^{47}Ti(p,n),(p,nγ) 1975Th10,1974Sc25

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows	NDS 108,923 (2007)	20-Feb-2007

1973Bl11: E=3.6-5.3 MeV. Measured γ′s and γ(θ) and ce′s (s,Si(Li)). See also ^{10}B(^{40}Ca,n2pγ),^{24}Mg(^{32}S,2αpγ),...
1974Sc25: E=3.8-6.0 MeV. Measured γ′s, γγ- and nγ-coincidences, and γ(θ), θ=0°−90°; Ge(Li), NaI, and scintillator.
1975Th10: E=4.7-5.4 MeV. Measured γ′s and γ-ray excitation functions, γ(θ), θ=0°−90° (15° steps). DSAM.

^{47}V Levels

Others: see 1995Bu05.

E(level)†	Jπ‡	$T_{1/2}$#	Comments
0.0	3/2−		
87.5 *1*	5/2−	0.66 ns *4*	Jπ: ≠3/2 from γ(θ)(1051γ).
145.7 *2*	7/2−	0.54 ns *7*	Jπ: ≠5/2 from γ(θ)(1149γ).
259.6 *4*	3/2+	54 ps *8*	
660.1 *3*	5/2+	0.47@ ps *+97−24*	Jπ: J_i=7/2, J_f=5/2 uniquely from γ(θ)(478γ). π=+ from M1 γ to 3/2+.
1138.3 *4*	7/2+	0.7@ ps *+12−3*	Jπ: ≠3/2 from γ(θ)(879γ). J_i=7/2, J_f=5/2 uniquely from γ(θ)(478γ). π=+ from D,E2 γ to 3/2+.
1272.2 *4*	9/2−		Jπ: J=3/2 to 9/2 from γ′s to 5/2− and 7/2−. J=9/2 from γ(θ)(1184γ). Γ(1126γ) excludes π=+.
1295.1 *4*	11/2−		Jπ: J=1/2 to 11/2 from 1149γ to 5/2−,7/2−. J_i=11/2,9/2 and J_f=7/2 from γ(θ)(1149γ), with the 9/2 assignment being less likely.
1660.0& *25*	1/2+		
1747.1& *10*	9/2+		Jπ: deexciting gammas observed in nγ tof rule out L=4; J=7/2, 9/2 from γ(θ)(1087γ) since J=11/2 implies L=3+4.

† From 1975Th10, except as noted.
‡ From the Adopted Levels. Arguments given under comments are based on those of by 1974Sc25.
# From pulsed-beam centroid measurement (1976Wh01; E=5 MeV), except as noted. $T_{1/2}$(88)=817 ps *26* corrected for the shift due to 58γ.
@ From 1975Th10.
& From 1974Sc25.

γ(^{47}V)

Coincidences from nγ and γγ (1974Sc25) are shown on the drawing.

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.#	δ#	Comments
87.5	5/2−	87.5 *1*	100@	0.0	3/2−	M1+E2	0.125 *21*	α(K)exp=0.0372 *27* (1967Me18); α(L+...)exp=0.00467 *67* (1967Me18) K/(L+M+N)=7.95 *48* (1967Me18); α(K)=0.037 *3*; α(L)=0.0036 *3* α(exp)=0.0411 *28*. Mult.,δ: from α(K)exp and K/L+ (evaluator). α: Σα(exp)′s. α(K)exp,α(L+...)exp,K/L+: from 1967Me18 (E=5.8 MeV; s).
145.7	7/2−	58.2 *1*	99.0 *5*	87.5	5/2−			
		145.7	1.0 *5*	0.0	3/2−			
259.6	3/2+	172	13 *1*	87.5	5/2−			

Continued on next page (footnotes at end of table)

^{47}Ti(p,n),(p,nγ) 1975Th10,1974Sc25 (continued)

γ(^{47}V) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
259.6	3/2+	260	87 *1*	0.0	3/2−			
660.1	5/2+	400	29[&] *3*	259.6	3/2+	M1[@]		α: α(theory)=0.000732.
		514	18[&] *4*	145.7	7/2−			
		573	15[&] *3*	87.5	5/2−			
		660.1 *3*	38[&] *3*	0.0	3/2−			
1138.3	7/2+	478	18 *5*	660.1	5/2+	D+Q		δ: −0.2 *+1−2* or −2.4 *+7−11*.
		878.7 *3*	30 *5*	259.6	3/2+	E2(+M3)	−0.12 *23*	α: α(theory)=0.000190.
		993	4 *2*	145.7	7/2−			
		1051	44 *5*	87.5	5/2−	D+Q	<+0.2	
		1138	4 *3*	0.0	3/2−			
1272.2	9/2−	1125.7[@] *5*	82 *2*	145.7	7/2−	M1+E2		δ: −0.43 *6* or −4.3 *9*.
		1184.5 *3*	18 *2*	87.5	5/2−	E2(+M3)	+0.01 *6*	
1295.1	11/2−	157[a]	<12	1138.3	7/2+			
		635[a]	<8	660.1	5/2+			
		1035[a]	<7	259.6	3/2+			
		1149.4 *4*	100	145.7	7/2−	E2(+M3)	+0.01 *4*	
		1208[a]	<6	87.5	5/2−			
		1295[a]	<5	0.0	3/2−			
1660.0	1/2+	522[a]	<22	1138.3	7/2+			
		1000[a]	<17	660.1	5/2+			
		1401	78 *16*	259.6	3/2+			
		1514[a]	<16	145.7	7/2−			
		1572[a]	<16	87.5	5/2−			
		1660	22 *16*	0.0	3/2−			
1747.1	9/2+	452[a]	<9	1295.1	11/2−			
		475[a]	<8	1272.2	9/2−			
		609[a]	<30	1138.3	7/2+			
		1087	60 *12*	660.1	5/2+	E2+M3	−0.02 *27*	Mult.,δ: other solutions excluded by adopted J^π and comparison to RUL.
		1488[a]	<7	259.6	3/2+			
		1601	40 *12*	145.7	7/2−			
		1660[a]	<7	87.5	5/2−			
		1747[a]	<6	0.0	3/2−			

[†] Energies with no uncertainties were derived from the decay scheme by the evaluator. Other energies from 1975Th10, except as noted.

[‡] % photon branching ratios from each state. From 1975Th10 for E(level)≤1272.2 and from 1974Sc25 for E(level)≥1295.4, except as noted. Iγ from 1973Bl11, 1974Sc25, and 1975Th10 agree within uncertainties.

[#] From γ(θ) (1974Sc25) and comparison to RUL, except as noted. Data from 1975Th10 are consistent.

[@] From 1973Bl11. α(exp) were normalized assuming α(E1)=0.001726 for 260γ from theory; see the Adopted Gammas.

[&] From 1974Sc25.

[a] Placement of transition in the level scheme is uncertain.

Legend

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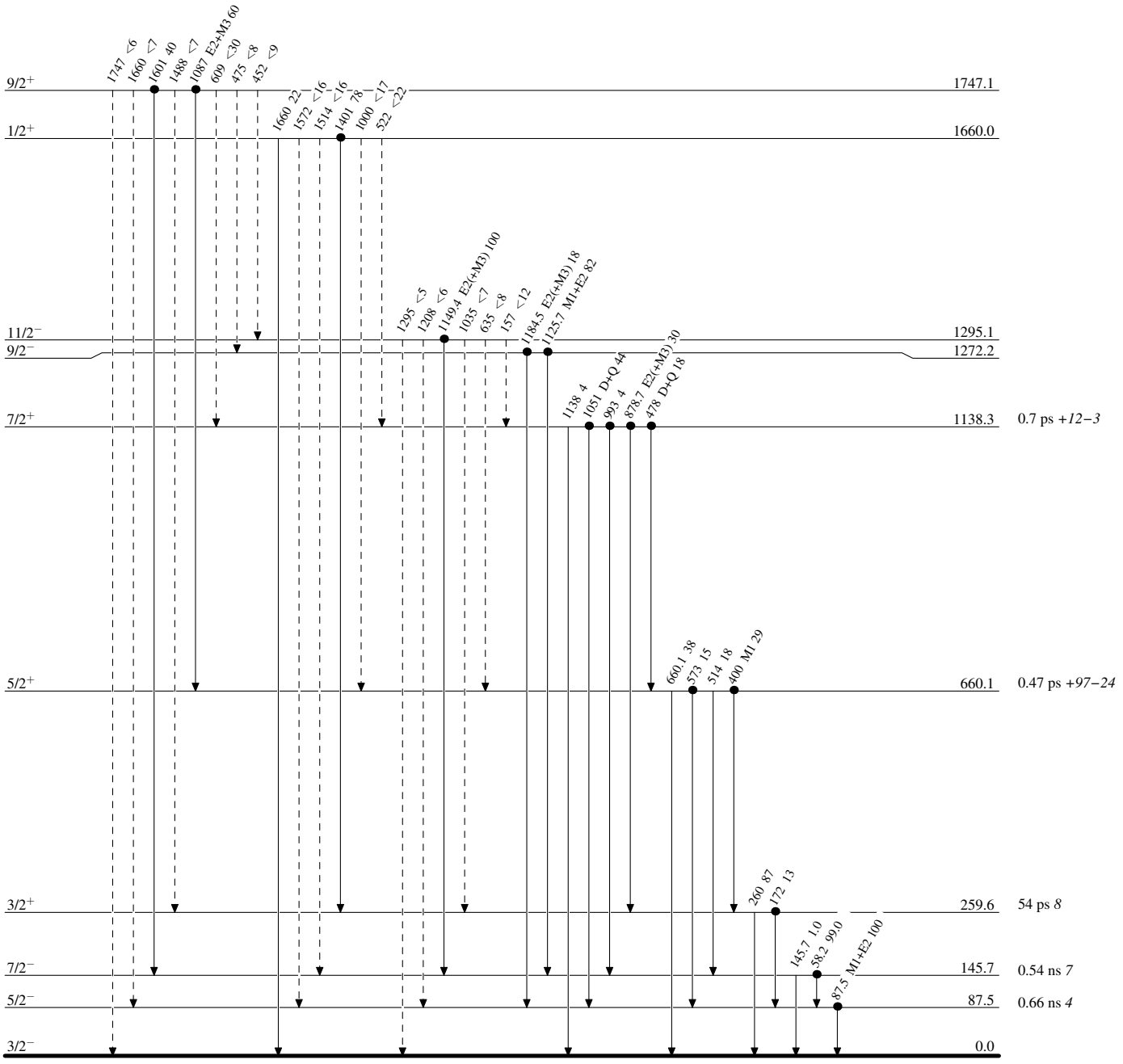
Level Scheme

Intensities: % photon branching from each level

γ Decay (Uncertain)

Coincidence



$^{47}_{23}V_{24}$