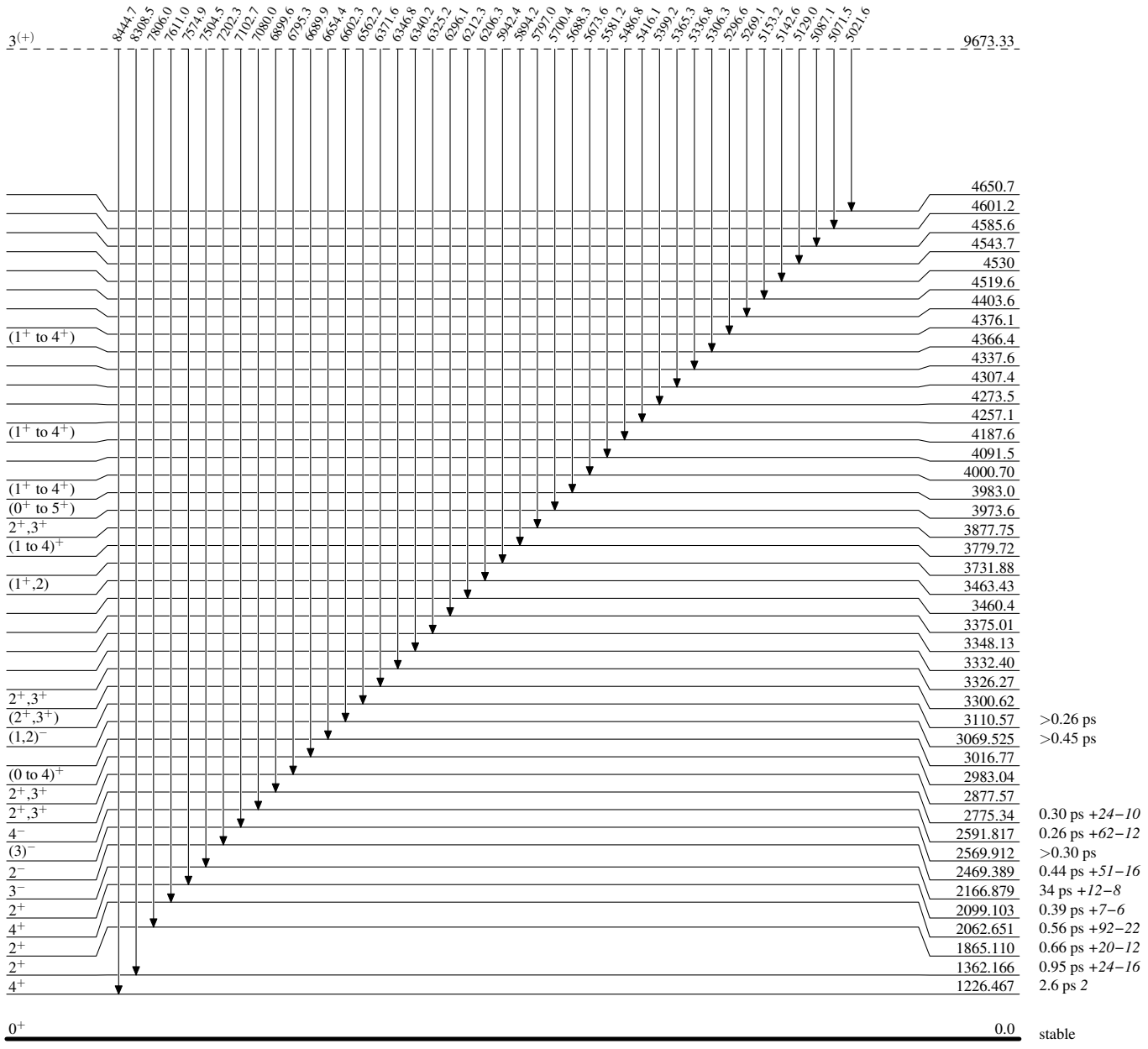


$^{100}_{44}Ru_{56}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{100}_{44}Ru_{56}$

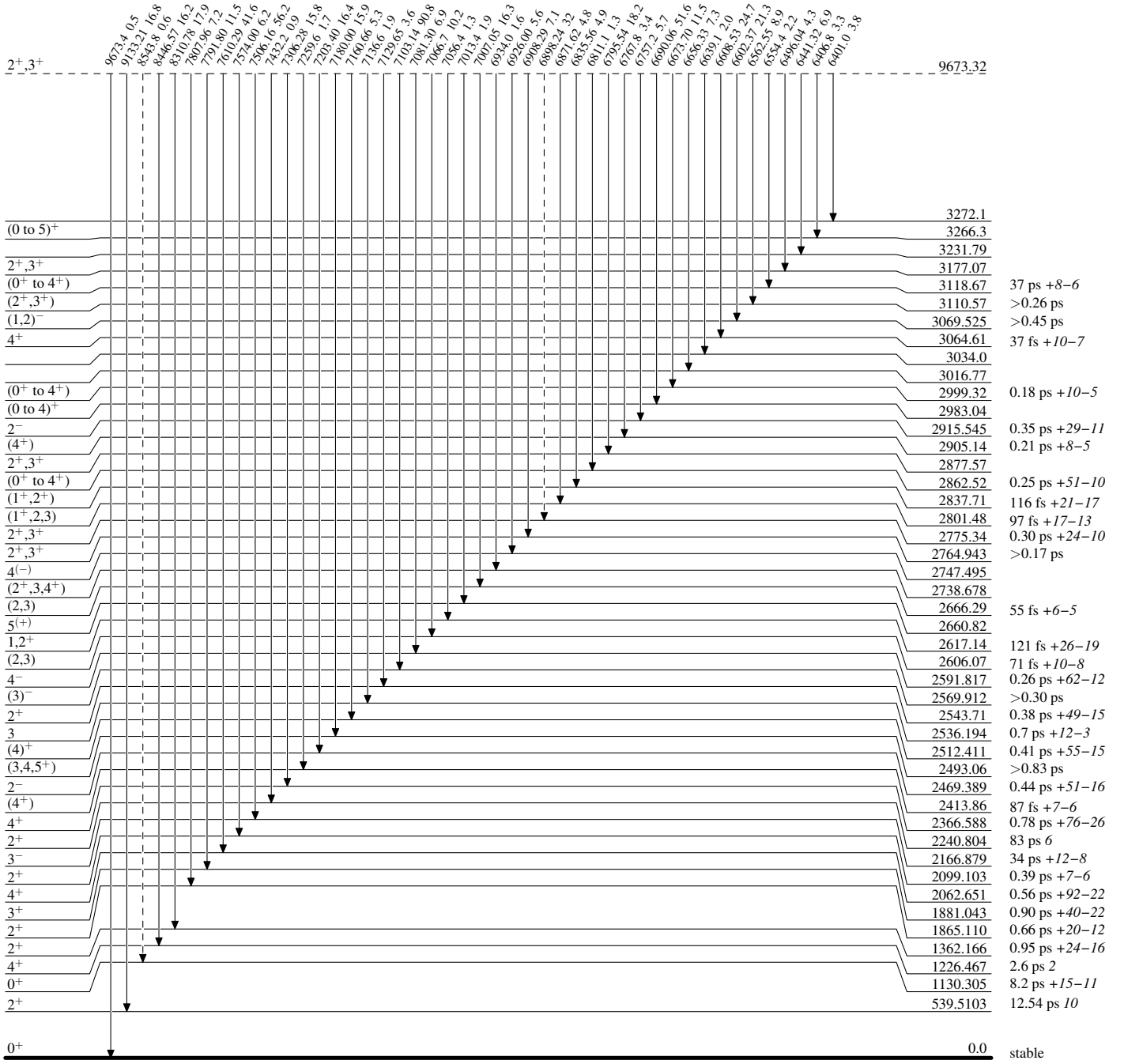
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{100}_{44}Ru_{56}$

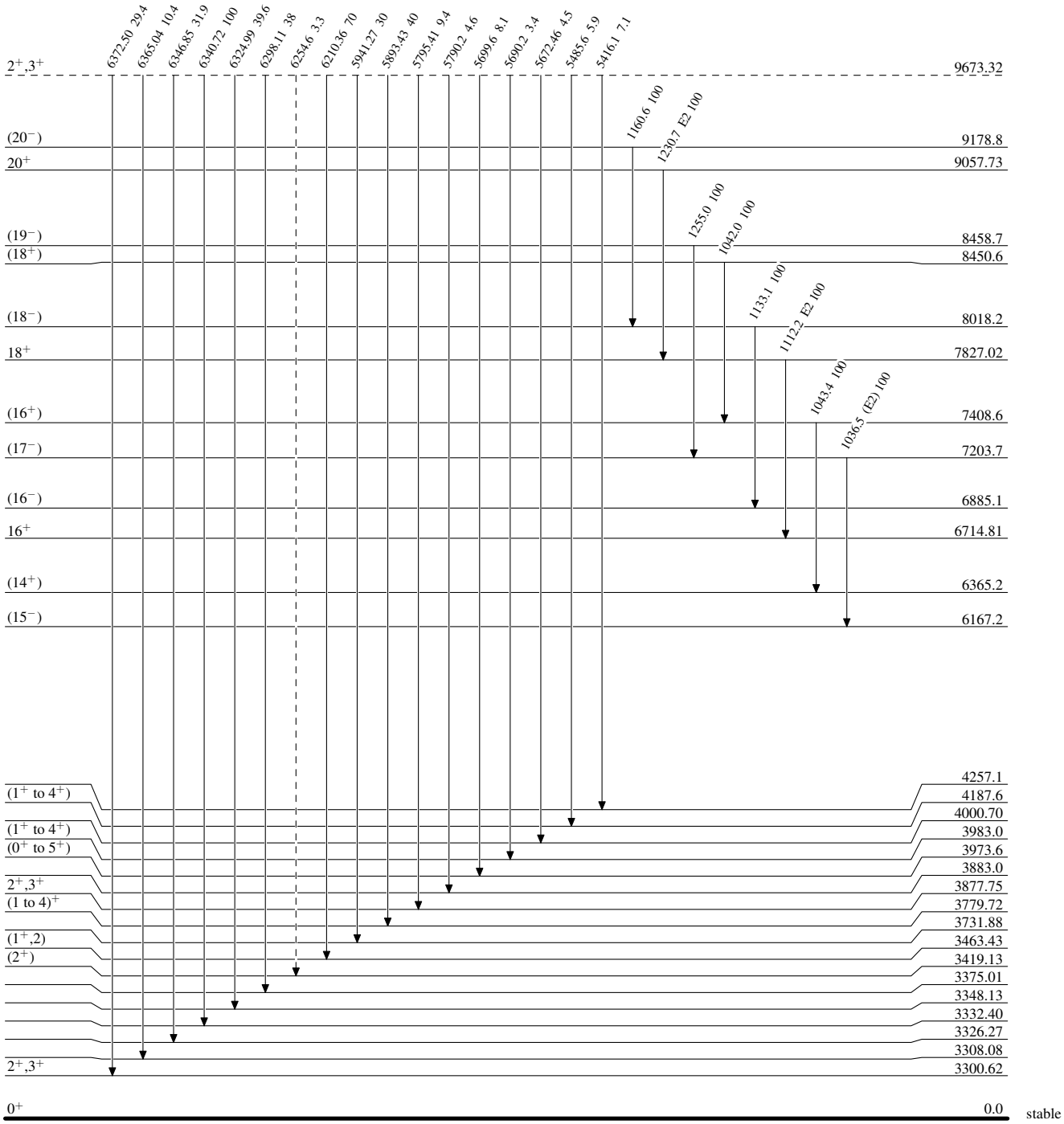
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

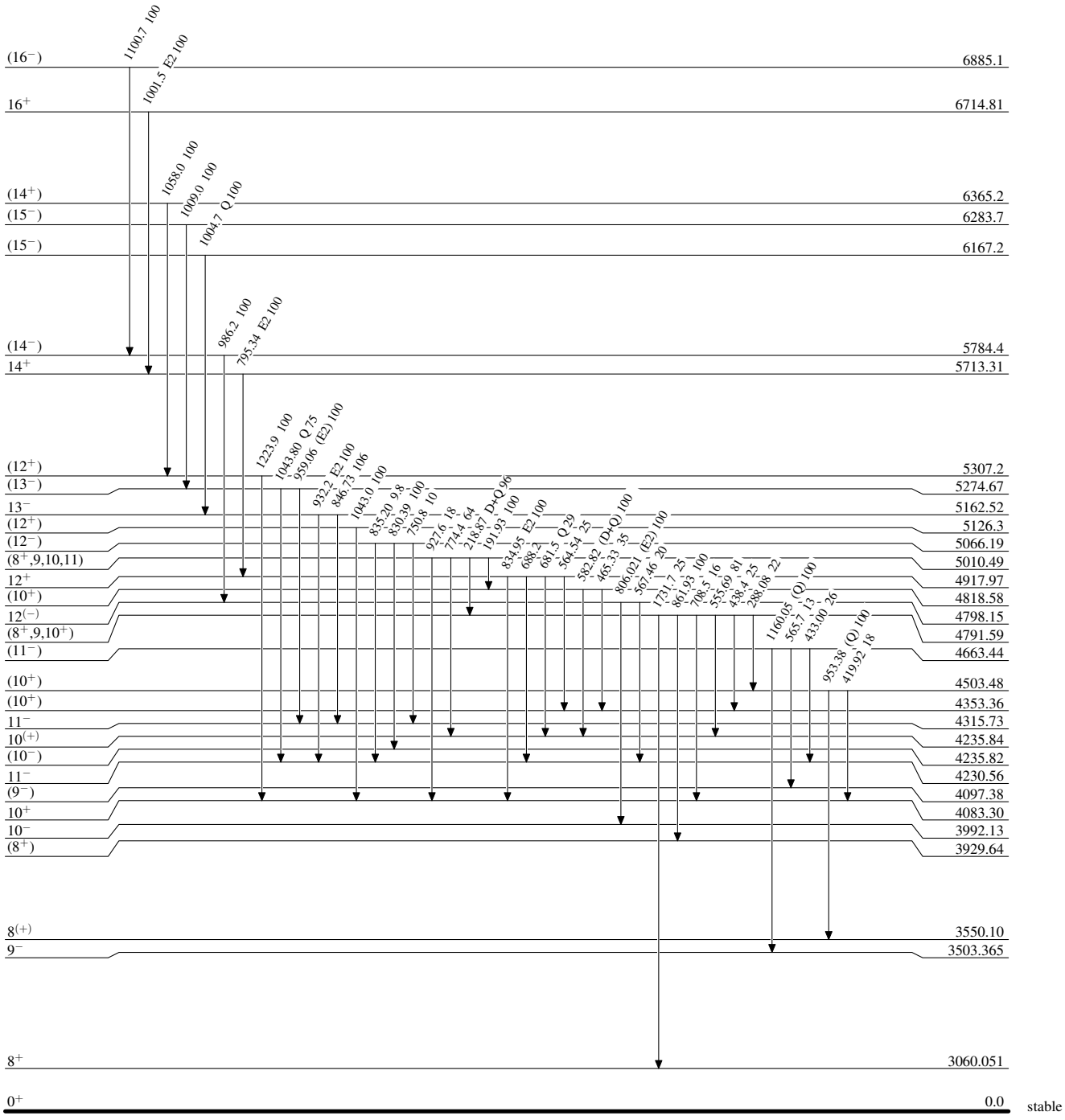


$^{100}_{44}Ru_{56}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

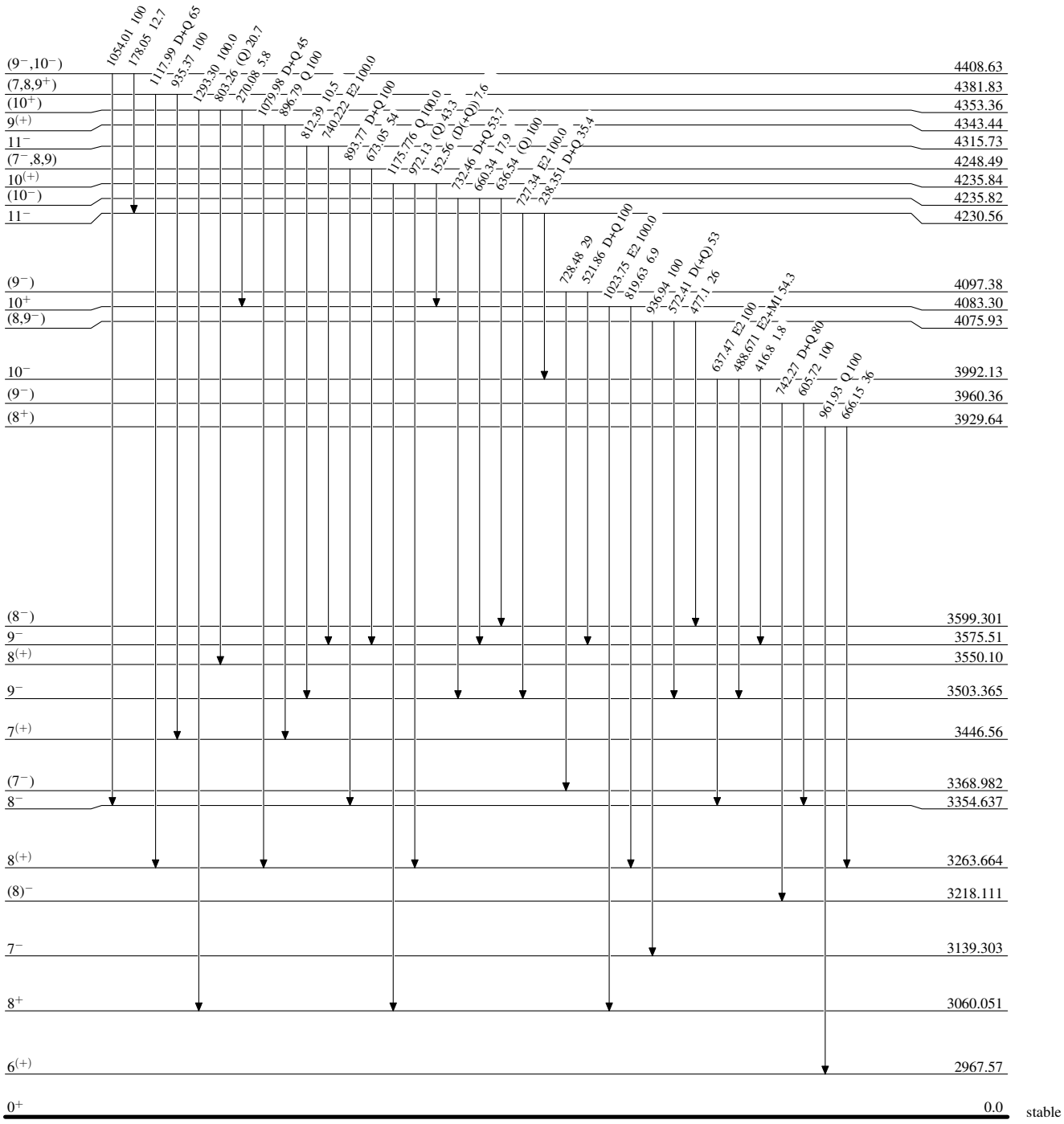


$^{100}_{44}Ru_{56}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{100}_{44}Ru_{56}$

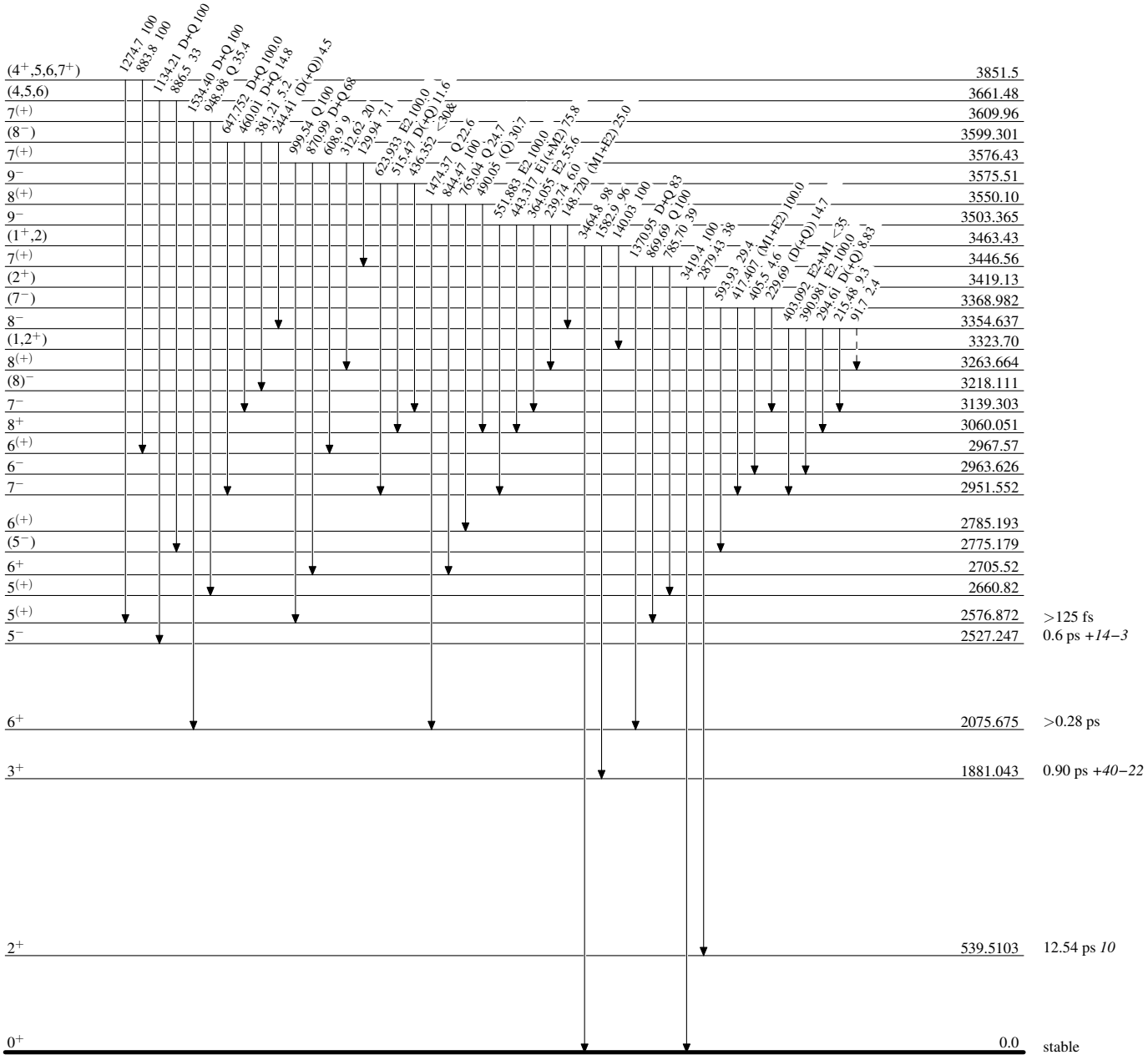
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

γ Decay (Uncertain)



$^{100}_{44}Ru_{56}$

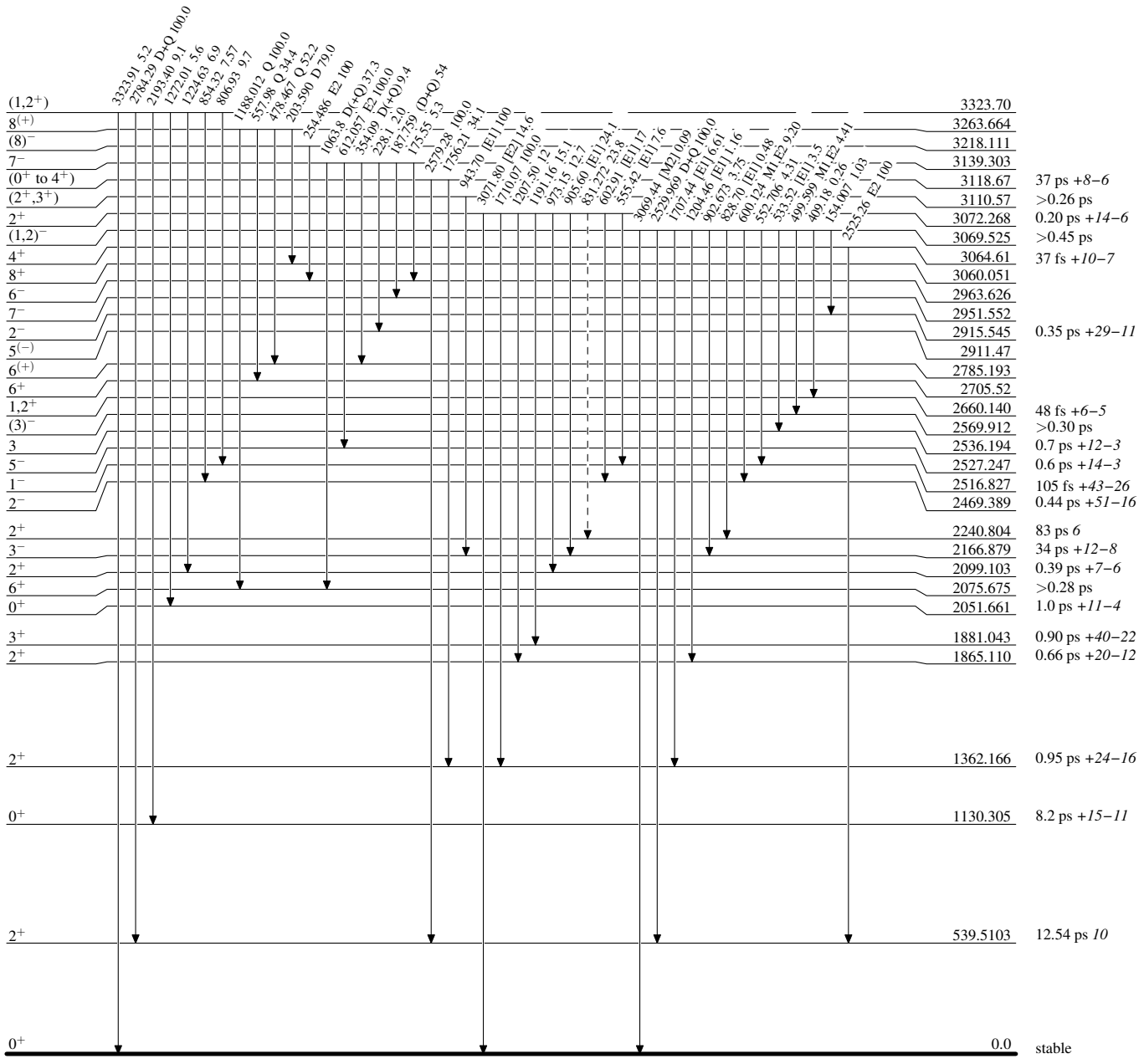
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

γ Decay (Uncertain)



$^{100}_{44}Ru_{56}$

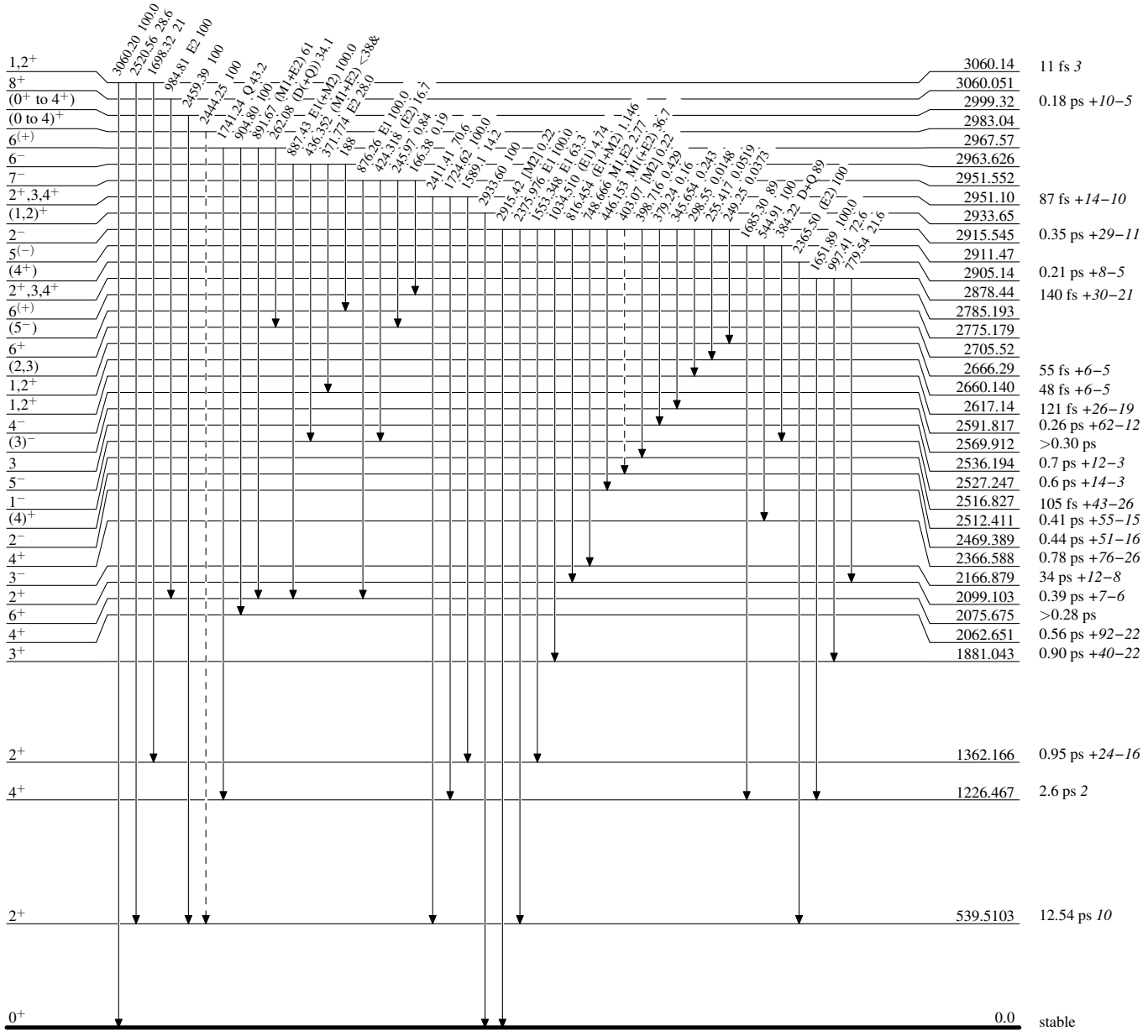
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

γ Decay (Uncertain)



$^{100}_{44}Ru_{56}$

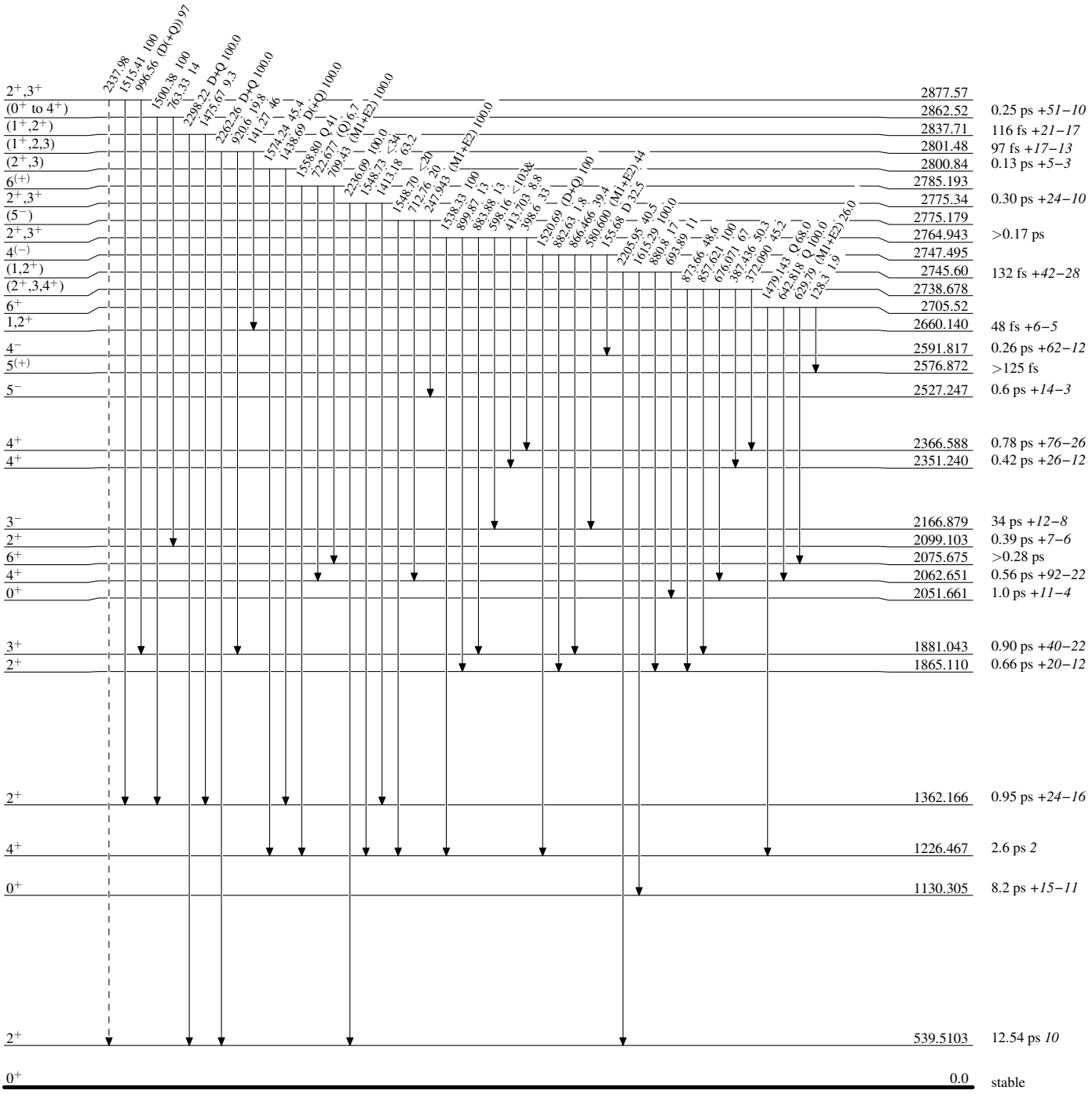
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

– – – – – – ► γ Decay (Uncertain)



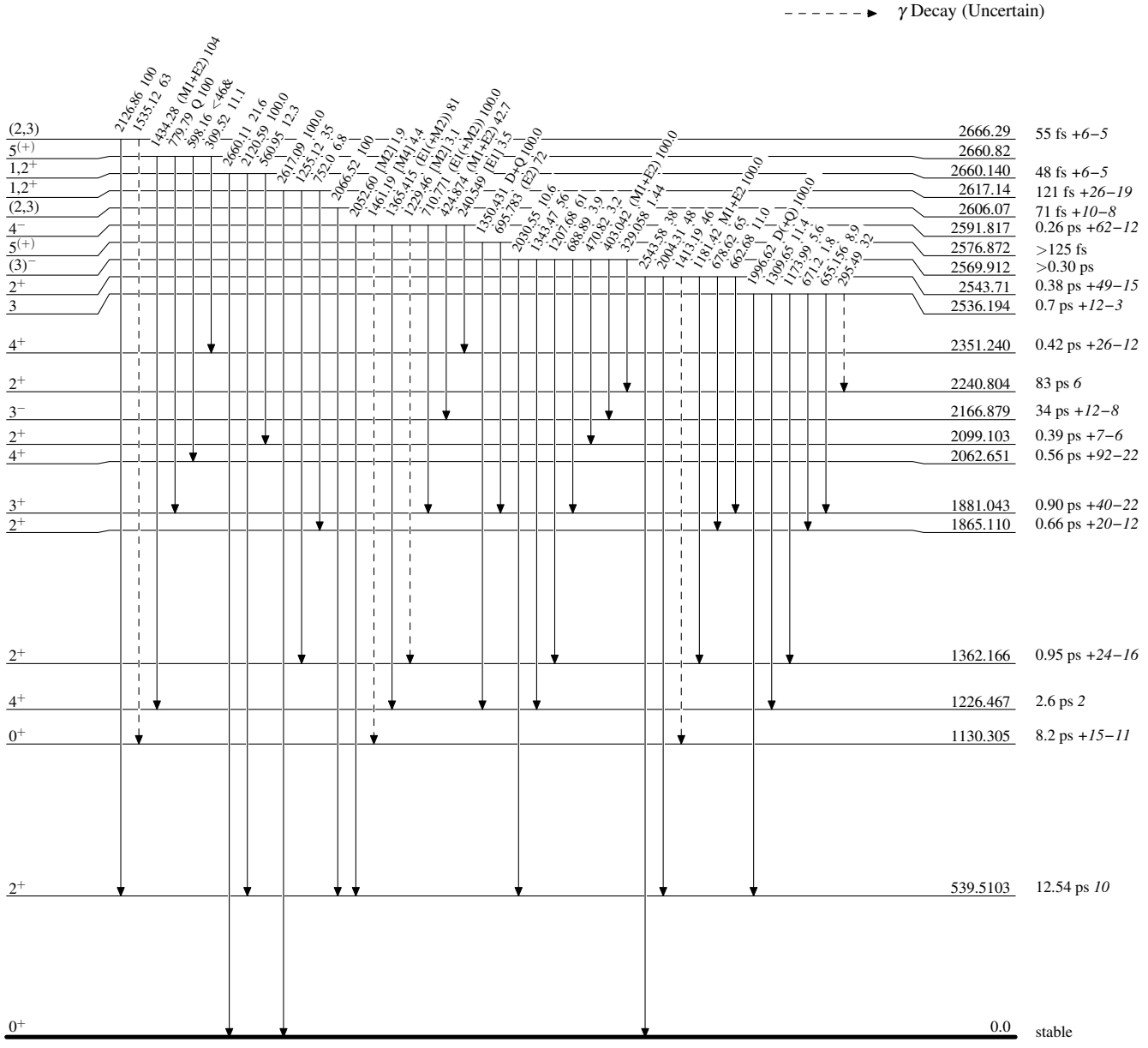
$^{100}_{44}Ru_{56}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



$^{100}_{44}Ru_{56}$

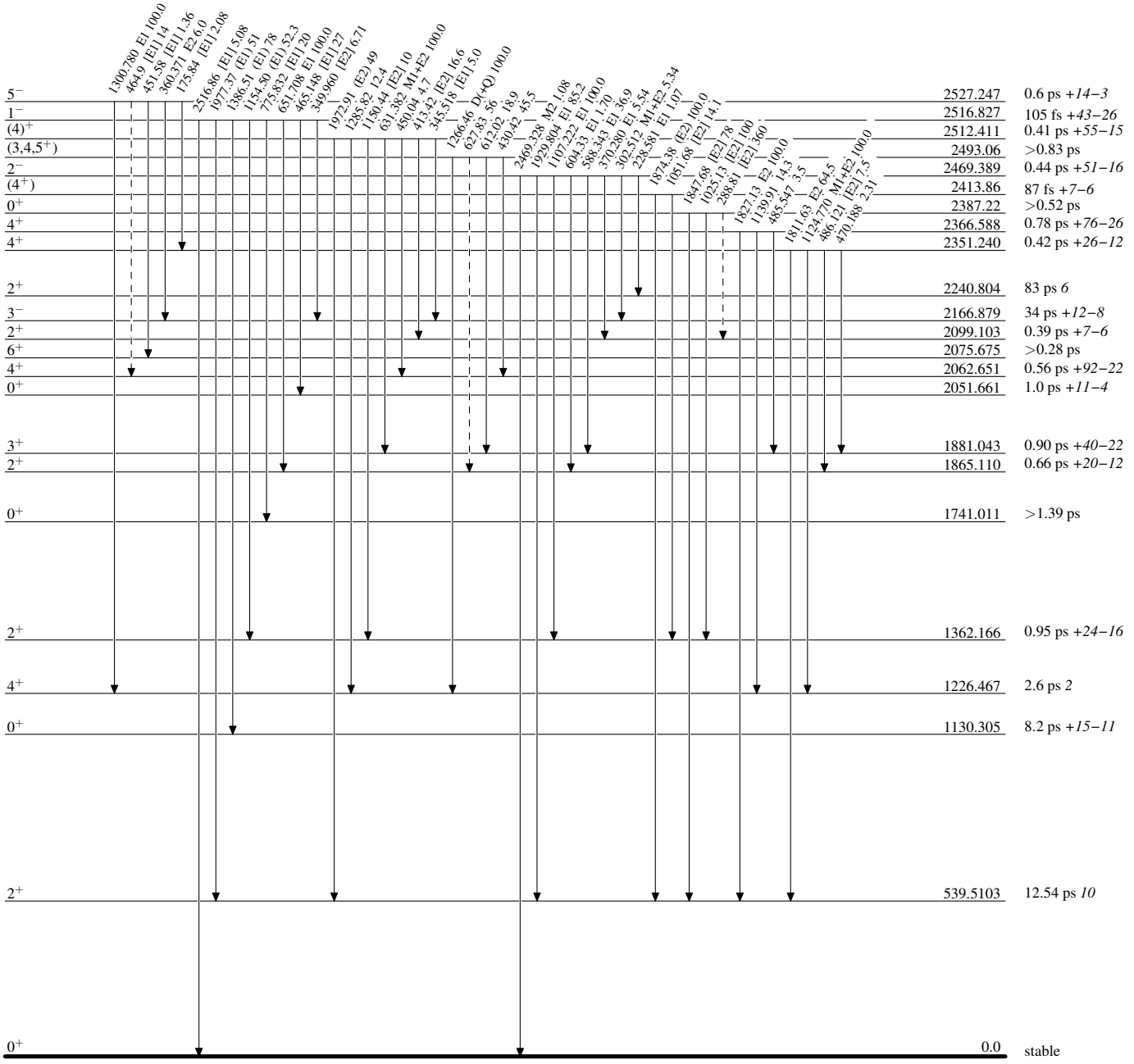
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

- - - - - - ► γ Decay (Uncertain)



$^{100}_{44}Ru_{56}$

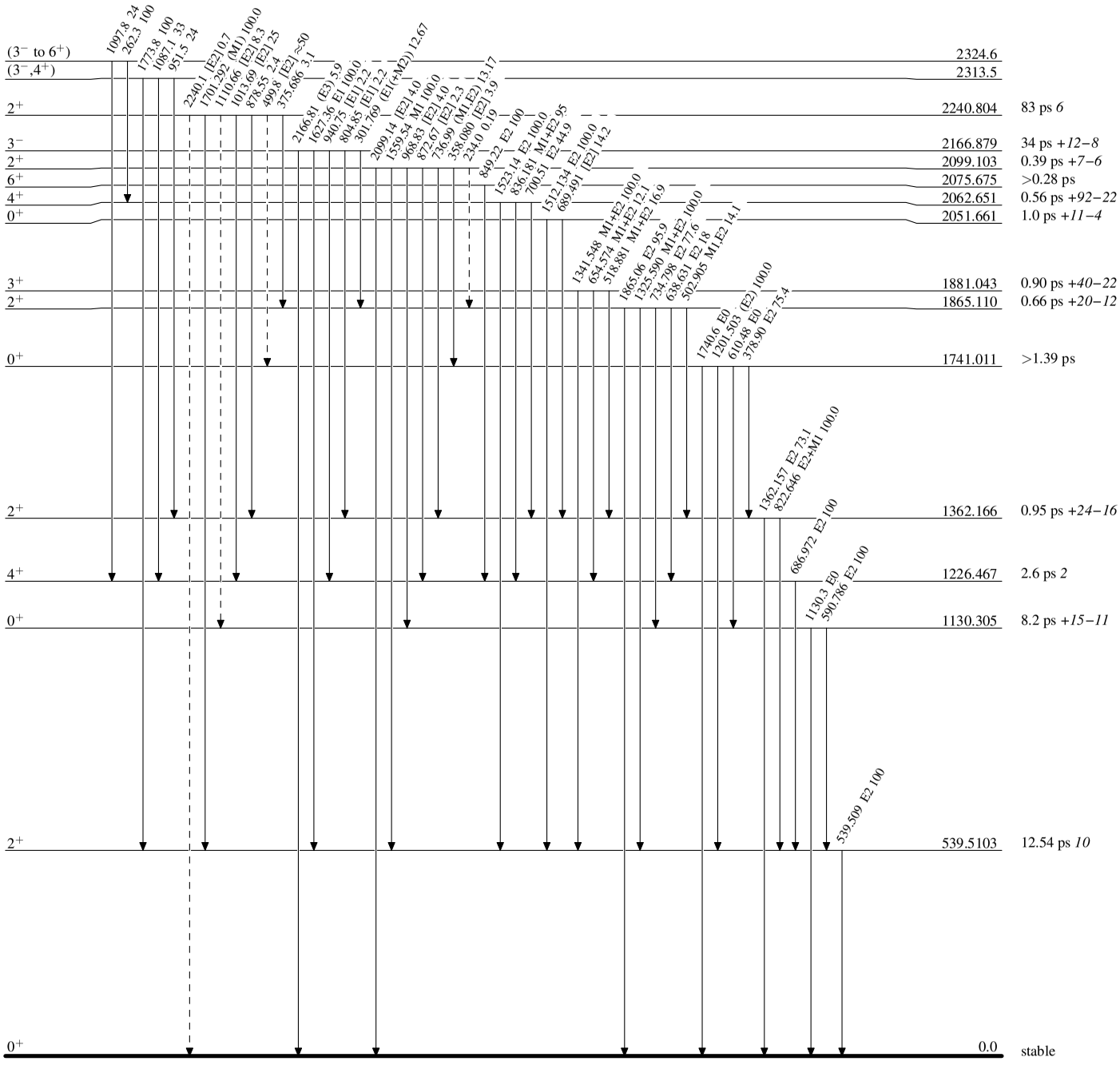
Adopted Levels, Gammas

Legend

Level Scheme (continued)

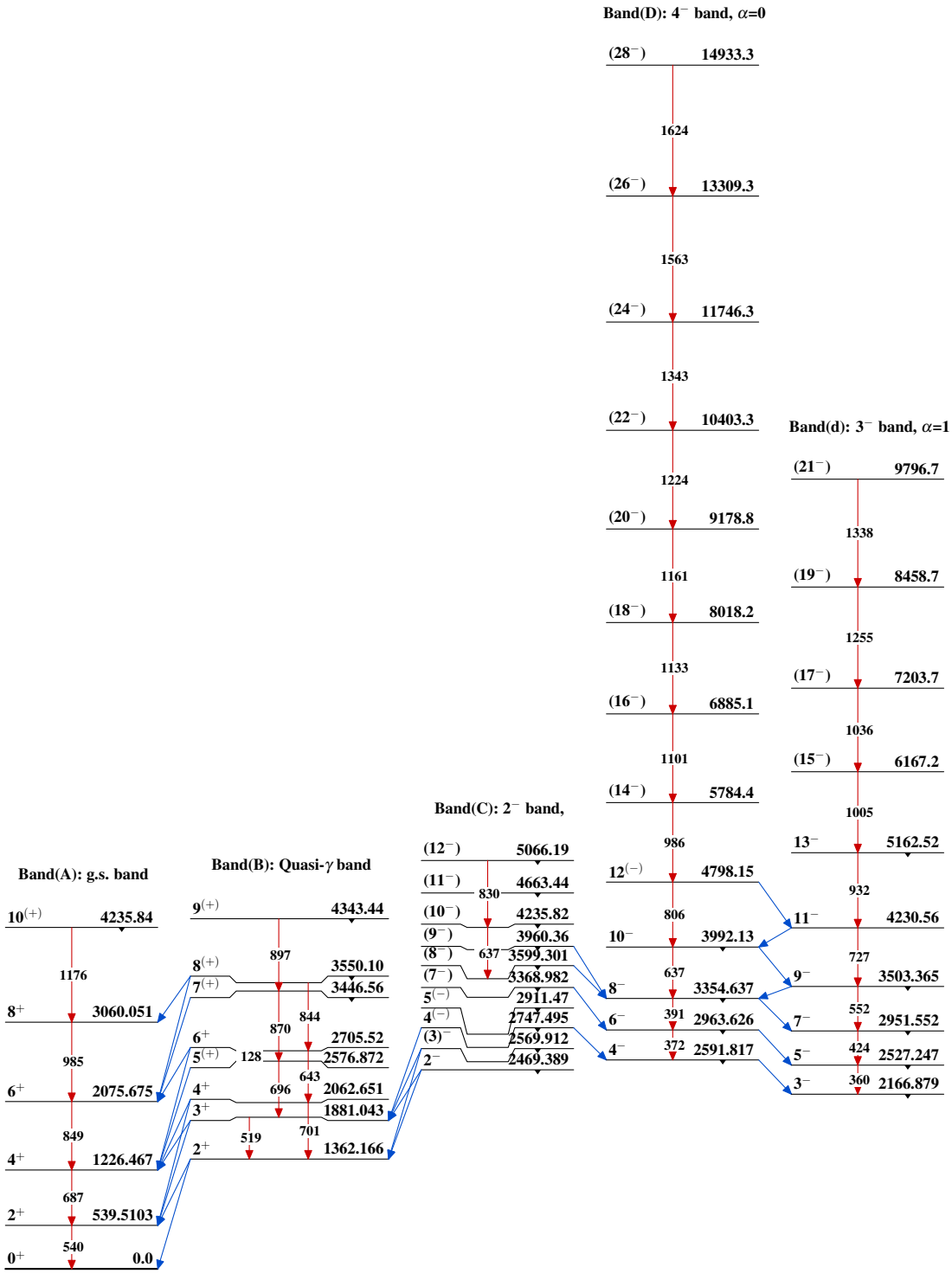
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

- - - - - - ► γ Decay (Uncertain)



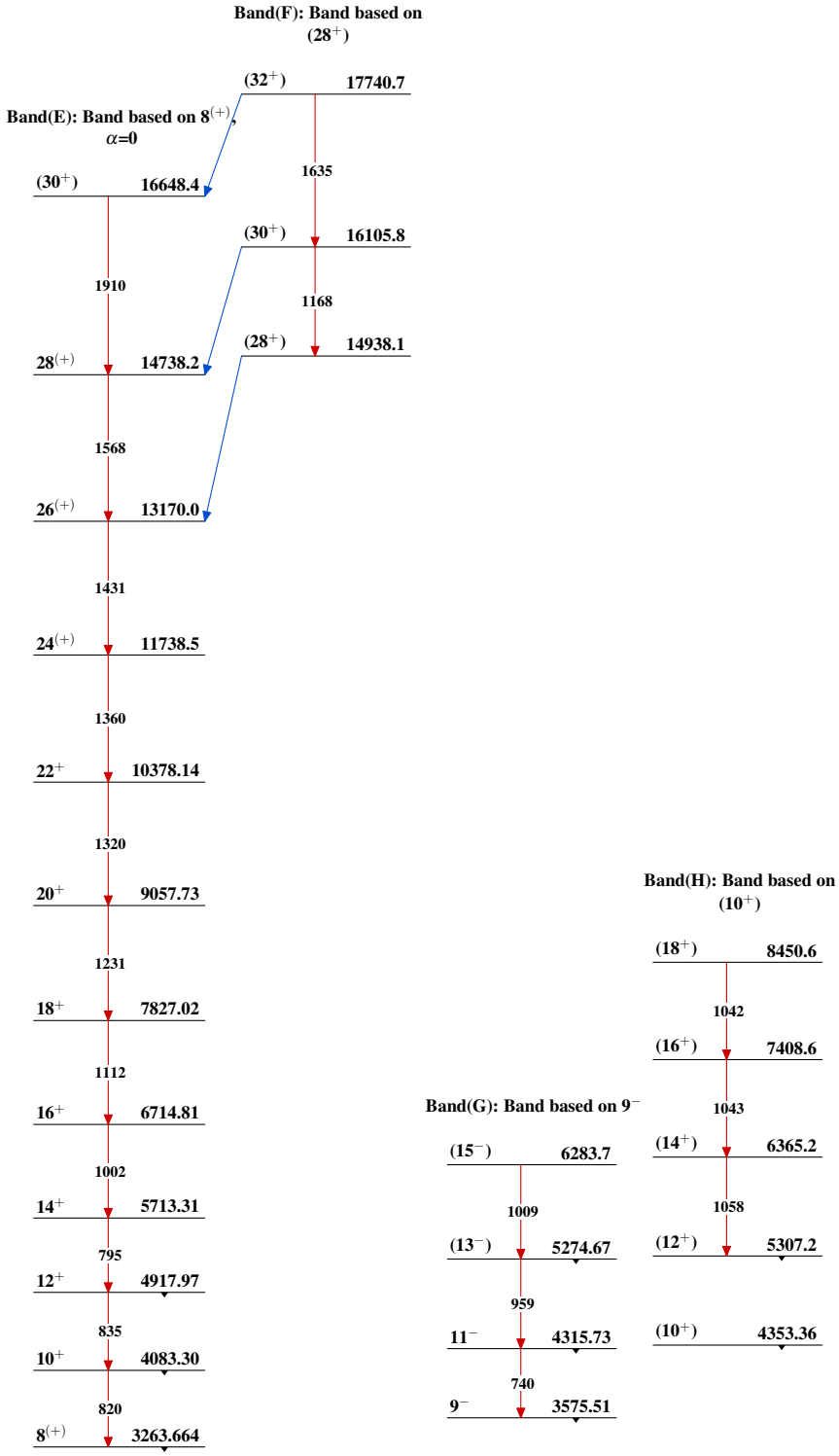
$^{100}_{44}Ru_{56}$

Adopted Levels, Gammas



$^{100}_{44}Ru_{56}$

Adopted Levels, Gammas (continued)



$^{100}_{44}Ru_{56}$