Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 114, 1293 (2013)	1-Sep-2013

Q(β^-)=−9440 *SY*; S(n)=11427 *4*; S(p)=4803.8 *24*; Q(α)=−3780 *4* 2012Wa38
ΔQ(β-)=400 (2012Wa38).
Q(εp)=4644 *4* (2012Wa38).
Additional information 1.

Other Reactions:

^{91}Ru εp decay (1983Ha06): ΔE,E counter telescope, FWHM=65 keV; observed ε-delayed p spectrum; inferred existence of low-spin ^{91}Ru isomer.

Theory (partial list):
Nuclear structure: 1994He09, 1996Ru02 (shell-model calculations).

^{91}Ru Levels

Cross Reference (XREF) Flags

- A ^{58}Ni(^{36}Ar,2pnγ): E=149 MeV
- B ^{58}Ni(^{40}Ca,α2pnγ)
- C ^{91}Rh ε decay (1.47 s)
- D ^{58}Ni(^{36}Ar,2pnγ): E=111 MeV

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
0.0#	(9/2$^+$)	8.0 s *4*	ABCD	%ε+%β^+=100 Jπ: log *ft*=4.9 to (9/2)$^+$, 6.5 to (13/2$^+$) and 6.0 to (7/2)$^+$ In ε decay, but these log *ft* values May be underestimated; likely dominant configuration=(ν $g_{9/2}$)$^{-1}$ (1994He09). $T_{1/2}$: weighted average of 9 s *1* from activity (1983Ko43) and 7.85 s *40* from 394γ(t) (2004De40) In ε decay (1.47 s).
0.0+x	(1/2$^-$)@	7.6 s *8*		%ε+%β^+>0; %β^+p>0; %IT=? %β^+p: ε+β^+ delayed p spectrum observed by 1983Ha06. E(level): 2012Au07 estimate x=−340 *500*. $T_{1/2}$: from delayed-p activity (1983Ha06).
46	(7/2$^+$)		D	Jπ: 46γ to (9/2$^+$) g.s. from (^{36}Ar,2pnγ): E=111 MeV.
436.0 *5*	(11/2$^+$)		D	Jπ: 436γ to (9/2$^+$) g.s. from (^{36}Ar,2pnγ): E=111 MeV.
889.8 *2*	(11/2$^+$)		CD	Jπ: 890γ to (9/2$^+$) g.s., 844γ to (7/2$^+$) 46 from (^{36}Ar,2pnγ): E=111 MeV.
973.5c	(13/2$^+$)		AB D	Jπ: M1 ΔJ=1 538γ to (11/2$^+$) 436, E2 ΔJ=2 973γ to (9/2$^+$) from (^{36}Ar,2pnγ): E=111 MeV.
1660	(11/2$^+$)		D	Jπ: 686γ to (13/2$^+$) 974, 686γ to (9/2$^+$) 974 from (^{36}Ar,2pnγ): E=111 MeV.
1872.0c	(17/2$^+$)		AB D	Jπ: E2 ΔJ=2 899γ to (13/2$^+$) 974 from (^{36}Ar,2pnγ): E=111 MeV.
1893.0b	(13/2$^-$)a		AB D	Jπ: E1 ΔJ=0 920γ to (13/2$^+$) 974, 1003γ to (11/2$^+$) 890 from (^{36}Ar,2pnγ): E=111 MeV.
2179	(15/2$^+$)		D	Jπ: 519γ to (11/2$^+$) 1660 from (^{36}Ar,2pnγ): E=111 MeV.
2200.0b	(17/2$^-$)a		AB D	Jπ: E1 ΔJ=0 328γ to (17/2$^+$) 1872, Q ΔJ=2 307γ to (13/2$^-$) 1893 from (^{36}Ar,2pnγ): E=111 MeV.
2253.8b	(15/2$^-$)a		AB D	Jπ: M1 ΔJ=1 361γ to (13/2$^-$) 1893, E1 ΔJ=1 1281γ to (13/2$^+$) 974 from (^{36}Ar,2pnγ): E=111 MeV.
2363	(17/2$^+$)		D	Jπ: M1 ΔJ=0 491γ to (17/2$^+$) 1872 from (^{36}Ar,2pnγ): E=111 MeV.
2369.4c	(21/2$^+$)		AB D	Jπ: E2 ΔJ=2 497γ to (17/2$^+$) 1872 from (^{36}Ar,2pnγ): E=111 MeV.
2409.3b	(17/2$^-$)&		AB D	Jπ: D ΔJ=1 155γ to (15/2$^-$) 2254 *1893*, E2 ΔJ=2 516γ to (13/2$^-$) 1893 from (^{40}Ca,α2pnγ).

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Adopted Levels, Gammas (continued)

^{91}Ru Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
2709.3[b]	(19/2⁻)[a]	AB D	Jπ: M1 ΔJ=1 300γ to (17/2⁻) 2409 from (^{40}Ca, A2PNG), 509γ to (17/2⁻) 2200 from (^{36}Ar,2pnγ): E=149 MeV.
2799	(21/2⁺)	D	Jπ: E2 ΔJ=2 436γ to (17/2⁺) 2363 from (^{36}Ar,2pnγ): E=111 MeV.
2927.6[b]	(19/2⁻)	A D	Jπ: D ΔJ=1 728γ to (17/2⁻) 2200, 218γ to (19/2⁻) 2709 from (^{36}Ar,2pnγ): E=149 MeV.
2985.3[c]	(23/2⁺)	AB D	Jπ: D ΔJ=1 616γ to (21/2⁺) 2369 from (^{40}Ca,α2pnγ).
3004.9[b]	(19/2⁻)	A	Jπ: 296γ to (19/2⁻) 2709, 804γ to (17/2⁻) 2200 from (^{36}Ar,2pnγ): E=149 MeV.
3164.3[b]	(21/2⁻)[a]	AB D	Jπ: Q ΔJ=2 965γ to (17/2⁻) 2200, D ΔJ=1 455γ to (19/2⁻) 2710 from (^{36}Ar,2pnγ): E=149 MeV.
3192.5[c]	(25/2⁺)	AB D	Jπ: D ΔJ=1 207γ to (23/2⁺) 2984, E2 ΔJ=2 823γ to (21/2⁺) 2369 from (^{36}Ar,2pnγ).
3258	(21/2⁻)	D	Jπ: M1 ΔJ=1 549γ to (19/2⁻) 2709 from (^{36}Ar,2pnγ): E=111 MeV.
3554.6[b]	(23/2⁻)[a]	AB D	Jπ: M1 ΔJ=1 391γ to (21/2⁻) 3163, E2 ΔJ=2 845γ to (19/2⁻) 2708 from (36α,2pnγ): E=111 MeV.
3633.6[c]	(25/2⁺)	AB D	Jπ: 648γ to (23/2⁺) 2984, E2 ΔJ=2 1264γ to (21/2⁺) 2369 from (^{36}Ar,2pnγ): E=111 MeV.
3893.9[b]	(23/2⁻)	A	Jπ: 339γ to (23/2⁻) 3555, 889γ to (19/2⁻) 3005 from (^{36}Ar,2pnγ): E=149 MeV.
3969.8[c]	(27/2⁺)	AB D	Jπ: 337γ to (25/2⁺) 3632, M1 ΔJ=1 778γ to (25/2⁺) 3191 from (^{36}Ar,p2nγ): E=111 MeV.
4035.8[b]	(25/2⁻)[a]	AB D	Jπ: 142γ to (23/2⁻) 3894, E2 ΔJ=2 871γ to (21/2⁻) 3163 from (^{36}Ar,2pnγ): E=111 MeV.
4151.6[c]	(29/2⁺)	AB D	Jπ: D ΔJ=1 182γ to (27/2⁺) 3970, E2 ΔJ=2 959γ to (25/2⁺) 3193 from (^{36}Ar,2pnγ): E=111 MeV.
4379.7[b]	(27/2⁻)[a]	AB D	Jπ: M1 ΔJ=1 344γ to (25/2⁻) 4036; Q ΔJ=2 825γ to (23/2⁻) 3555 from (^{40}Ca,αp2nγ).
4847	(27/2⁻)	D	Jπ: M1 ΔJ=1 812γ to (25/2⁻) 4036 from (^{36}Ar,2pnγ): E=111 MeV.
4991.9[b]	(29/2⁻)[a]	AB D	Jπ: M1 ΔJ=1 612γ to (27/2⁻) 4380; 1022γ to (27/2⁺) 3970 from (^{36}Ar,2pnγ): E=149 MeV.
5097	(31/2⁺)	D	Jπ: Q, ΔJ=2 1127γ to (27/2⁺) 3970 from (^{36}Ar,2pnγ):E=111 MeV.
5100	(29/2⁻)	D	Jπ: M1 ΔJ=1 721γ to (27/2⁻) 4380; 253γ to (27/2⁻) 4847 from (^{36}Ar,2pnγ):E=111 MeV.
5108.8[c]	(33/2⁺)	AB D	Jπ: stretched E2 957γ to (29/2⁺) 4152 from (^{36}Ar,2pnγ):E=111 MeV.
5961.7[c]	(35/2⁺)	AB	Jπ: D ΔJ=1 853γ to (33/2⁺) 5109 from (^{36}Ar,2pnγ): E=149 MeV.
5996.4[b]	(33/2⁻)[&]	AB D	Jπ: stretched E2 1005γ from (^{36}Ar,2pnγ) to (29/2⁻) 4992.
6085.0[c]	(37/2⁺)	AB	Jπ: 123γ to (35/2⁺) 5960; 976γ to (33/2⁺) 5109 In (^{40}Ca,α2pnγ).
6313.8[b]	(35/2⁻)[a]	AB	Jπ: D 317γ to (35/2⁻) 5996 from (^{40}Ca,α2pnγ).
6922.3[b]	(37/2⁻)[a]	AB	Jπ: 609γ to (35/2⁻) 6214 from ^{58}Ni(^{36}Ar,2pnγ): E=149 MeV.
7515.2[c]	(41/2⁺)	AB	Jπ: stretched Q 1430γ to (37/2⁺) 6085 from (^{40}Ca,α2pnγ).
7516.8[b]	(39/2⁻)[a]	AB	XREF: B(7197). Jπ: stretched Q 1203γ to (35/2⁻) 6314 In (^{36}Ar,2pnγ): E=149 MeV. E(level): 7197 in (^{40}Ca,α2pnγ) because 1203γ was placed feeding 5996 level in that study.
8149[b]	(41/2⁻)	AB	Jπ: 1227γ to (37/2⁻) 6922 from (^{36}Ar,2pnγ): E=149 MeV.
9630	(43/2⁻,45/2⁻)	B	Jπ: 1481γ to (41/2⁻) 8149 from (^{40}Ca,α2pnγ). Differs from J proposed in (^{40}Ca,α2pnγ) because adopted J(8149 level) differs from that in (^{40}Ca,α2pnγ).

[†] From least-squares fit to Eγ, allowing 1 keV uncertainty (the maximum specified by authors) for data from (^{40}Ca,α2pnγ) and (^{36}Ar,2pnγ): E=149 MeV.

[‡] Based on γ deexcitation data given in comments and/or on systematics of (HI,xnγ)-type reactions, unless noted otherwise.

[#] From systematics of N=47 isotones, it is concluded that the 1/2⁻ state (rather than the 9/2⁺ state) is the isomeric one (1983Ha06).

[@] Although the $T_{1/2}$ observed in ε-delayed p decay is similar to that measured in (9/2⁺) ^{91}Ru ε decay, it is presumed that two isomers exist since the spin difference between ^{91}Ru (9/2⁺) and ^{90}Mo g.s. (0⁺) is too large to allow sizeable ε-delayed p decay. Also, from systematics for N=47 isotones, 9/2⁺ and 1/2⁻ states are expected at low excitation and, among these Jπ possibilities, the statistical-model calculations of 1983Ha06 favor 1/2⁻ for the delayed p precursor. Dominant configuration=$(\nu\ p_{1/2})^{-1}$ (1994He09).

[&] configuration includes major contribution from $((\nu\ p_{1/2})^{-1}(\nu\ g_{9/2})^{-2})17/2$ or $((\pi\ g_{9/2})^{2}(\nu\ p_{1/2})^{-1}(\nu\ g_{9/2})^{-2})$ (see 1994He09).

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Adopted Levels, Gammas (continued)

^{91}Ru Levels (continued)

[a] Major Configuration=$((\pi\ p_{1/2})(\pi\ g_{9/2})^{n}(\nu\ g_{9/2})^{-m})$, with seniority=3, 5, 7 and/or 9 components; see 1994He09 for more detailed discussion of likely configurations.
[b] Band(A): π=−, seniority≥3 states.
[c] Band(B): π=+, seniority≥3 states. Principal Configuration=$((\pi\ g_{9/2})^{n}(\nu\ g_{9/2})^{-m})$, with seniority=3, 5 and/or 7 components; see 1994He09 for more detailed discussion of likely configurations.

$\gamma(^{91}Ru)$

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
46	(7/2$^+$)	(46)		0.0	(9/2$^+$)		E_γ: from level energy difference. γ shown In fig. 7 of 2013Zh10 but details not yet available.
436.0	(11/2$^+$)	436.0 *5*	100	0.0	(9/2$^+$)		
889.8	(11/2$^+$)	844		46	(7/2$^+$)		
		889.8 *2*	100	0.0	(9/2$^+$)		E_γ: from ε decay.
973.5	(13/2$^+$)	538.0 *5*	<0.40	436.0	(11/2$^+$)	M1[a]	
		973.1 *1*	100	0.0	(9/2$^+$)	E2[a]	E_γ: from ε decay; 973.5 *5* from (^{36}Ar,2pnγ): E=111 MeV.
1660	(11/2$^+$)	686		973.5	(13/2$^+$)		
		1614		46	(7/2$^+$)		
		1660		0.0	(9/2$^+$)		
1872.0	(17/2$^+$)	898.5 *5*	100	973.5	(13/2$^+$)	E2[a]	
1893.0	(13/2$^-$)	234		1660	(11/2$^+$)		
		919.8 *5*	100.0 *9*	973.5	(13/2$^+$)	E1[a]	Mult.: interpreted as ΔJ=0 transition in (^{40}Ca,α2pnγ).
		1003		889.8	(11/2$^+$)		
2179	(15/2$^+$)	519	100	1660	(11/2$^+$)		
2200.0	(17/2$^-$)	306.8 *5*	7.6 *8*	1893.0	(13/2$^-$)	Q[a]	I_γ: 11 *3* from (^{40}Ca,α2pnγ), 34 *7* from (^{36}Ar,2pnγ): E=149 MeV.
		328.0 *5*	100.0[@] *4*	1872.0	(17/2$^+$)	E1[a]	interpreted as ΔJ=0 transition in (^{36}Ar,2pnγ).
2253.8	(15/2$^-$)	360.6 *5*	100 *3*	1893.0	(13/2$^-$)	M1[a]	
		1280.7 *5*	36 *14*	973.5	(13/2$^+$)	E1[a]	
2363	(17/2$^+$)	491.4 *5*	100	1872.0	(17/2$^+$)	M1[a]	interpreted As D ΔJ=0 transition In (^{36}Ar,2pnγ): E=111 MeV.
2369.4	(21/2$^+$)	497.2 *5*	100	1872.0	(17/2$^+$)	E2[a]	B(E2)(W.u.)>0.038 Mult.: Q from DCO ratio in (^{36}Ar,2pnγ): E=149 MeV; not M2 from RUL, based on≤20 ns $\gamma\gamma$-coincidence resolving time.
2409.3	(17/2$^-$)	155.4 *5*	67 *4*	2253.8	(15/2$^-$)	D[a]	
		209.4 *5*	100 *4*	2200.0	(17/2$^-$)		Mult.: interpreted As D, ΔJ=0 In (^{36}Ar,2pnγ): E=111 MeV.
		516.4 *5*	24.4 *22*	1893.0	(13/2$^-$)	E2[a]	other Iγ: 100 *25* from (^{36}Ar,p2nγ): E=149 MeV.
2709.3	(19/2$^-$)	299.9 *5*	100 *14*	2409.3	(17/2$^-$)	M1[a]	I_γ: from (^{36}Ar,p2nγ): E=149 MeV.
		509.4	57 *29*	2200.0	(17/2$^-$)		I_γ: from (^{36}Ar,p2nγ): E=149 MeV; unobserved At E=111 MeV.
2799	(21/2$^+$)	436.0 *5*	100	2363	(17/2$^+$)	E2[a]	
2927.6	(19/2$^-$)	218	33 *17*	2709.3	(19/2$^-$)		I_γ: from (^{36}Ar,p2nγ): E=149 MeV only.
		727.5 *5*	100 *17*	2200.0	(17/2$^-$)	M1[a]	I_γ: from (^{36}Ar,p2nγ): E=149 MeV.
2985.3	(23/2$^+$)	615.8 *5*	100	2369.4	(21/2$^+$)	M1[a]	
3004.9	(19/2$^-$)	296.3	100 *33*	2709.3	(19/2$^-$)		I_γ: from (^{36}Sr,p2nγ): E=149 MeV.
		804	67 *33*	2200.0	(17/2$^-$)		I_γ: from (^{36}Sr,p2nγ): E=149 MeV.
3164.3	(21/2$^-$)	236.8 *5*	16.8 *17*	2927.6	(19/2$^-$)		
		455.0 *5*	5.8 *6*	2709.3	(19/2$^-$)	D	
		754.5 *5*	9.8 *12*	2409.3	(17/2$^-$)		
		964.5 *5*	100.0 *17*	2200.0	(17/2$^-$)	E2[a]	
3192.5	(25/2$^+$)	206.9 *5*	100.0 *25*	2985.3	(23/2$^+$)	D[a]	
		823.0 *5*	42.5 *13*	2369.4	(21/2$^+$)	E2[a]	other Iγ: 75 *10* from (^{36}Ar,p2nγ): E=149 MeV.

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Adopted Levels, Gammas (continued)

γ(^{91}Ru) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
3258	(21/2$^-$)	549.3 *5*	100	2709.3	(19/2$^-$)	M1[aa]	
3554.6	(23/2$^-$)	296.0 *5*	59 *7*	3258	(21/2$^-$)		
		390.5 *5*	100 *7*	3164.3	(21/2$^-$)	M1[a]	
		549.3 *5*	25 *8*	3004.9	(19/2$^-$)		from (^{36}Ar,p2nγ): E=149 MeV only.
		845.3 *5*	74 *4*	2709.3	(19/2$^-$)	E2[a]	other Iγ: 67 *8* from (^{36}Ar,p2nγ): E=149 MeV, 87 *18* from (^{40}Ca,α2pnγ).
3633.6	(25/2$^+$)	648.0 *5*	57 *4*	2985.3	(23/2$^+$)		Additional information 2.
		1263.9 *5*	100 *21*	2369.4	(21/2$^+$)	E2[a]	
3893.9	(23/2$^-$)	339	29 *14*	3554.6	(23/2$^-$)		from (^{36}Ar,p2nγ): E=149 MeV.
		889.4	100 *14*	3004.9	(19/2$^-$)		from (^{36}Ar,p2nγ): E=149 MeV.
3969.8	(27/2$^+$)	336.5 *5*	67 *4*	3633.6	(25/2$^+$)		Iγ: weighted average of 60 *10* from (^{36}Ar,2pnγ): E=149 MeV and 63 *18* from (^{40}Ca,α2pnγ).
		777.5 *5*	100.0 *21*	3192.5	(25/2$^+$)	M1[a]	
4035.8	(25/2$^-$)	142	11 *6*	3893.9	(23/2$^-$)		from (^{36}Ar,p2nγ): E=149 MeV only.
		871.2 *5*	100 *11*	3164.3	(21/2$^-$)	E2[a]	from (^{36}Ar,p2nγ): E=149 MeV.
4151.6	(29/2$^+$)	181.6 *5*	28.1 *10*	3969.8	(27/2$^+$)	D[a]	Iγ: other Iγ: 43 *4* from (^{40}Ca,α2pnγ); 20 *6* in (^{36}Ar,2pnγ): E=149 MeV.
		959.4 *5*	100 *3*	3192.5	(25/2$^+$)	E2[a]	
4379.7	(27/2$^-$)	343.8 *5*	100.0 *19*	4035.8	(25/2$^-$)	M1[a]	
		824.7 *5*	69 *4*	3554.6	(23/2$^-$)	Q[&]	other Iγ: 80 *7* from (^{36}Ar,2pnγ): E=149 MeV, 106 *8* from (^{40}Ca,α2pnγ).
4847	(27/2$^-$)	811.6 *5*	100	4035.8	(25/2$^-$)	M1[a]	
4991.9	(29/2$^-$)	612.3 *5*	100 *9*	4379.7	(27/2$^-$)	M1[a]	Mult.: DCO ratio in (^{36}Ar,2pnγ) not consistent with pure Q (as proposed based on γ anisotropy data in (^{40}Ca,α2pnγ)).
		1022	9 *4*	3969.8	(27/2$^+$)		from (^{36}Ar,p2nγ): E=149 MeV.
5097	(31/2$^+$)	1126.9 *5*	100[@]	3969.8	(27/2$^+$)	Q[a]	
5100	(29/2$^-$)	252.9 *5*	<86[@]	4847	(27/2$^-$)		
		720.7 *5*	100[@] *14*	4379.7	(27/2$^-$)	M1[a]	
5108.8	(33/2$^+$)	957.4 *5*	100	4151.6	(29/2$^+$)	E2[a]	
5961.7	(35/2$^+$)	852.9	100	5108.8	(33/2$^+$)	D[&]	Eγ: from (^{36}Ar,2pnγ): E=149 MeV.
5996.4	(33/2$^-$)	1004.7 *5*	100	4991.9	(29/2$^-$)	E2[a]	
6085.0	(37/2$^+$)	123.3	75 *11*	5961.7	(35/2$^+$)		Iγ: from (^{40}Ca,α2pnγ); 44 *22* from (^{36}Ar,2pnγ): E=149 MeV.
		976.2	100 *16*	5108.8	(33/2$^+$)		
6313.8	(35/2$^-$)	317.4	100	5996.4	(33/2$^-$)	D[&]	
6922.3	(37/2$^-$)	608.5	100	6313.8	(35/2$^-$)		Mult.: Q from γ-anisotropy ratio in (^{40}Ca,α2pnγ); however, Eγ is atypically low for a crossover transition, and γ is placed as a ΔJ=1, $\Delta\pi$=no transition in (^{36}Ar,2pnγ): E=149 MeV.
7515.2	(41/2$^+$)	1430.2	100	6085.0	(37/2$^+$)	Q[&]	Eγ: from (^{40}Ca,α2pnγ).
7516.8	(39/2$^-$)	1203.0	100	6313.8	(35/2$^-$)	Q[&]	Eγ: from (^{40}Ca,α2pnγ).
8149	(41/2$^-$)	1226.7	100	6922.3	(37/2$^-$)		Eγ: from (^{40}Ca,α2pnγ).
9630	(43/2$^-$,45/2$^-$)	1481.2	100	8149	(41/2$^-$)		Eγ: from (^{40}Ca,α2pnγ).

[†] From (^{36}Ar,2pnγ): E=111 MeV, unless noted otherwise. These data are In excellent agreement with those from (^{36}Ar,2pnγ): E=149 MeV, for which ΔE_γ=0.1-1.0 keV, depending on energy and Iγ, and with those from (^{40}Ca,α2pnγ) for which the stated precision is 0.2-1.0 keV.

[‡] From (^{36}Ar,2pnγ): E=111 MeV, unless noted otherwise.

[#] From measured DCO ratio in (^{36}Ar,2pnγ): E=149 MeV, except As noted.

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Adopted Levels, Gammas (continued)

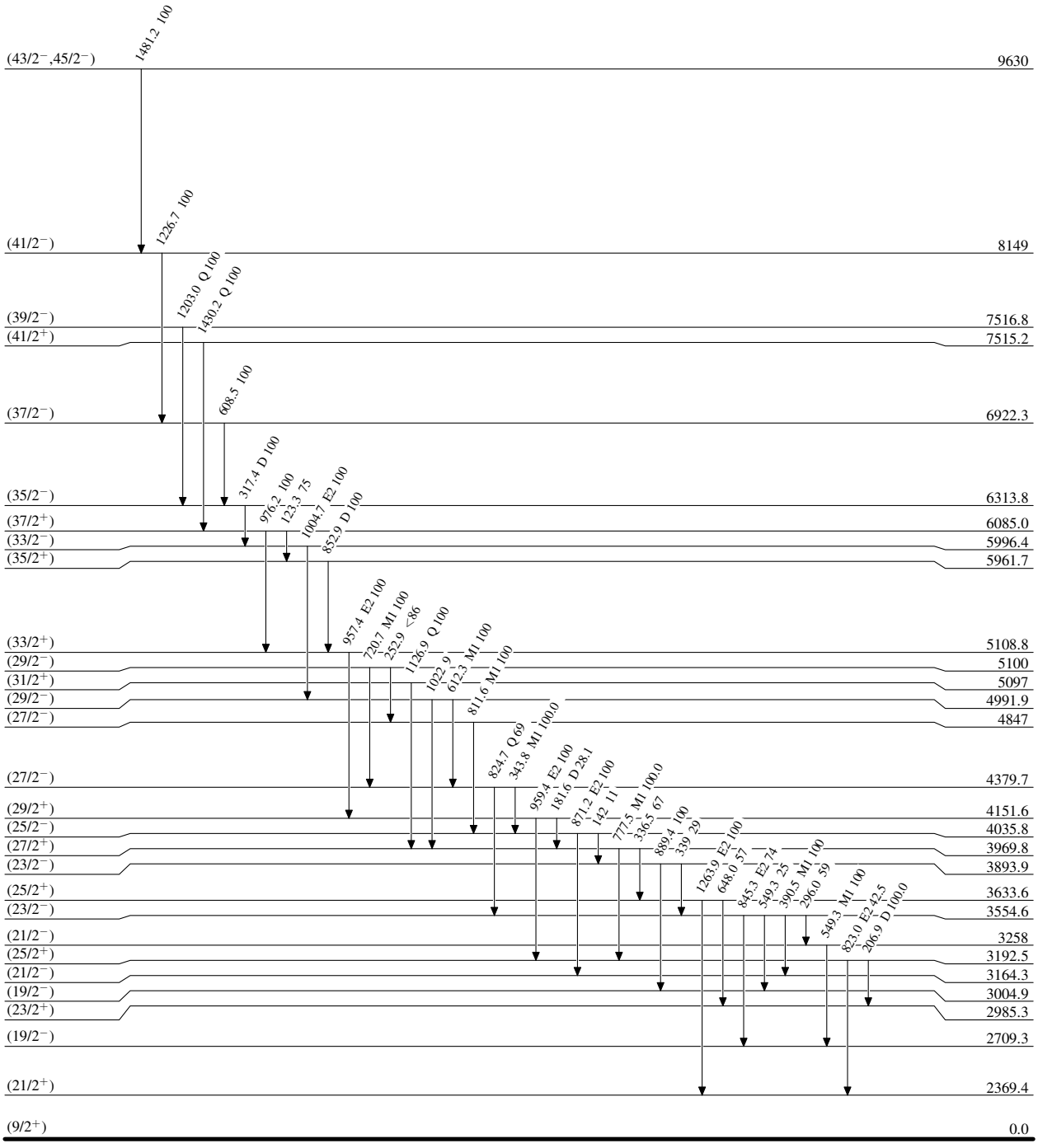
$\gamma(^{91}Ru)$ (continued)

@ From $^{58}Ni(^{36}Ar,2pn\gamma)$: E=149 MeV.
& Based on measured γ anisotropy ratio in $(^{40}Ca,\alpha 2pn\gamma)$.
a From DCO and/or polarization In $(^{36}Ar,2pn\gamma)$: E=111 MeV.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{91}_{44}Ru_{47}$

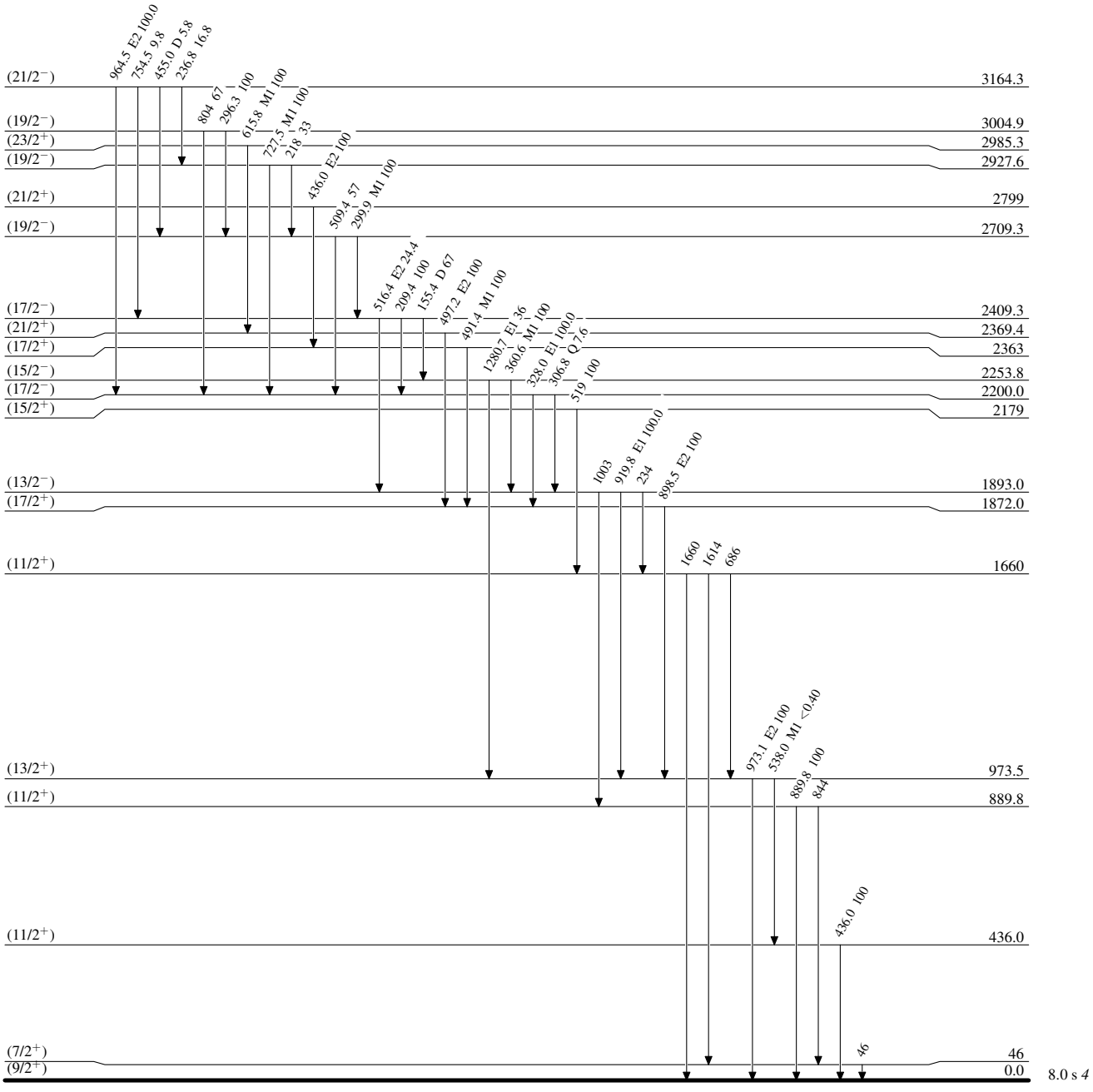
Adopted Levels, Gammas

Legend

Level Scheme (continued)

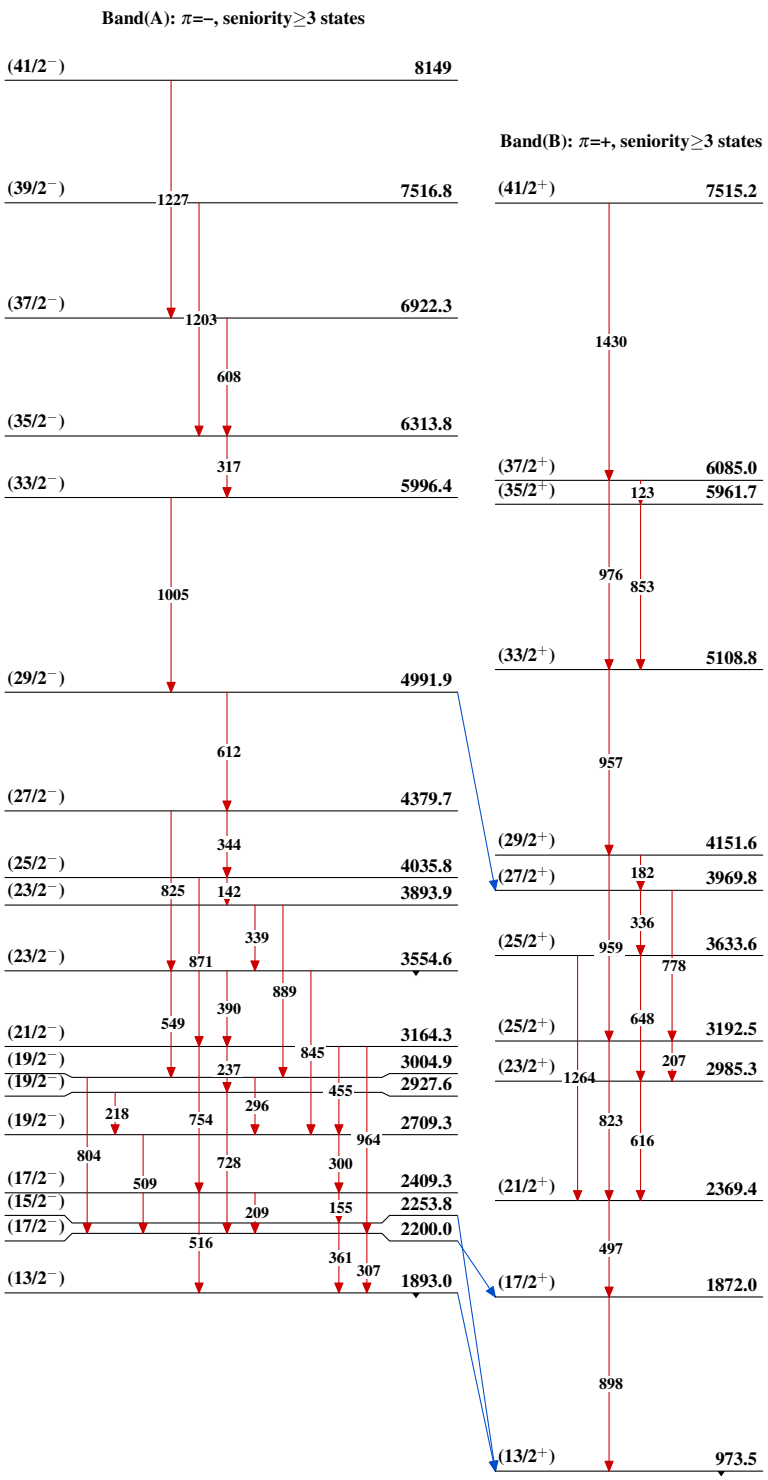
Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{91}_{44}Ru_{47}$

Adopted Levels, Gammas



$^{91}_{44}Ru_{47}$