^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows[a]	NDS 109, 1879 (2008)	14-Jul-2008

Additional information 1.
1969Kl07 measured γ's and $\gamma(\theta)$.
1969Le15 measured γ-excitation functions (Eγ>6.5 MeV), γ's, and $\gamma(\theta)$.
1970Ma36 who measured elastic scattering yields (Si, back angles, FWHM=600 eV) and gammas (NaI, Ge(Li)).
1972Ki06 measured γ's and $\gamma(\theta)$. DSAM.
1973Ro40 measured elastic scattering and γ-excitation functions (Si,NaI) and γ's.
1992Di02 measured γ-excitation functions (Eγ=2-5 MeV and 7-9 MeV) and γ's (HPGe At 55°).
1969Kl07, 1969Le15, 1972Ki06, 1973Ro40, and 1992Di02 studied the 1007, 1013, and 1388 resonances and, with the exception of 1973Ro40, they also studied the 1362 resonance. 1972Ki06 studied nine other resonances between 960 and 1570 keV and 1992Di02 studied 96 additional resonances between 960 and 2488 keV.
Only those resonances providing information on the bound states of ^{49}V or the ^{49}Ti parent states are summarized here; see 1978Ha15 and 1968Kl04 for additional resonances and the discussion In (p,p),(p,p'),(p,p'γ), below. 1978Ha15 also summarize the results of other measurements, compare these results to the data presented here, and discuss the discrepancies between the various data. Others: 1987Le22, 1990Ne07, and 1992Ne05.

^{49}V Levels

E(J),J(K) from 1969Kl07. J$^{\pi}$'s based on primary $\gamma(\theta)'$s and Γ_{γ}'s and L(P)=1 for 3912 state from (^{3}He,d).

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$[#]	Comments
0.0	7/2$^-$		
90.634[‡] *2*	5/2$^-$		
152.9282[‡] *17*	3/2$^-$	19.9 ns *4*	g=+1.58 *8* (1972Vi06) T$_{1/2}$,g: from 1972Vi06 (E=1362 keV, NaI). T$_{1/2}$ from γ(t); g-factor from DPAD.
748.1[&] *5*	3/2$^+$	0.14 ps *+28−7*	
1021?[a]	11/2$^-$		
1140.0[&] *5*	5/2$^+$	0.17 ps *+35−7*	J$^{\pi}$: 1969Le15 and 1972Ki06 suggest 5/2$^{(-)}$ on the basis L(P)=(3) In (t,α) and primary $\gamma(\theta)$. T$_{1/2}$: disagrees with 1.3 ps *+6−4* from (α,pγ).
1155.0[&] *5*	9/2$^-$	>0.28 ps	
1514.7[&] *5*	5/2$^-$	31 fs *21*	T$_{1/2}$: see comment In (α,pγ).
1603 *2*	7/2$^+$		
1643.6[&] *5*	(3/2$^-$,5/2)[b]	38 fs *21*	T$_{1/2}$: see comment In (α,pγ).
1646 *2*	(1/2$^+$)[b]		
1661.4[&] *5*	3/2$^-$	17 fs *3*	
1994.0[&] *10*	3/2$^{(+)}$	>0.28 ps	
2179 *2*	9/2$^+$		
2183[&] *2*	7/2$^-$		
2234.7[&] *10*	5/2	21 fs *+21−10*	
2264.3[&] *10*	5/2$^-$	31 fs *+21−10*	J$^{\pi}$: 1972Ki06 suggest (3/2)$^-$ based on L(P)(2279)=1 In (^{3}He,d) and primary and secondary $\gamma(\theta)$.
2308.3[&] *10*	3/2$^-$	14 fs *7*	J$^{\pi}$: 3/2 from primary and secondary $\gamma(\theta)$.
2388.2[&] *10*	5/2$^+$		
2408[&c] *1*	(7/2$^-$)		
2671 *2*			reported only by 1992Di02.

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^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

^{49}V Levels (continued)

E(level)†	Jπ‡	Comments
2680 *2*	(7/2,9/2)[d]	
2806 *2*	5/2+	
2809& *1*	5/2−,7/2−	
3134 *2*	7/2,9/2(+)	Jπ: 1992Di02 assumed 7/2− In their multidimensional nonmetric scaling analysis.
3224& *1*	(1/2,3/2,5/2−)[d]	
3239& *1*	7/2−	reported only by 1972Ki06 and 1992Di02.
3242 *2*	(3/2,5/2,7/2−)[d]	
3259 *2*	(≥9/2)	Jπ: seen only At 7/2− resonances (1992Di02).
3325 *2*	(1/2+ to 7/2+)[d]	
3342 *2*	(1/2+ to 9/2+)[e]	
3388& *1*	(3/2,5/2−)[d]	
3405	(3/2)−	
3464 *2*	(3/2+ to 9/2+)[e]	
3516 *2*	(3/2− to 9/2)[d]	
3521 *2*	(≤9/2)[d]	
3531& *2*	(≤7/2−)[d]	reported only by 1972Ki06 and 1992Di02.
3603 *2*		
3638 *2*	(7/2−)[d]	
3671 *2*	(1/2+ to 9/2+)[e]	
3678 *2*	(7/2)−[d]	
3694 *2*	3/2+,5/2+	
3721 *2*	(≤7/2)−[d]	
3741[a] *2*	1/2−,3/2−	Jπ: 1/2,3/2 from $\gamma(\theta)$'s from 1007 and 1013 resonance. 1969Kl07 suggest 3/2−.
3757& *2*	5/2−,7/2−	
3771 *2*	(1/2+ to 9/2+)[d]	
3782 *2*	(≥9/2)	Jπ: seen only At 7/2− resonance (1992Di02).
3816[a] *2*	(≤7/2−)	
3841& *2*	1/2(+),3/2,5/2−[d]	
3912& *2*	(3/2)−[f]	
3927 *2*	(1/2+ to 9/2+)[e]	
3960& *2*	(3/2−,5/2,7/2−)[d]	reported only by 1972Ki06 and 1992Di02.
4002& *2*	(3/2)−[f]	
4035 *2*	(3/2− to 9/2+)[d]	
4088[a] *2*	3/2(−),5/2,7/2−	Jπ: ≤7/2 from $\gamma(\theta)$'s from 1007 and 1013 resonances. 1969Kl07 suggest 5/2(−).
4098 *2*	(≤7/2−)[d]	
4129[a] *2*	(5/2)−	
4152 *2*		
4218& *2*	(3/2)−[f]	seen only by 1972Ki06 and 1992Di02.
4253[a] *2*	1/2−,3/2−	
4259 *2*	(3/2,5/2,7/2)[d]	
4270 *2*		
4289 *2*	3/2+,5/2+	
4359 *2*		
4373[a] *2*	1/2−,3/2−	
4397 *2*	5/2−,7/2−[d]	
4422 *2*		
4498[a] *2*	5/2(−),7/2(−)	
4540 *2*		
4590[a] *2*		

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^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

^{49}V Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	Γ_γ, eV[@]	Comments
4635[a] 2	5/2$^-$			
4740[&c] 2	3/2$^+$,5/2$^+$			
4840[&c] 2	1/2$^-$,3/2$^-$			
4947[a] 2	1/2$^-$,3/2$^-$			
5042[&c] 2				
5212[a] 2	1/2$^-$,3/2$^-$			
5230[&c] 2				
S(p)+1007.4	3/2$^-$	8[@] eV *3*	0.88 *25*	IAR(^{49}Ti 1382, 3/2$^-$).
S(p)+1013	3/2$^-$	6[@] eV *2*	0.70 *20*	IAR(^{49}Ti 1382, 3/2$^-$).
S(p)+1103 *2*	(1/2$^-$)[g]			
S(p)+1176 *2*	(1/2$^-$)[g]			
S(p)+1210 *2*	(3/2$^-$)[h]			IAR(^{49}Ti, 1586, 3/2$^-$) (1992Di02).
S(p)+1281 *2*	(3/2$^-$)[h]			IAR(^{49}Ti, 1586, 3/2$^-$) (1992Di02).
S(p)+1327 *2*	(3/2,5/2$^+$)			Jπ: 3/2,5/2$^+$ from decay pattern assuming strong transitions are D or E2 and Jπ(1646)=1/2$^+$; 3/2,5/2$^+$ from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+1341 *2*	(5/2)[i]			IAR(^{49}Ti, 1623, (5/2)$^-$) (1992Di02).
S(p)+1362.2[&]	1/2$^-$	50[@] eV *15*	2.5 *7*	Jπ: from 7936γ isotropy (1969Le15). IAR(^{49}Ti 1723, 1/2$^-$).
S(p)+1374.1[&]	(1/2)			Jπ: from isotropic primary γ's (1972Ki06). IAR(^{49}Ti, 1723, 1/2$^-$) (1992Di02).
S(p)+1387.7[&]	3/2$^-$		0.33 *9*	Jπ: from $\gamma(\theta)'$s to g.s., 91, 153, and 748 states (1969Le15). Γ_γ, eV: weighted av of I$\gamma\Gamma\gamma$ for 6121, 6454, 6472, and 6974 γ's. Dig=50 assumed (evaluator). IAR(^{49}Ti 1762, 5/2$^-$)? see 1978Ha15 for discussion.
S(p)+1402 *2*	(3/2$^-$)[h]			
S(p)+1564.3[&]	3/2$^{(-)}$			Jπ: from $\gamma(\theta)'$s; π=− based on greater probability for P-wave penetration and non-zero δ's to 91 and 153 states (1972Ki06).
S(p)+1804 *2*	(5/2)[j]			
S(p)+1909 *2*	(3/2$^-$)			Jπ: 3/2$^-$,5/2 from decay pattern assuming strong transitions are D or E2; 1/2,3/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+1914 *2*	(5/2)[j]			IAR(^{49}Ti, 2261, (5/2)$^-$) (1992Di02).
S(p)+1922 *2*	(3/2$^-$)[h]			
S(p)+1924 *2*	(3/2$^-$,5/2$^+$)			Jπ: 3/2$^-$,5/2$^+$ from decay pattern assuming strong transitions are D or E2 and Jπ(1646)=1/2$^+$; 3/2,5/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+1964 *2*	(5/2)[i]			
S(p)+2069 *2*	(5/2)[i]			IAR(^{49}Ti, 2471, (5/2)$^-$) (1992Di02).
S(p)+2073 *2*	(5/2$^-$)			Jπ: 5/2$^-$ from decay pattern assuming strong transitions are D or E2; 5/2 from multidimensional nonmetric scaling analysis (1992Di02). IAR(^{49}Ti, 2471, (5/2)$^-$) (1992Di02).
S(p)+2137 *2*	(5/2$^-$,7/2$^-$)			Jπ: 5/2$^-$,7/2$^-$ from decay pattern assuming strong transitions are D or E2; 5/2,7/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+2153 *2*	(5/2$^+$)[k]			
S(p)+2163 *2*	(5/2)[i]			IAR(^{49}Ti, 2513, 5/2$^-$) (1992Di02).
S(p)+2167 *2*	(5/2)[l]			
S(p)+2177 *2*	(3/2$^-$)[h]			

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^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

^{49}V Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	Comments
S(p)+2180 *2*	(5/2$^-$)	J$^{\pi}$: ≥5/2$^-$ from decay pattern assuming strong transitions are D or E2; 5/2 from multidimensional nonmetric scaling analysis (1992Di02). IAR(^{49}Ti, 2513, 5/2$^-$) (1992Di02).
S(p)+2182 *2*	(5/2$^+$)[k]	
S(p)+2189 *2*	(5/2)[i]	IAR(^{49}Ti, 2513, 5/2$^-$) (1992Di02).
S(p)+2199 *2*	(5/2)[i]	IAR(^{49}Ti, 2513, 5/2$^-$) (1992Di02).
S(p)+2208 *2*	(5/2$^+$)[m]	
S(p)+2212 *2*	(7/2$^-$)	J$^{\pi}$: 5/2,7/2$^-$ from decay pattern assuming strong transitions are D or E2; 7/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+2215 *2*	(5/2)[j]	
S(p)+2230 *2*	(5/2)[j]	
S(p)+2253 *2*	(5/2$^+$)[m]	
S(p)+2287 *2*	(1/2$^-$)[g]	
S(p)+2297 *2*	(5/2$^+$)[m]	
S(p)+2319 *2*	(5/2)[j]	
S(p)+2327 *2*	(5/2)[i]	
S(p)+2334 *2*	(7/2$^-$)	J$^{\pi}$: 3/2$^-$,5/2,7/2$^-$ from decay pattern assuming strong transitions are D or E2; 7/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+2346 *2*	(5/2)[i]	
S(p)+2362 *2*	(5/2)[j]	
S(p)+2366 *2*	(5/2)[j]	
S(p)+2369 *2*	(3/2$^-$)[h]	
S(p)+2373 *2*	(3/2)	J$^{\pi}$: 3/2,5/2 from decay pattern assuming strong transitions are D or E2; 3/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+2380 *2*	(3/2$^-$,5/2)	J$^{\pi}$: 3/2$^-$,5/2 from decay pattern assuming strong transitions are D or E2; 3/2$^-$,5/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+2385 *2*	(5/2)[i]	
S(p)+2409 *2*	(5/2)[j]	
S(p)+2423 *2*	(5/2)	J$^{\pi}$: 5/2 from decay pattern assuming strong transitions are D or E2; 3/2,5/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+2427 *2*	(5/2)[i]	
S(p)+2440 *2*	(5/2)[l]	
S(p)+2446 *2*	(5/2$^+$)[m]	
S(p)+2453 *2*	(1/2$^-$,3/2)	J$^{\pi}$: 1/2$^-$,3/2,5/2 from decay pattern assuming strong transitions are D or E2; 1/2,3/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+2460 *2*	(5/2)[m]	
S(p)+2461 *2*	(3/2$^-$)	J$^{\pi}$: 3/2$^-$,5/2,7/2$^-$ from decay pattern assuming strong transitions are D or E2; 1/2,3/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+2467 *2*	(5/2)[j]	
S(p)+2475 *2*	(5/2)	J$^{\pi}$: 3/2$^-$,5/2,7/2$^+$ from decay pattern assuming strong transitions are D or E2; 5/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+2486 *2*	(5/2,7/2$^+$)	J$^{\pi}$: 3/2$^-$,5/2,7/2$^+$ from decay pattern assuming strong transitions are D or E2; 5/2,7/2 from multidimensional nonmetric scaling analysis (1992Di02).
S(p)+2488 *2*	(5/2)[j]	

[†] From 1992Di02, except As noted. S(p)=6758.2 *8* (2003Au03).

[‡] From the Adopted Levels. Supporting arguments from (p,γ) for spins and parities are given As footnotes or comments As are discrepancies with the adopted spins and parities.

[#] From 1972Ki06, except As noted. Γ_p given for resonances.

[@] From 1970Ma36, except As noted. Γ_p=Γ assumed for analysis.

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^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

^{49}V Levels (continued)

[&] From 1972Ki06.
[a] From 1973Ro40.
[b] $1/2^+$,3/2,5/2^- from deexcitation of resonances assuming dipole or E2 for strong transitions and multidimensional nonmetric scaling analysis (1992Di02).
[c] Reported only by 1972Ki06.
[d] From deexcitation of resonances assuming dipole or E2 for strong transitions and multidimensional nonmetric scaling analysis (1992Di02).
[e] Seen only At $5/2^+$ resonances (1992Di02).
[f] From L(^{3}He,d)=1, deexcitation of resonances assuming dipole or E2 for strong transitions and multidimensional nonmetric scaling analysis (1992Di02).
[g] $1/2^-$,3/2,5/2 from decay pattern assuming strong transitions are dipole or E2; 1/2 from multidimensional nonmetric scaling analysis (1992Di02).
[h] $3/2^-$,5/2 from decay pattern assuming strong transitions are dipole or E2; 3/2 from multidimensional nonmetric scaling analysis (1992Di02).
[i] $3/2^-$,5/2 from decay pattern assuming strong transitions are dipole or E2; 5/2 from multidimensional nonmetric scaling analysis (1992Di02).
[j] 5/2 from decay pattern assuming strong transitions are dipole or E2; 5/2 from multidimensional nonmetric scaling analysis (1992Di02).
[k] $5/2^+$ from decay pattern assuming strong transitions are dipole or E2 and assuming $J^\pi(3134)=9/2^+$; 3/2,5/2 from multidimensional nonmetric scaling analysis (1992Di02).
[l] 5/2 from decay pattern assuming strong transitions are D or E2; 5/2,7/2 from multidimensional nonmetric scaling analysis (1992Di02).
[m] $5/2^+$ from decay pattern assuming strong transitions are dipole or E2 and $J^\pi(1646)=1/2^+$; 5/2 from multidimensional nonmetric scaling analysis (1992Di02). π(S(P)+2460)=+ could not Be reproduced by the evaluator.

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

$\gamma(^{49}V)$

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[@]	Comments
90.634	5/2$^-$	90[&]	100[&]	0.0	7/2$^-$			not reported by 1972Ki06.
152.9282	3/2$^-$	62[&]	52[&]	90.634	5/2$^-$			transitions from this state not reported by 1972Ki06.
		153[&]	48[&]	0.0	7/2$^-$			
748.1	3/2$^+$	595	53[a]	152.9282	3/2$^-$			
		657	46[a]	90.634	5/2$^-$			
		748[f]	<1[a]	0.0	7/2$^-$			
1021?	11/2$^-$	1021[&f]	100[&]	0.0	7/2$^-$			not reported by 1972Ki06.
1140.0	5/2$^+$	392	8[a]	748.1	3/2$^+$			
		987	18[a]	152.9282	3/2$^-$	D+Q[a]		δ: −0.7<δ<+0.1; −7 *3* (1972Ki06).
		1049	23[a]	90.634	5/2$^-$	D+Q[a]		δ>−0.5<−0.05 (1972Ki06)
		1140	51[a]	0.0	7/2$^-$	D+Q[a]		δ: −0.045 *20*; −5.4 *10* (1972Ki06).
1155.0	9/2$^-$	1155	>95[a]	0.0	7/2$^-$			
1514.7	5/2$^-$	1362	55[a]	152.9282	3/2$^-$			
		1424	10[a]	90.634	5/2$^-$			
		1515	35[a]	0.0	7/2$^-$			
1643.6	(3/2$^-$,5/2)	896	14[a]	748.1	3/2$^+$			
		1491	84[a]	152.9282	3/2$^-$			
		1553[f]	<2[a]	90.634	5/2$^-$			
1661.4	3/2$^-$	1509	34[a]	152.9282	3/2$^-$			
		1570	66[a]	90.634	5/2$^-$			
1994.0	3/2$^{(+)}$	854	32[a]	1140.0	5/2$^+$			
		1248	11[a]	748.1	3/2$^+$			
		1841	34[a]	152.9282	3/2$^-$			
		1903	23[a]	90.634	5/2$^-$			
2234.7	5/2	2082	15[a]	152.9282	3/2$^-$			
		2144	85[a]	90.634	5/2$^-$	D+Q[a]		δ: −0.23 *7*; +3.0 *15* (1972Ki06).
2264.3	5/2$^-$	621	5[a]	1643.6	(3/2$^-$,5/2)			
		2111	95[a]	152.9282	3/2$^-$	D+Q[a]		δ: see table In 1972Ki06.
2308.3	3/2$^-$	1560	10[a]	748.1	3/2$^+$			
		2155	35[a]	152.9282	3/2$^-$	M1+E2[a]	−0.3[a] *1*	
		2217	53[a]	90.634	5/2$^-$	M1+E2[a]		δ: −0.40 *15*; −2.1 *9* (1972Ki06).
		2308[f]	<2[a]	0.0	7/2$^-$			
2388.2	5/2$^+$	2297	70[a]	90.634	5/2$^-$			
		2388	30[a]	0.0	7/2$^-$			
2408	(7/2$^-$)	1253	20[a]	1155.0	9/2$^-$			
		1268[f]	20[a]	1140.0	5/2$^+$			Evaluator's Note: possible contaminant since Iγ(1268γ)/Iγ(1254γ)≈1 and 1254γ was observed In (α,pγ) while 1268γ was not.
		2408	60[a]	0.0	7/2$^-$			
2809	5/2$^-$,7/2$^-$	2718	40[a]	90.634	5/2$^-$			

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

$\gamma(^{49}V)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[@]	Comments
2809	5/2$^-$,7/2$^-$	2809	60[a]	0.0	7/2$^-$			
3224	(1/2,3/2,5/2$^-$)	1566[&]	50[&]	1661.4	3/2$^-$			
		3074[&]	50[&]	152.9282	3/2$^-$			
3388	(3/2,5/2$^-$)	1729[&]	40[&]	1661.4	3/2$^-$			
		1876[&]	60[&]	1514.7	5/2$^-$			
3531	(≤7/2$^-$)	1870	15[a]	1661.4	3/2$^-$			
		1887	25[a]	1643.6	(3/2$^-$,5/2)			
		3378	60[a]	152.9282	3/2$^-$			
3741	1/2$^-$,3/2$^-$	2230[&]	20[&]	1514.7	5/2$^-$			
		3591[&]	30[&]	152.9282	3/2$^-$			
		3653[&]	30[&]	90.634	5/2$^-$			
3816	(≤7/2$^-$)	3725[&]	100[&]	90.634	5/2$^-$			
3841	1/2$^{(+)}$,3/2,5/2$^-$	2180	60[a]	1661.4	3/2$^-$			
		2197	40[a]	1643.6	(3/2$^-$,5/2)			
3912	(3/2)$^-$	1650[&]	15[&]	2264.3	5/2$^-$			1972Ki06 report only 3759γ branch.
		2270[&]	25[&]	1643.6	(3/2$^-$,5/2)			
		3761[&]	30[&]	152.9282	3/2$^-$	D(+Q)[a]	−1.3[a] *20*	
4002	(3/2)$^-$	1693	40[a]	2308.3	3/2$^-$			
		2358	60[a]	1643.6	(3/2$^-$,5/2)			
4088	3/2$^{(-)}$,5/2,7/2$^-$	1855[&]	10[&]	2234.7	5/2			
		2576[&]	30[&]	1514.7	5/2$^-$			
		3937[&]	25[&]	152.9282	3/2$^-$			
		4090[&]	20[&]	0.0	7/2$^-$			
4129	(5/2)$^-$	3380[&]	50[&]	748.1	3/2$^+$			
4253	1/2$^-$,3/2$^-$	2589[&]	50[&]	1661.4	3/2$^-$			
		2606[&]	50[&]	1643.6	(3/2$^-$,5/2)			
4373	1/2$^-$,3/2$^-$	2064[&]	15[&]	2308.3	3/2$^-$			
		2138[&]	15[&]	2234.7	5/2			
		2712[&]	25[&]	1661.4	3/2$^-$			
4498	5/2$^{(-)}$,7/2$^{(-)}$	3343[&]	30[&]	1155.0	9/2$^-$			
		4345[&]	70[&]	152.9282	3/2$^-$			
4590		2355[&]	50[&]	2234.7	5/2			
4635	5/2$^-$	4548[&]	50[&]	90.634	5/2$^-$			
		4639[&]	30[&]	0.0	7/2$^-$			
4947	1/2$^-$,3/2$^-$	4853[&]	45[&]	90.634	5/2$^-$			
5212	1/2$^-$,3/2$^-$	2903[&]	50[&]	2308.3	3/2$^-$			

$^{49}_{23}V_{26}$-7

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

γ(^{49}V) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult.#	δ@	Comments
S(p)+1007.4	3/2⁻	3111	4 b					
		3249 &f	1 &					
		3620	5 b	4152				
		3658	17 b	4098	(≤7/2⁻)	D(+Q)	0.00 c *3*	
		3741	2 b	4035	(3/2⁻ to 9/2⁺)			
		3830	10	3927	(1/2⁺ to 9/2⁺)	D(+Q)	+0.01 d *2*	
		3931 &f	1 &	3841	1/2(+),3/2,5/2⁻			
		3999	9 b	3771	(1/2⁺ to 9/2⁺)	D(+Q)	−0.01 *2*	
		4355	2 b	3405	(3/2)⁻			
		5363	1 b	2408	(7/2⁻)			
		5443	3 b			D+Q		δ: 0.00 *7*; +3.9 *10* (1969Le15).
		5486	1 b					
		5516	2 b			D+Q		δ: −0.11 *23*; −1.4 *6* (1969Le15).
		6089	5 b			D+Q		δ: −0.23 *4* (1969Le15); +28 *12* (weighted ave from 1969Le15, 1972Ki06).
		6104	7 b	1661.4	3/2⁻	D+Q		δ: +0.038 *25*; −1.91 *17* (J_f=1/2) (1969Le15).
		6995 af	1 a					
		7592	18 b			D+Q	−0.023 *14*	
		7654	13 b			D(+Q)	−0.01 *2*	δ: others: 0.00 *5* or −4.6 *10* (1972Ki06); −0.13 *3* or −2.8 *3* (1969Le15).
		7745	1 b			(E2+M3)	−0.02 a *10*	
S(p)+1013	3/2⁻	3116	2 b					
		3627	2 b	4129	(5/2)⁻			
		3664	9 b	4098	(≤7/2⁻)	D(+Q)	+0.01 c *3*	
		3746	10 b	4035	(3/2⁻ to 9/2⁺)	D(+Q)	−0.01 d *2*	
		3836	7 b	3927	(1/2⁺ to 9/2⁺)	D(+Q)	−0.01 d *2*	
		3993	2 b	3782	(≥9/2)			
		4005	9 b			D(+Q)	+0.01 d *2*	
		4343	3 b	3405	(3/2)⁻			
		4360	2 b					
		5448	5 b	2308.3	3/2⁻	D(+Q)	−0.09 e *6*	
		5491	1 b	2264.3	5/2⁻			
		6095	3 b	1661.4	3/2⁻	D+Q		δ: −0.32 *7*; −16 *8* (1969Le15).
		6111	11 b			D+Q		δ: +0.02 *3*; −1.80 *10* (J_f=1/2) (1969Le15).
		6235	1 b			D+Q		δ: see table In 1969Le15.
		6611	1 b	1155.0	9/2⁻			
		7001	1 &			D(+Q)	+0.07 e *25*	

$^{49}_{23}V_{26}$-8

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

$\gamma(^{49}V)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[@]	Comments
S(p)+1013	3/2$^-$	7596	1[b]			M1		δ: +0.13 *15*; +2.5 *10* (1969Le15).
		7660	30[b]			M1+E2	+0.03 *2*	
		7752	1[b]			Q(+O)	−0.03[e] *38*	
S(p)+1103	(1/2$^-$)	4098	4	3741	1/2$^-$,3/2$^-$			
		4451	9	3388	(3/2,5/2$^-$)			
		5574	5	2264.3	5/2$^-$			
		6177	20					
		6196	43	1661.4	3/2$^-$			
		7090	11					
		7685	8					
S(p)+1176	(1/2$^-$)	4522	7	3388	(3/2,5/2$^-$)			
		5600	15					
		5645	6					
		5915	11					
		6248	15					
		6264	7	1661.4	3/2$^-$			
		7161	15					
		7756	24					
S(p)+1210	(3/2$^-$)	3690	1	4270				
		3725	1	4253	1/2$^-$,3/2$^-$			
		4031	1	3927	(1/2$^+$ to 9/2$^+$)			
		4127	1	3841	1/2$^{(+)}$,3/2,5/2$^-$			
		4265	5	3694	3/2$^+$,5/2$^+$			
		4412	1	3531	(≤7/2$^-$)			
		4555	3					
		5132	3					
		5633	9					
		5678	18					
		5708	2	2264.3	5/2$^-$			
		5948	5					
		6281	15					
		6802	4	1155.0	9/2$^-$			
		7194	2					
		7789	13					
		7851	14					
		7942	2					
S(p)+1281	(3/2$^-$)	4789	1	3242	(3/2,5/2,7/2$^-$)			
		5703	4					
		6351	4					
		6872	3	1155.0	9/2$^-$			
		7264	62					
		7859	9					
		7921	3					

$^{49}_{23}V_{26}$-9

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

$\gamma(^{49}V)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Comments
S(p)+1281	(3/2$^-$)	8012	14			
S(p)+1327	(3/2,5/2$^+$)	4317	8	3741	1/2$^-$,3/2$^-$	
		4670	2			
		4799	1			
		4816	3	3242	(3/2,5/2,7/2$^-$)	
		4834	1	3259	(≥9/2)	
		5670	2	2408	(7/2$^-$)	
		5748	4			
		5793	4			
		5823	10	2264.3	5/2$^-$	
		6063	2			
		6412	6	1661.4	3/2$^-$	
		6543	13			
		6917	10	1155.0	9/2$^-$	
		7309	7			
		7904	23			
		7966	4			
S(p)+1341	(5/2)	5806	9			
		6428	15	1661.4	3/2$^-$	
		7322	2			
		7917	41			
		7979	13			
		8070	20			
S(p)+1362.2	1/2$^-$	3456	2[a]			
		3718	5[a]	4397	5/2$^-$,7/2$^-$	
		4089	3[a]	4035	(3/2$^-$ to 9/2$^+$)	
		4179	3[a]	3927	(1/2$^+$ to 9/2$^+$)	
		4249	4[a]			
		4349	4[a]			
		4851	1[a]	3259	(≥9/2)	
		4866	4[a]	3242	(3/2,5/2,7/2$^-$)	
		6429	1[a]			
		6447	6[a]			
		7341	1[a]			
		7936	64[a]			$\gamma(\theta)$ isotropic (1969Le15).
		7999	1[a]			
S(p)+1374.1	(1/2)	4263	6[a]			
		4716	3[a]			
		4880	4[a]	3259	(≥9/2)	
		5716	4[a]	2408	(7/2$^-$)	
		5796	7[a]			
		6443	7[a]			

$^{49}_{23}V_{26}$-10

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

γ(^{49}V) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[@]	Comments
S(p)+1374.1	(1/2)	6460	25[a]					
		6589	19[a]					
		6963	4[a]					
		7355	9[a]					
		7950	4[a]					
		8012	2[a]					
		8103[f]	1[a]					
S(p)+1387.7	3/2$^-$	3743	3[a]	4397	5/2$^-$,7/2$^-$			
		4114[a]	4[a]	4035	(3/2$^-$ to 9/2$^+$)			
		4728[a]	5[a]	3405	(3/2)$^-$			
		4892[a]	3[a]	3259	(≥9/2)			
		5730	3[a]	2408	(7/2$^-$)			
		5808	3[a]					
		5853	3[a]					
		5884	3[a]	2264.3	5/2$^-$			
		6121[a]	13[a]			D+Q[a]		Γ$_\gamma$=0.05 eV (1969Le15) δ: −0.31 *5*; +4.6 *10* (1972Ki06).
		6456	5[a]			D+Q[a]		Γ$_\gamma$=0.02 eV (1969Le15) δ: +0.20 *10*; −19 *10* (1972Ki06).
		6473	7[a]			D+Q		Γ$_\gamma$=0.02 eV (1969Le15) δ: +0.19 *6*; −2.9 *5* (1969Le15).
		6601[a]	2[a]					
		6978	10[a]			D+Q	−0.11[e] *8*	Γ$_\gamma$=0.03 eV (1969Le15)
		7370	8[a]			D+Q	+0.10[a] *4*	Γ$_\gamma$=0.03 eV (1969Le15)
		7966	22[a]			D+Q		Γ$_\gamma$=0.05 eV (1969Le15) δ: +0.07 *7*; +3.5 *15* (1972Ki06).
		8027	4[a]			D(+Q)	+0.14 *15*	Γ$_\gamma$=0.009 eV (1969Le15)
		8118	2[a]			Q+O	−0.29[a] *15*	
S(p)+1402	(3/2$^-$)	4528	3	3638	(7/2$^-$)			
		4600	4	3531	(≤7/2$^-$)			
		4743	3					
		4889	1	3242	(3/2,5/2,7/2$^-$)			
		5743	4	2408	(7/2$^-$)			
		6136	5					
		6469	7					
		6488	10	1661.4	3/2$^-$			
		6616	8					
		6990	34					
		7382	5					
		7977	7					
		8039	2					

$^{49}_{23}V_{26}$-11

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

γ(^{49}V) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult. #	Comments
S(p)+1402	(3/2$^-$)	8130	1				
S(p)+1564.3	3/2$^{(-)}$	4287	2 [a]	4035	(3/2$^-$ to 9/2$^+$)		
		4548	2 [a]				
		5980	5 [a]				
		6295	2 [a]			D+Q	δ: +0.34 *25*; −5.1 *30*.
		6627	2 [a]			D+Q	δ: −0.07 *7*; +5.7 *30*.
		6645	8 [a]			D+Q	δ: +0.20 *8*; −2.3 *8* (J_f=1/2).
		6773	1 [a]				
		7148	20 [a]				
		7540	39 [a]			D+Q	δ: +0.015 *30*; −4.2 *8*.
		8137	7 [a]			D+Q	δ: +0.54 *15*; +4.1 *20*.
		8197	3 [a]			D+Q	δ: +0.12 *20*; +2.9 *10*.
		8288	4 [a]			Q+O	δ: −0.07 *7*; +1.7 *8*.
S(p)+1804	(5/2)	4566	5	4002	(3/2)$^-$		
		4923	5	3638	(7/2$^-$)		
		6118	1				
		6531	2				
		6863	21				
		6922	1	1643.6	(3/2$^-$,5/2)		
		7010	2				
		7385	9				
		7777	7				
		8372	9				
		8434	37				
		8525	1				
S(p)+1909	(3/2$^-$)	5817	7				
		6363	4				
		6633	10				
		6965	6				
		6981	13				
		7487	27				
		7879	27				
		8474	4				
		8536	1				
		8627	1				
S(p)+1914	(5/2)	4504	4	4152			
		4673	3	4002	(3/2)$^-$		
		5117	2				
		5245	2				
		6245	2				
		6323	7				
		6398	3	2264.3	5/2$^-$		
		6450	4	2234.7	5/2		

$^{49}_{23}V_{26}$-12

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

$\gamma(^{49}V)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π
S(p)+1914	(5/2)	6638	3		
		6970	3		
		6989	4		
		7029	3	1643.6	(3/2$^-$,5/2)
		7117	10		
		7492	9		
		7884	7		
		8479	24		
		8541	9		
		8632	1		
S(p)+1922	(3/2$^-$)	4422	1	4259	(3/2,5/2,7/2)
		4639	1	4035	(3/2$^-$ to 9/2$^+$)
		4680	1	4002	(3/2)$^-$
		4728	2	3960	(3/2$^-$,5/2,7/2$^-$)
		4799	1		
		4899	1		
		4919	3	3757	5/2$^-$,7/2$^-$
		5002	1	3678	(7/2)$^-$
		5401	2		
		5623	1		
		5834	1		
		6330	1		
		6996	6		
		7124	4		
		7891	23		
		8486	35		
		8548	15		
		8639	1		
S(p)+1924	(3/2$^-$,5/2$^+$)	4383	1		
		4389	1	4289	3/2$^+$,5/2$^+$
		4640	2	4035	(3/2$^-$ to 9/2$^+$)
		4682	1	4002	(3/2)$^-$
		5254	1		
		5317	1		
		5400	1		
		5508	1		
		5625	4		
		5831	1		
		6254	1		
		6332	1		
		6377	1		
		6407	3	2264.3	5/2$^-$
		6647	3		
		6979	10		
S(p)+1924	(3/2$^-$,5/2$^+$)	6995	7		
		7126	3		
		7501	9		
		7893	18		
		8488	8		
		8550	18		
		8641	2		
S(p)+1964	(5/2)	5011	1	3721	(≤7/2)$^-$
		5044	1	3678	(7/2)$^-$
		5357	2		
		5458	1	3259	(≥9/2)
		6274	1		
		6294	1		
		6417	2		
		6447	1	2264.3	5/2$^-$
		6687	2		
		7019	4		
		7035	3		
		7166	5		
		7541	1		
		7933	4		
		8528	44		
		8590	3		
		8681	22		
S(p)+2069	(5/2)	6377	2		
		6397	2		
		6789	5		
		7122	9		
		7269	5		
		7644	5		
		8036	8		
		8631	6		
		8693	22		
		8784	31		
S(p)+2073	(5/2$^-$)	5401	3		
		5547	1		
		5565	2	3259	(≥9/2)
		5772	3		
		6109	2		
		6381	2		
		6401	2		
		6479	2		
		6606	2	2234.7	5/2
		7185	1	1646	(1/2$^+$)

$^{49}_{23}V_{26}$-13

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

$\gamma(^{49}V)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π
S(p)+2073	(5/2$^-$)	7273	2		
		7633	4		
		7648	2		
		8040	6		
		8635	37		
		8697	14		
		8788	12		
S(p)+2137	(5/2$^-$,7/2$^-$)	4723	2		
		4940	2	3960	(3/2$^-$,5/2,7/2$^-$)
		5464	5		
		5628	2	3259	(≥9/2)
		5835	3		
		6046	4		
		6444	2		
		6464	8		
		6617	8	2264.3	5/2$^-$
		7248	1	1646	(1/2$^+$)
		7336	3		
		7696	1		
		7711	13		
		8698	32		
		8760	1		
		8851	7		
S(p)+2153	(5/2$^+$)	4955	2	3960	(3/2$^-$,5/2,7/2$^-$)
		5026	2		
		5126	2		
		5229	1	3678	(7/2)$^-$
		5403	1	3516	(3/2$^-$ to 9/2)
		5479	1		
		5625	1		
		5733	3		
		5850	1		
		6459	1		
		6479	1		
		6557	5		
		6602	2		
		6632	2	2264.3	5/2$^-$
		6871	1		
		7204	11		
		7263	1	1646	(1/2$^+$)
		7351	4		
		7726	8		
		8118	12		
		8713	23		
S(p)+2153	(5/2$^+$)	8775	5		
		8866	8		
S(p)+2163	(5/2)	5489	1		
		5552	1		
		5638	1		
		5653	1	3259	(≥9/2)
		5743	1		
		5860	1		
		6066	1		
		6489	4		
		6567	1		
		6642	4	2264.3	5/2$^-$
		7214	2		
		7361	2		
		7736	21		
		8128	11		
		8723	6		
		8785	9		
		8876	33		
S(p)+2167	(5/2)	4879	1	4035	(3/2$^-$ to 9/2$^+$)
		4969	1	3960	(3/2$^-$,5/2,7/2$^-$)
		5040	1		
		5065	1		
		5187	1	3741	1/2$^-$,3/2$^-$
		5417	3	3516	(3/2$^-$ to 9/2)
		5493	2		
		5864	5		
		6473	1		
		6571	3		
		6646	3	2264.3	5/2$^-$
		6698	5	2234.7	5/2
		6885	5		
		7234	4		
		7277	2	1646	(1/2$^+$)
		7365	3		
		7740	3		
		8789	23		
		8880	12		
S(p)+2177	(3/2$^-$)	4256	2		
		4518	2	4422	
		4621	2		
		4638	1	4289	3/2$^+$,5/2$^+$
		4793	1	4152	
		4931	1	4002	(3/2)$^-$

$^{49}_{23}V_{26}$-14

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

$\gamma(^{49}V)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π
S(p)+2177	(3/2$^-$)	5050	1		
		5075	1		
		5150	3		
		5197	1	3741	1/2$^-$,3/2$^-$
		5503	2		
		6581	3		
		6626	4		
		6656	2	2264.3	5/2$^-$
		6895	3		
		7228	4		
		7244	13		
		8142	30		
		8737	15		
		8799	7		
		8890	2		
S(p)+2180	(5/2$^-$)	4496	1		
		4634	1	4289	3/2$^+$,5/2$^+$
		4764	1		
		4981	2	3960	(3/2$^-$,5/2,7/2$^-$)
		5152	1		
		5255	1	3678	(7/2)$^-$
		6082	1		
		6087	1		
		6583	2		
		6628	3		
		6658	6		
		6710	2	2234.7	5/2
		6897	3		
		7230	4		
		7289	3	1646	(1/2$^+$)
		7377	3		
		7737	1		
		7752	6		
		8144	4		
		8739	7		
		8801	13		
		8892	34		
S(p)+2182	(5/2$^+$)	4636	2	4289	3/2$^+$,5/2$^+$
		5507	2		
		5653	2		
		6630	3		
		6899	2		
		7232	9		
		7291	2	1646	(1/2$^+$)
S(p)+2182	(5/2$^+$)	7379	4		
		7754	12		
		8146	29		
		8741	17		
		8803	12		
		8894	4		
S(p)+2189	(5/2)	4614	1		
		5664	4		
		5886	2		
		6593	3		
		6668	6	2264.3	5/2$^-$
		6907	4		
		7256	2		
		7259	7		
		7387	2		
		7762	6		
		8154	13		
		8749	19		
		8811	11		
		8902	20		
S(p)+2199	(5/2)	4515	2		
		4783	1		
		5000	2	3960	(3/2$^-$,5/2,7/2$^-$)
		5218	1	3741	1/2$^-$,3/2$^-$
		5309	1	3638	(7/2$^-$)
		5524	1		
		5673	1		
		6101	4		
		6504	1		
		6602	1		
		6647	1		
		6677	3		
		6916	3		
		7249	3		
		7265	1		
		7396	1		
		7771	3		
		8163	5		
		8758	8		
		8820	19		
		8911	39		
S(p)+2208	(5/2$^+$)	6612	8		
		6739	3	2234.7	5/2
		6743	3		

$^{49}_{23}V_{26}$-15

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

$\gamma(^{49}V)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π
S(p)+2208	(5/2$^+$)	6926	4		
		7275	8		
		7318	10	1646	(1/2$^+$)
		7406	4		
		7781	3		
		8173	8		
		8768	19		
		8831	13		
		8921	17		
S(p)+2212	(7/2$^-$)	4290	1		
		4890	1	4088	3/2$^{(-)}$,5/2,7/2$^-$
		5143	2	3816	(≤7/2$^-$)
		5537	2		
		6690	2		
		7262	2		
		7321	7	1646	(1/2$^+$)
		7409	2		
		7784	3		
		8771	23		
		8833	6		
		8924	47		
S(p)+2215	(5/2)	5540	4		
		5911	6		
		6618	4		
		6693	7		
		6932	2		
		7265	10		
		7281	15		
		7324	2	1646	(1/2$^+$)
		7412	2		
		7787	10		
		8179	4		
		8774	9		
		8836	7		
		8927	18		
S(p)+2230	(5/2)	5249	3	3741	1/2$^-$,3/2$^-$
		5926	2		
		6555	3		
		6633	6		
		6708	1		
		6947	3		
		7280	13		
		7296	13		
		7339	3	1646	(1/2$^+$)
S(p)+2230	(5/2)	7427	3		
		7802	2		
		8194	6		
		8789	10		
		8851	11		
		8942	21		
S(p)+2253	(5/2$^+$)	4712	1	4289	3/2$^+$,5/2$^+$
		4747	1	4259	(3/2,5/2,7/2)
		4877	1	4129	(5/2)$^-$
		5005	2	4002	(3/2)$^-$
		5038	2		
		5053	2	3960	(3/2$^-$,5/2,7/2$^-$)
		5149	2		
		5224	4		
		5577	3		
		5741	1	3259	(≥9/2)
		5831	2		
		5948	3		
		6285	2		
		6557	2		
		6785	2		

$^{49}_{23}V_{26}$-16

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

γ(^{49}V) (continued)

E_i(level)	J^{π}_i	E_{γ}†	I_{γ}‡	E_f	J^{π}_f
S(p)+2253	(5/2$^+$)	7449	9		
		7824	24		
		8216	10		
		8811	10		
		8873	12		
		8964	5		
		7351	7		
		8249	12		
		8844	64		
S(p)+2297	(5/2$^+$)	4920	2	4129	(5/2)$^-$
		5006	3	4035	(3/2$^-$ to 9/2$^+$)
		5096	5	3960	(3/2$^-$,5/2,7/2$^-$)
		5237	2	3816	(≤7/2$^-$)
		5267	3		
		5330	3		
		5337	3	3721	(≤7/2)$^-$
		5666	3		
		5991	4		
		6600	2		
		6620	10		
		7012	5		
		7361	1		
		7404	1	1646	(1/2$^+$)
		7867	5		
		8259	5		
		8854	35		
		8916	3		
		9007	3		
S(p)+2319	(5/2)	4490	2	4590	
		5359	1	3721	(≤7/2)$^-$
		5427	1	3638	(7/2$^-$)
		5642	1		
		5791	4		
		5896	1		
		6013	3		
		6622	1		
		6642	2		
		6720	1		
		7034	5		
		7367	3		
		7386	7		
		7426	1	1646	(1/2$^+$)
		7889	2		
		8281	3		
		8876	5		
		8938	4		

$^{49}_{23}V_{26}$-17

γ(^{49}V) (continued)

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π
		9029	45		
S(p)+2327	(5/2)	7897	26		
		8289	6		
		8884	25		
		8946	27		
		9037	16		
S(p)+2334	(7/2⁻)	5084	2	4002	(3/2)⁻
		5132	2	3960	(3/2⁻,5/2,7/2⁻)
		5528	2		
		5785	4		
		6373	3		
		6808	7		
		6860	11	2234.7	5/2
		7528	3		
		7903	13		
		8890	15		
		8952	11		
		9043	16		
		7061	6		
		7394	3		
		7541	3		
		7916	2		
		8308	8		
		8903	30		
		8965	16		
		9056	25		
S(p)+2362	(5/2)	5551	3		
		5684	1		
		6055	2		
		6261	1		
		6684	2		
		6836	1		
		6888	2	2234.7	5/2
		7076	4		
		7409	5		
		7425	6		
		7468	2	1646	(1/2⁺)
		7556	2		
		7931	4		
		8323	5		
		8918	17		
		8980	21		
		9071	12		
S(p)+2366	(5/2)	5116	1	4002	(3/2)⁻
		5164	2	3960	(3/2⁻,5/2,7/2⁻)
		5355	1	3771	(1/2⁺ to 9/2⁺)

$^{49}_{23}V_{26}$-18

γ(^{49}V) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$†	I$_\gamma$‡	E$_f$	J$^\pi_f$

E$_i$(level)	J$^\pi_i$	E$_\gamma$†	I$_\gamma$‡	E$_f$	J$^\pi_f$
		5382	1	3741	1/2$^-$,3/2$^-$
		5751	2		
		6059	3		
		6668	2		
		6892	2	2234.7	5/2
		7080	6		
		7413	6		
		7432	6		
		7472	5	1646	(1/2$^+$)
		7560	7		
		7935	7		
		8327	2		
		8922	10		
		8984	12		
		9075	19		
S(p)+2369	(3/2$^-$)	6062	3		
		7416	4		
		7435	4		
		7563	6		
		8330	58		
		8925	9		
		8987	5		
		9078	5		
S(p)+2373	(3/2)	7420	8		
		7439	13		
		7942	17		
		8334	16		
		8929	4		
		8993	30		
		7443	2		
		8341	6		
		8936	58		
		8998	19		
		9089	3		
S(p)+2385	(5/2)	5183	2	3960	(3/2$^-$,5/2,7/2$^-$)
		5354	2		
		5401	2		
		6078	4		
		6859	3		
		7448	10		
		7579	6		
		7954	10		
		8346	28		
		8941	7		
		9003	23		
		9094	1		

γ(^{49}V) (continued)

E_i(level)	J^π_i	E_γ†	I_γ‡	E_f	J^π_f

E_i(level)	J^π_i	E_γ†	I_γ‡	E_f	J^π_f
S(p)+2409	(5/2)	5730	1		
		6101	7		
		6312	5		
		6807	2		
		6882	11		
		7122	10		
		7514	3	1646	(1/2$^+$)
		7602	21		
		7977	6		
		8369	5		
		8964	6		
		9026	17	152.9282	3/2$^-$
		9117	6		
S(p)+2423	(5/2)	6821	4		
		6866	6		
		7469	4		
		7485	11		
		7528	8	1646	(1/2$^+$)
		8383	5		
		8978	46		
		9040	11	152.9282	3/2$^-$
		9131	5		
S(p)+2427	(5/2)	7472	15		
		7488	8		
		8386	11		
		8981	39		
		9043	8	152.9282	3/2$^-$
		9134	19		
S(p)+2440	(5/2)	5618	5		
		6965	7	2234.7	5/2
		7153	13		
		7545	12	1646	(1/2$^+$)
		7633	10		
		8400	20		
		8995	9		
		9057	13	152.9282	3/2$^-$
		9148	4		
S(p)+2446	(5/2$^+$)	5915	2		
		5930	1	3259	(≥9/2)
		6843	13		
		6888	5	2308.3	3/2$^-$
		6974	3		
		7491	8		
		7507	5		
		7638	13		
		8405	22		

$^{49}_{23}V_{26}$-20

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

γ(^{49}V) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π
		9000	11		
		9062	9	152.9282	3/2$^-$
		9153	5		
		6895	4		
		6925	9		
		7517	11		
		8412	5		
		9007	57		
		9069	11	152.9282	3/2$^-$
S(p)+2460	(5/2)	4533	1		
		4746	1		
		4809	2	4397	5/2$^-$,7/2$^-$
		5133	1	4088	3/2$^{(-)}$,5/2,7/2$^-$
		5208	2	4002	(3/2)$^-$
		5427	1		
		5474	1	3741	1/2$^-$,3/2$^-$
		5490	1	3721	($\leq$7/2)$^-$
		5565	1	3638	(7/2$^-$)
		5780	2		
		5926	2		
		6151	2		
		6362	3		
		6759	2		
		6857	8		
		6902	2		
		6932	1		
		7172	1		
		7505	9		
		7524	8		
		7564	7	1646	(1/2$^+$)
		7652	6		
		8027	4		
		8419	3		
		9014	10		
		9076	4	152.9282	3/2$^-$
		9167	13		
S(p)+2461	(3/2$^-$)	5428	1		
		5781	1		
		6858	3		
		7173	4		
		7506	3		
		7525	7		
		7565	2	1646	(1/2$^+$)
		7653	2		
		9015	59		
		9077	2	152.9282	3/2$^-$

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

$\gamma(^{49}V)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π
S(p)+2475	(5/2)	9168	4		
		6863	3		
		7511	8		
		7570	4	1661.4	3/2$^-$
		8033	8		
		8425	14		
		9020	17		
		9082	6	152.9282	3/2$^-$
		9173	35		
S(p)+2486	(5/2,7/2$^+$)	7667	3		
		8042	43		
		8434	32		
		9091	20	152.9282	3/2$^-$
		9182	2		
S(p)+2488	(5/2)	7197	24		
		7546	10		
		8444	24		
		9101	22	152.9282	3/2$^-$
		9192	20		
		5674	3		
		6178	3		
		6786	3		
		6806	3		
		6884	3		
		7532	8		
		7591	4	1661.4	3/2$^-$
		7679	8		
		8054	16		
		8446	19		
		9041	4		
		9103	5	152.9282	3/2$^-$
		9194	21		

$^{49}_{23}V_{26}$-22

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02 (continued)

$\gamma(^{49}V)$ (continued)

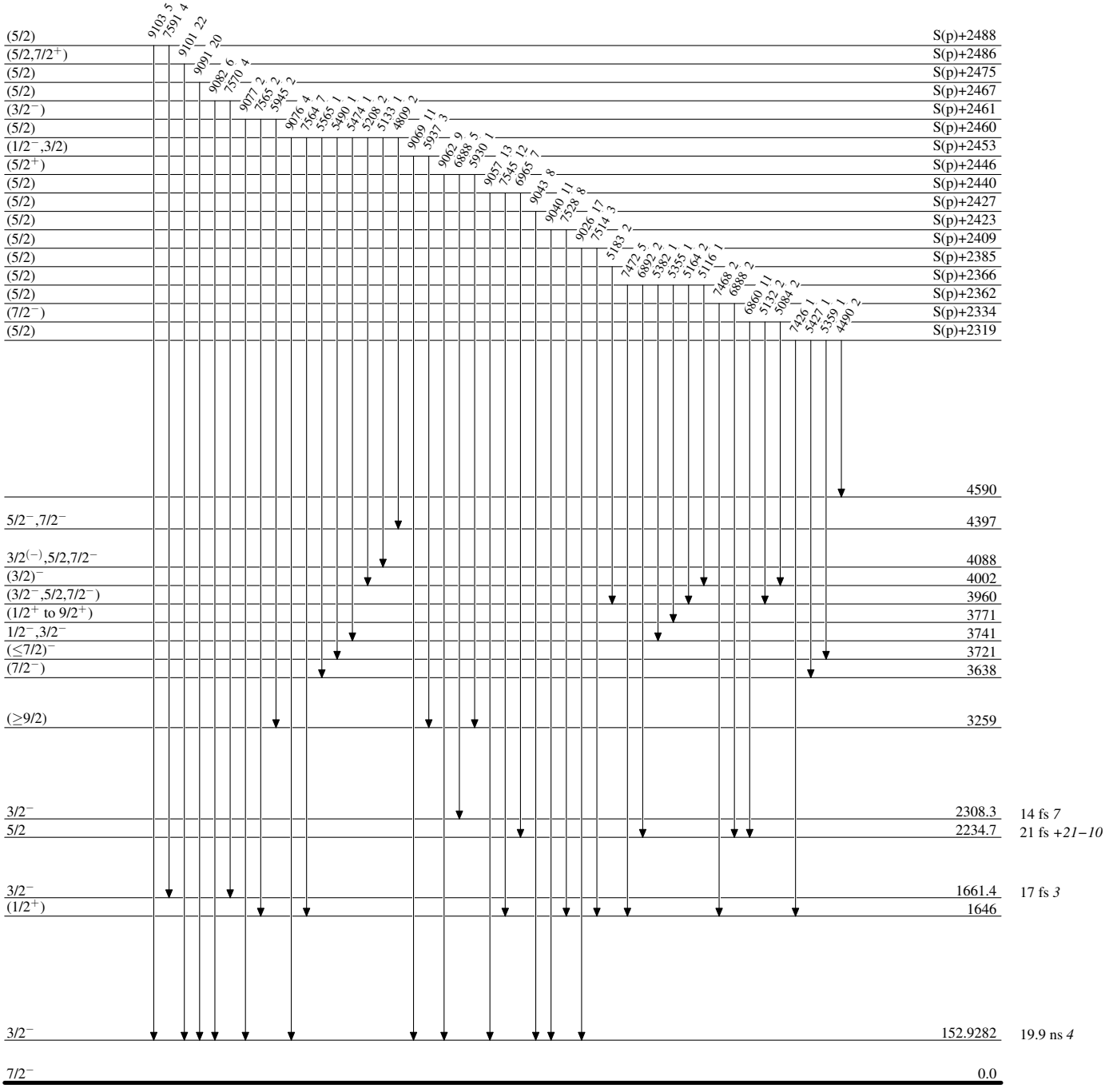
† Calculated to the nearest keV by the evaluator from the decay scheme (recoil correction included), except As noted.
‡ Photon branching ratios (In percent) from each state. From 1992Di02, except As noted.
# From $\gamma(\theta)$ (1969Kl07, 1969Le15, 1972Ki06) and comparison to RUL.
@ From $\gamma(\theta)$ (1969Kl07), except As noted. Other values excluded by adopted J^π or comparison to RUL (evaluator).
& From 1973Ro40. Dig:≈10% for strong transitions (≈50%) to≈40% for weak lines (<3%).
a From 1972Ki06. For some states the decays are partially unknown and the Iγ's May not sum to 100. Dig: ±10% for strong lines, increasing to ±50% for weak lines (Iγ<10). Corresponding limits for bound states below 1515 are from ±4% to ±25%. Partial Γ_γ's derived by 1969Kl07 and 1969Le15 for primary γ's from the 1007, 1013, and 1362 resonances are consistent with these branching ratios and the total Γ_γ, except As noted In the comments.
b From 1969Kl07.
c If J_f=5/2.
d If J_f=3/2.
e From 1969Le15.
f Placement of transition in the level scheme is uncertain.

$^{49}_{23}V_{26}$-23

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02

Level Scheme

Intensities: % photon branching from each level

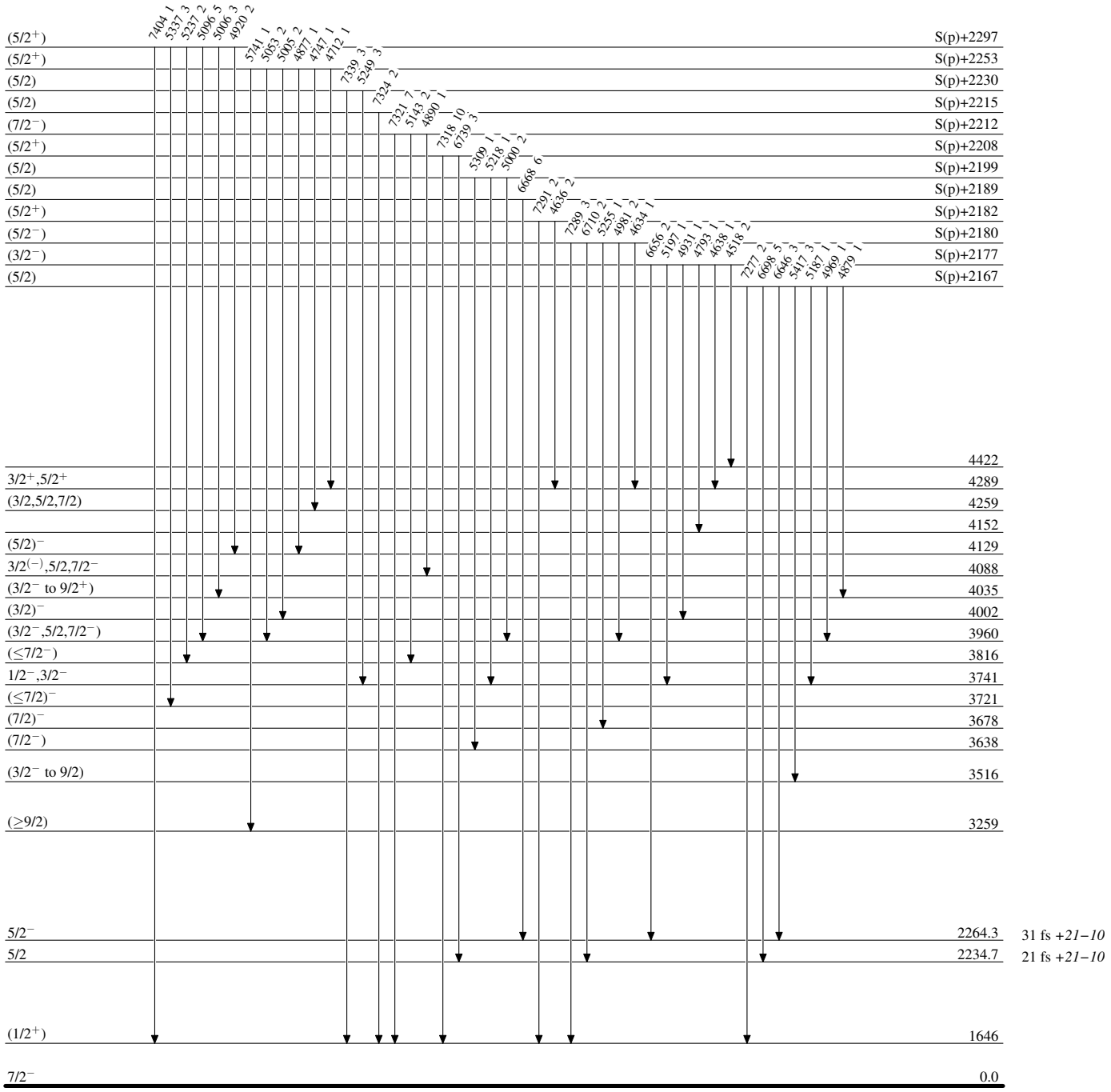


$^{49}_{23}V_{26}$

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02

Level Scheme (continued)

Intensities: % photon branching from each level

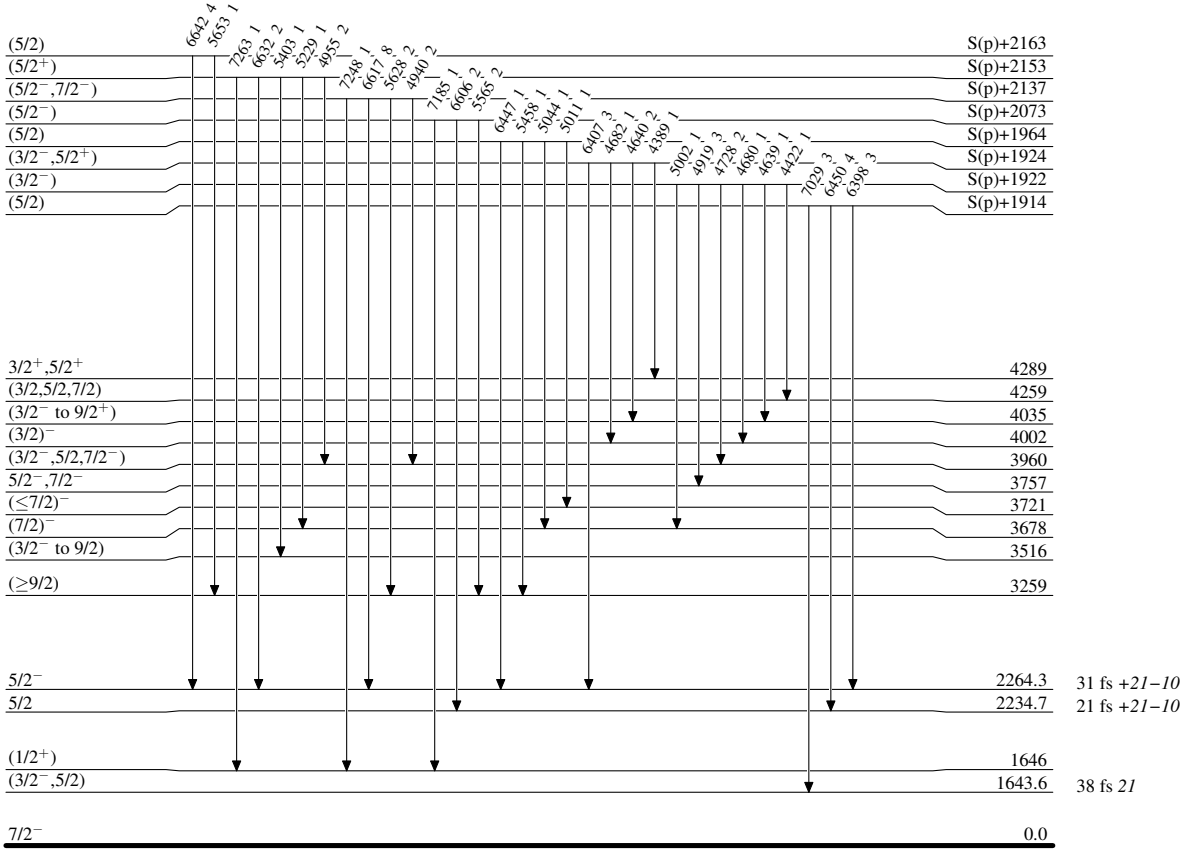


$^{49}_{23}V_{26}$

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02

Level Scheme (continued)

Intensities: % photon branching from each level

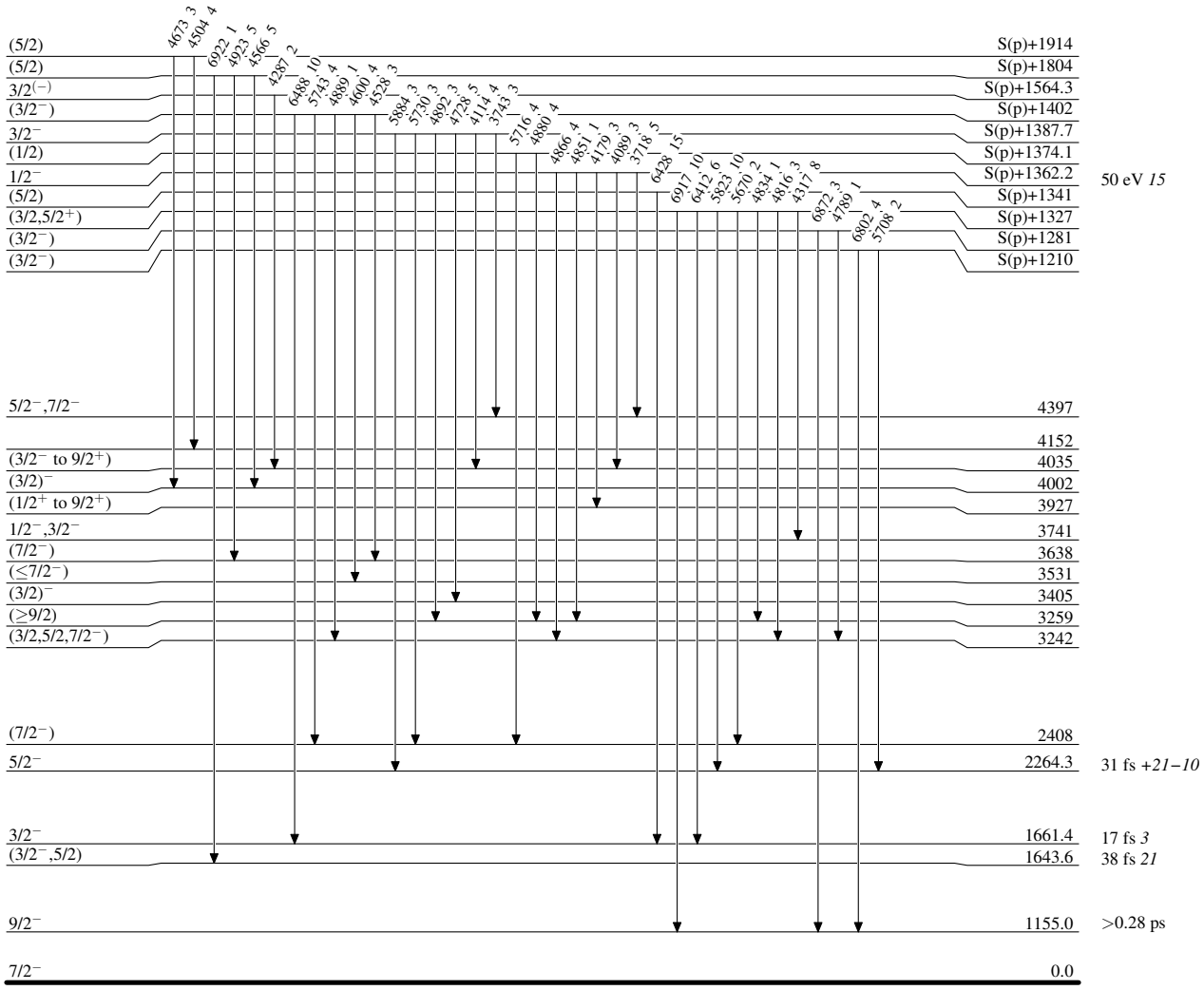


$^{49}_{23}V_{26}$

^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02

Level Scheme (continued)

Intensities: % photon branching from each level



$^{49}_{23}V_{26}$

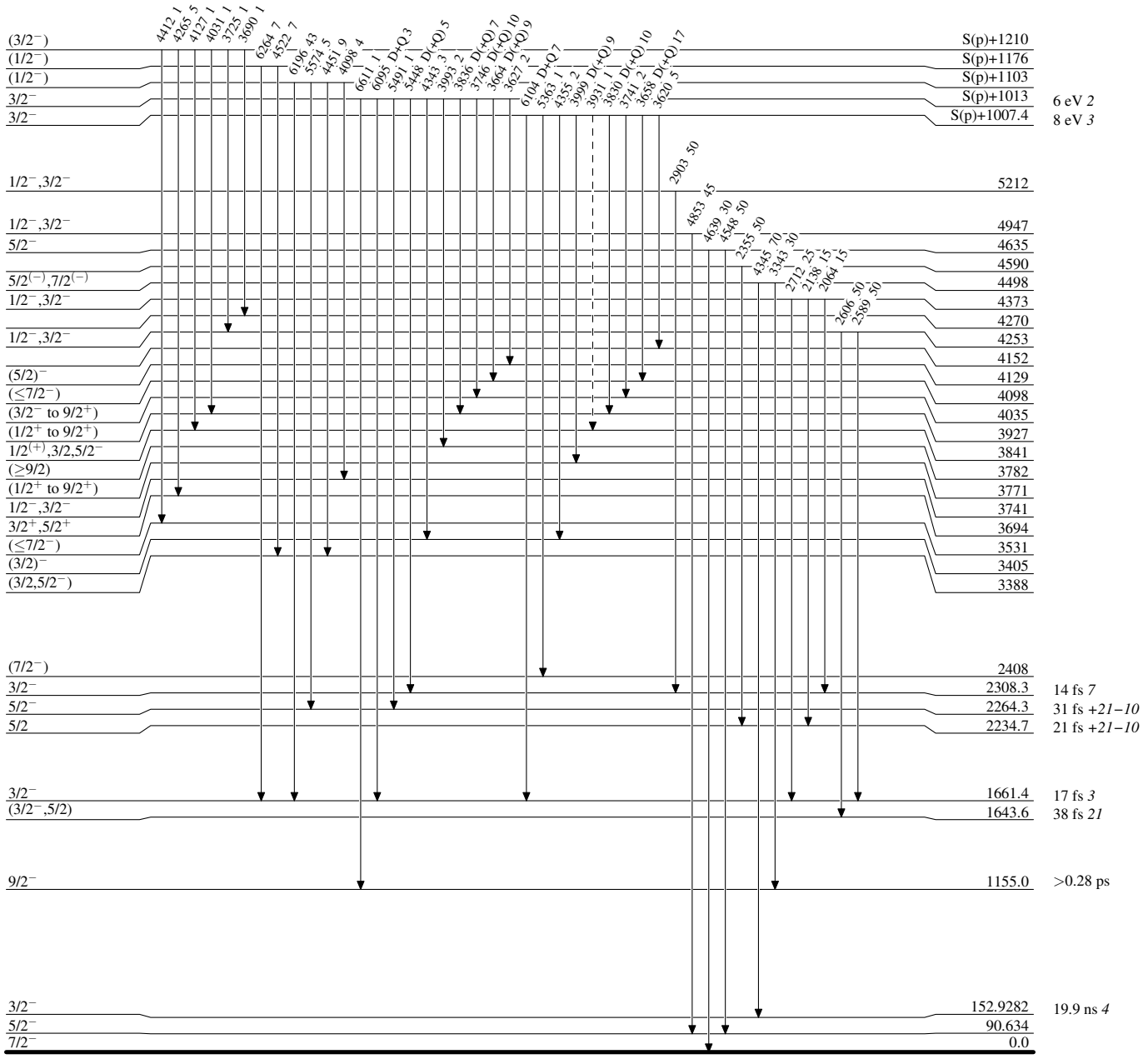
^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02

Legend

Level Scheme (continued)

Intensities: % photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{49}_{23}V_{26}$

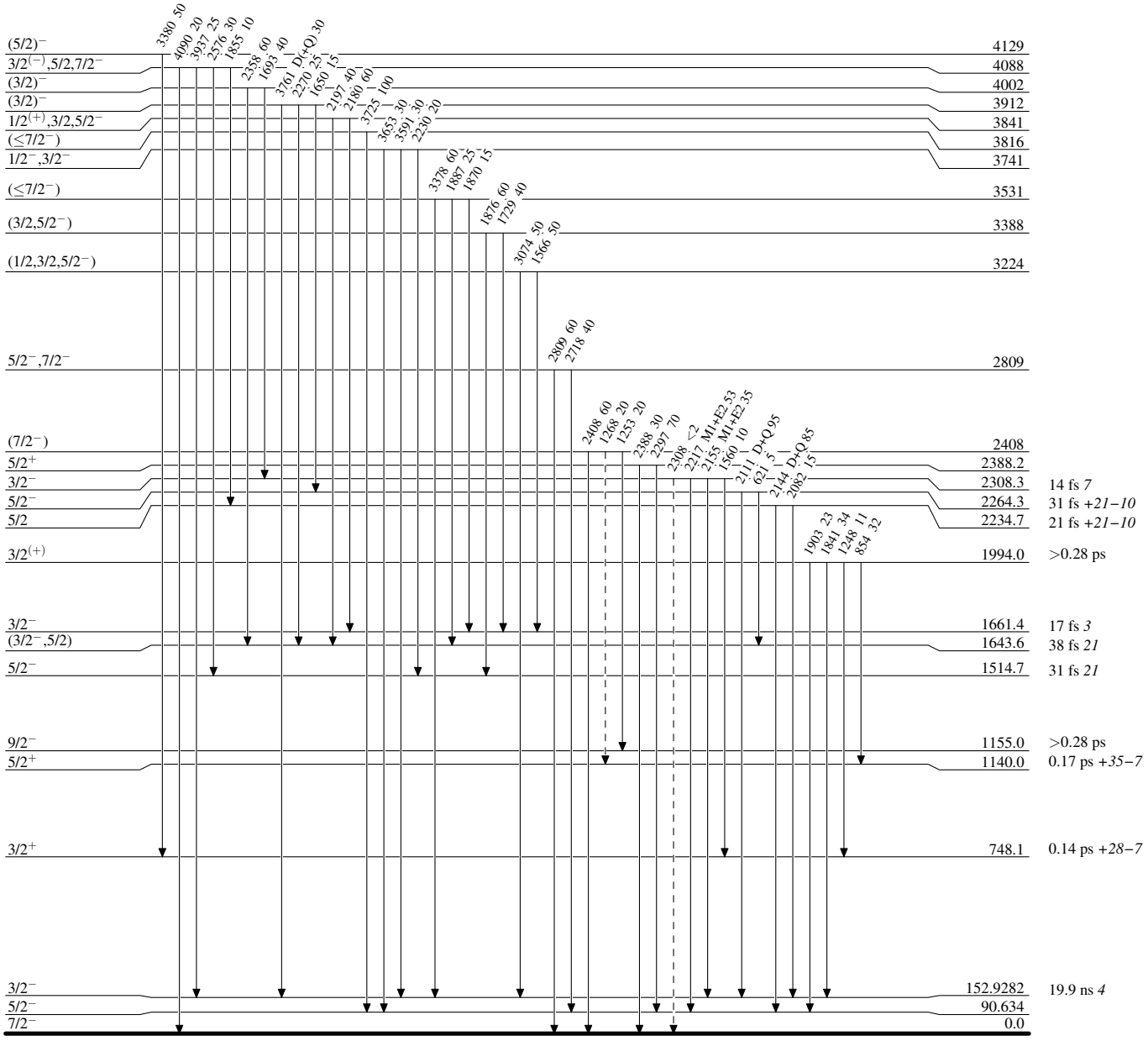
^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02

Legend

Level Scheme (continued)

Intensities: % photon branching from each level

γ Decay (Uncertain)



$^{49}_{23}V_{26}$

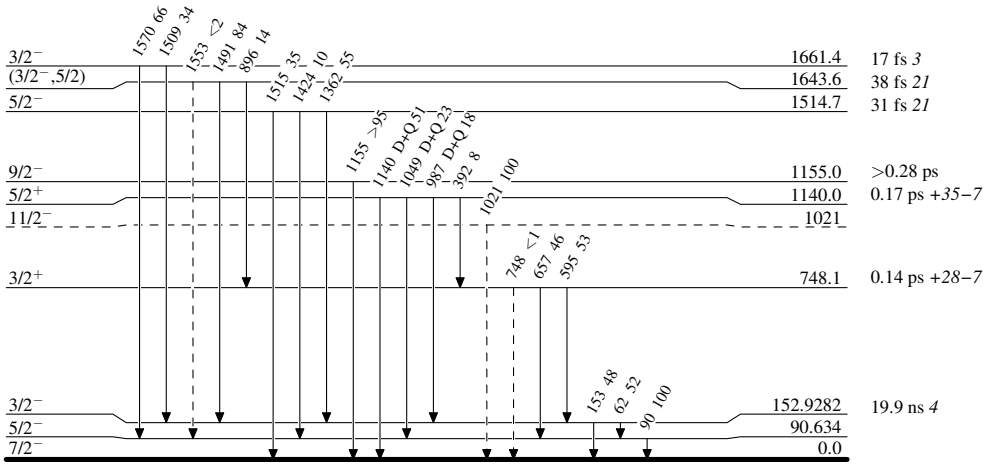
^{48}Ti(p,γ) E=960-2488 keV res 1969Kl07,1972Ki06,1992Di02

Legend

Level Scheme (continued)

Intensities: % photon branching from each level

γ Decay (Uncertain)



$^{49}_{23}V_{26}$