Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yang Dong, Huo Junde	NDS 128, 185 (2015)	10-Jul-2015

Q(β^-)=1975 *7*; S(n)=7808 *7*; S(p)=13529 *21*; Q(α)=−7669 *7* 2012Wa38

^{52}Ti Levels

Cross Reference (XREF) Flags

A	^{52}Sc β^- decay	E	^{48}Ca(^{16}O,^{12}C)	I	Coulomb excitation
B	^{48}Ca(^{6}Li,d)	F	^{50}Ti(t,p)	J	^{9}Be(^{48}Ca,Xγ)
C	^{48}Ca(^{7}Li,p2nγ)	G	^{50}Ti(t,pγ)	K	^{12}C(^{48}Ca,^{8}Beγ)
D	^{48}Ca(^{12}C,^{8}Be)	H	^{208}Pb(^{48}Ca,Xγ)		

E(level)†	J$^\pi$@	T$_{1/2}$‡	XREF	Comments
0.0	0$^+$	1.7 min *1*	ABCDEFGHIJK	%β^-=100 T$_{1/2}$: from 1967Mo11.
1050.06 *9*	2$^+$	3.60 ps *14*	ABCDEFGHIJK	μ=+1.7 *4* (2006Sp02) XREF: D(1045)E(1045). B(E2)↑: B(E2)=0.0567 *51* (2005Di05). T$_{1/2}$: from 12C(48CA,8BEG) (2006Sp02). Others: 3.9 ps 4 from B(E2) in Coulomb excitation and 3.3 ps *+56−15* DSAM in ^{50}Ti(t,pγ). J$^\pi$: L(t,p)=2.
2264.49 *11*	2$^+$	39# fs *8*	AB eFG IJK	XREF: B(2260)e(2350). J$^\pi$: L(t,p)=2. T$_{1/2}$: Other: 35 Fs +20-13, DSAM in ^{50}Ti(t,pγ).
2318.19 *11*	4$^+$	3.3 ps *4*	A CD F H JK	μ=+1.8 *6* (2006Sp02) XREF: D(2300). J$^\pi$: L(t,p)=4. T$_{1/2}$: From 12C(48CA,8BEG) (2006Sp02).
2432.29 *11*	2$^+$	119# fs *8*	A eFG JK	XREF: e(2350)F(2429). J$^\pi$: L(t,p)=2. T$_{1/2}$: Other: < 70 Fs, DSAM in ^{50}Ti(t,pγ), 0.15 ps 3 in ^{12}C(^{48}Ca,^{8}Beγ).
3029.09 *15*	6$^+$*a*	25 ps *4*	C H JK	T$_{1/2}$: RDM in ^{48}Ca(^{7}Li,p2nγ).
3143.02 *11*	4$^+$*a*	96# fs *19*	A J	
3350.60 *13*	4$^+$		A F J	XREF: F(3346). J$^\pi$: L(t,p)=4.
3453.52 *13*	3$^-$	41# fs *6*	A F JK	XREF: F(3447). J$^\pi$: L(t,p)=3.
3589.30 *13*	2$^+$	≤62 fs	A FG J	XREF: F(3583). J$^\pi$: L(t,p)=2.
3872 *8*	3$^-$		F	J$^\pi$: L(t,p)=3.
3881.5 *10*	0$^+$*a*		J	
3923.49 *13*	2$^+$		A FG J	XREF: F(3916)G(3900). J$^\pi$: L(t,p)=2.
4023.30 *12*	(4$^+$)*a*		A J	
4054.5 *8*	5$^+$*a*		F J	
4078.3 *6*			A	
4098 *8*	0$^+$,1$^-$		F	J$^\pi$: L(t,p)=0,1.
4102.2 *7*	6$^+$*a*		J	
4212 *6*	1$^-$		FG	XREF: G(4230). J$^\pi$: L(t,p)=0,1. Anisotropic $\gamma(\theta)$ in (t,pγ).
4286.6 *9*			A	
4287.72 *18*	(8$^+$)&		H J	

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Adopted Levels, Gammas (continued)

^{52}Ti Levels (continued)

E(level)[†]	J$^{\pi}$[@]	T$_{1/2}$[‡]	XREF	Comments
4324 *8*	1$^-$,0$^+$		FG	XREF: G(4300). J$^{\pi}$: L(t,p)=1,0.
4479.22 *14*			A J	
4535.4 *7*	7$^+$[a]	85[#] fs *15*	J	
4646.58 *24*	4$^+$		A J	
4691 *8*	1$^-$,0$^+$		F	J$^{\pi}$: L(t,p)=1,0.
4787.56 *14*	(2$^+$)		A F J	XREF: F(4772). J$^{\pi}$: L(t,p)=(2).
4831.1 *6*	5$^-$[a]		F J	
4839.9 *10*	5$^+$[a]	60[#] fs *18*	J	
4907.1 *11*	(6$^+$)[a]	37[#] fs *13*	F J	
5010 *8*			F	
5103.5 *10*	5$^-$[a]		J	
5142 *6*	6$^+$[a]		J	
5236.5 *12*	5$^+$[a]		J	
5319.23 *17*			A J	
5818.5 *12*	(8$^+$)[a]		J	
6098.5 *22*	6$^{(+)}$[a]	60[#] fs *18*	J	
6693.38 *21*	(10$^+$)[&]		H J	
7520 *3*	10$^+$[a]	41[#] fs *18*	J	
8858.02 *23*			H J	
9088.7 *5*			H J	

[†] Energies for levels connected by gammas are from least-squares fit to Eγ, others are from ^{50}Ti(t,p).
[‡] From DSAM in ^{50}Ti(t,pγ), except as noted.
[#] From ^{9}Be(^{48}Ca,Xγ).
[@] From L(t,p) values, except as noted.
[&] From assumption of preferential yrast feeding and the close correspondence between established and calculated levels.
[a] From 9BE(48CA,XG) (2009Zh23) based on the measured angular ratios.

γ(^{52}Ti)

E$_i$(level)	J$_i^{\pi}$	E$_{\gamma}$[†]	I$_{\gamma}$[†&]	E$_f$	J$_f^{\pi}$	Mult.[@]	δ[@]	Comments
1050.06	2$^+$	1050.2[#] *1*	100[#]	0.0	0$^+$	[E2]		B(E2)(W.u.)=9.9 *11*
2264.49	2$^+$	1214.4[#] *1*	100 *8*	1050.06	2$^+$	M1(+E2)	+0.03 *10*	B(M1)(W.u.)=0.31 *+23−14*
		2265.2 *13*	13 *3*	0.0	0$^+$	[E2]		B(E2)(W.u.)=2.4 *8* I$_{\gamma}$: <5 in (t,pγ).
2318.19	4$^+$	1268.2[#] *1*	100[#]	1050.06	2$^+$	[E2]		
2432.29	2$^+$	1382.3[#] *1*	100[#] *6*	1050.06	2$^+$	M1+E2	−0.39 *8*	B(M1)(W.u.)=0.056 *8*; B(E2)(W.u.)=10 *4* Mult.: from p-$\gamma(\theta)$ in (t,pγ) and RUL.
		2431.6[‡] *2*	<18[‡]	0.0	0$^+$			
3029.09	6$^+$	710.9[#] *1*	100[#]	2318.19	4$^+$	[E2]		B(E2)(W.u.)=10.8 *18*
3143.02	4$^+$	710.6[#] *1*	41[#] *7*	2432.29	2$^+$			
		824.9[#] *1*	100[#] *7*	2318.19	4$^+$			
		2093.0[#] *1*	41[#] *7*	1050.06	2$^+$			
3350.60	4$^+$	1032.3[#] *1*	100[#]	2318.19	4$^+$	[M1]		
3453.52	3$^-$	1135.4[#] *1*	100[#]	2318.19	4$^+$	[E1]		

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Adopted Levels, Gammas (continued)

γ(^{52}Ti) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†&]	E_f	J_f^π	Mult.[@]	δ[@]	Comments
3589.30	2+	1157.1[#] *1*	33[#] *5*	2432.29	2+			
		1324.7[#] *1*	100[#] *17*	2264.49	2+	[M1]		
		2539.0[‡] *20*	45[‡] *12*	1050.06	2+			
		3588.8[‡] *20*	≤14[‡]	0.0	0+			
3881.5	0+	1617[#] *1*	100[#] *11*	2264.49	2+	[E2]		
		2831[#] *3*	67[#] *11*	1050.06	2+			
3923.49	2+	1491.2[#] *1*	77 *15*	2432.29	2+			
		1659.0[#‡] *1*	82[‡] *9*	2264.49	2+	M1+E2	−0.31 *22*	
		2872.0 *5*	100 *18*	1050.06	2+	E2(+M1)	≤−0.46	
		3923 *3*	23 *8*	0.0	0+			
4023.30	(4+)	672.6[#] *1*	100[#] *17*	3350.60	4+			
		880.4[#] *2*		3143.02	4+			
		1590.5[#] *3*		2432.29	2+			
		1705.2[#] *1*		2318.19	4+			
		1758.8[#] *1*	47[#] *8*	2264.49	2+			
		2972.2 *5*	30 *5*	1050.06	2+			I_γ: From Iγ(1758.8)=4.1 *7* and Iγ(2972.2)=2.6 *5* in ^{52}Sc β^- decay.
4054.5	5+	1026[#] *1*	57[#] *14*	3029.09	6+			
		1738[#] *2*	100[#] *14*	2318.19	4+	[M1]		
4078.3		1646.0 *6*	100	2432.29	2+			
4102.2	6+	752[#] *1*	63[#] *21*	3350.60	4+			
		1073[#] *1*	100[#] *11*	3029.09	6+	[M1]		
		1783[#] *2*	79[#] *11*	2318.19	4+			
4212	1−	3162[‡] *8*		1050.06	2+	M1(+E2)	+0.12 *13*	
		4212[‡] *8*		0.0	0+			
4286.6		1968.4 *9*	100	2318.19	4+			
4287.72	(8+)	1258.6[#] *1*	100[#]	3029.09	6+	[E2]		
4479.22		1025.7[#] *1*	100[#] *7*	3453.52	3−			
		1128.6[#] *1*	18[#] *4*	3350.60	4+			
4535.4	7+	247[#] *1*	10[#] *2*	4287.72	(8+)			
		482[#] *1*	0.8[#] *2*	4054.5	5+			
		1506[#] *1*	100[#] *5*	3029.09	6+	[M1]		
4646.58	4+	1617[#] *1*	[#]	3029.09	6+	[E2]		
		2328.3[#] *3*		2318.19	4+			
		2382.1[#] *3*		2264.49	2+			
4787.56	(2+)	1334.1[#] *1*		3453.52	3−			
		1644.5[#] *3*		3143.02	4+			
		2468.8 *4*	100 *12*	2318.19	4+			
		2524.1[#] *5*		2264.49	2+			
		3737.2 *11*	26 *6*	1050.06	2+			
4831.1	5−	1376[#] *1*	31[#] *6*	3453.52	3−			
		1481[#] *1*	62[#] *21*	3350.60	4+	[E1]		
		1803[#] *1*	100[#] *9*	3029.09	6+	[E1]		
4839.9	5+	1697[#] *1*	100[#] *18*	3143.02	4+	[M1]		
		2520[#] *3*	24[#] *6*	2318.19	4+			
4907.1	(6+)	1878[#] *1*	100[#]	3029.09	6+			

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Adopted Levels, Gammas (continued)

γ(^{52}Ti) (continued)

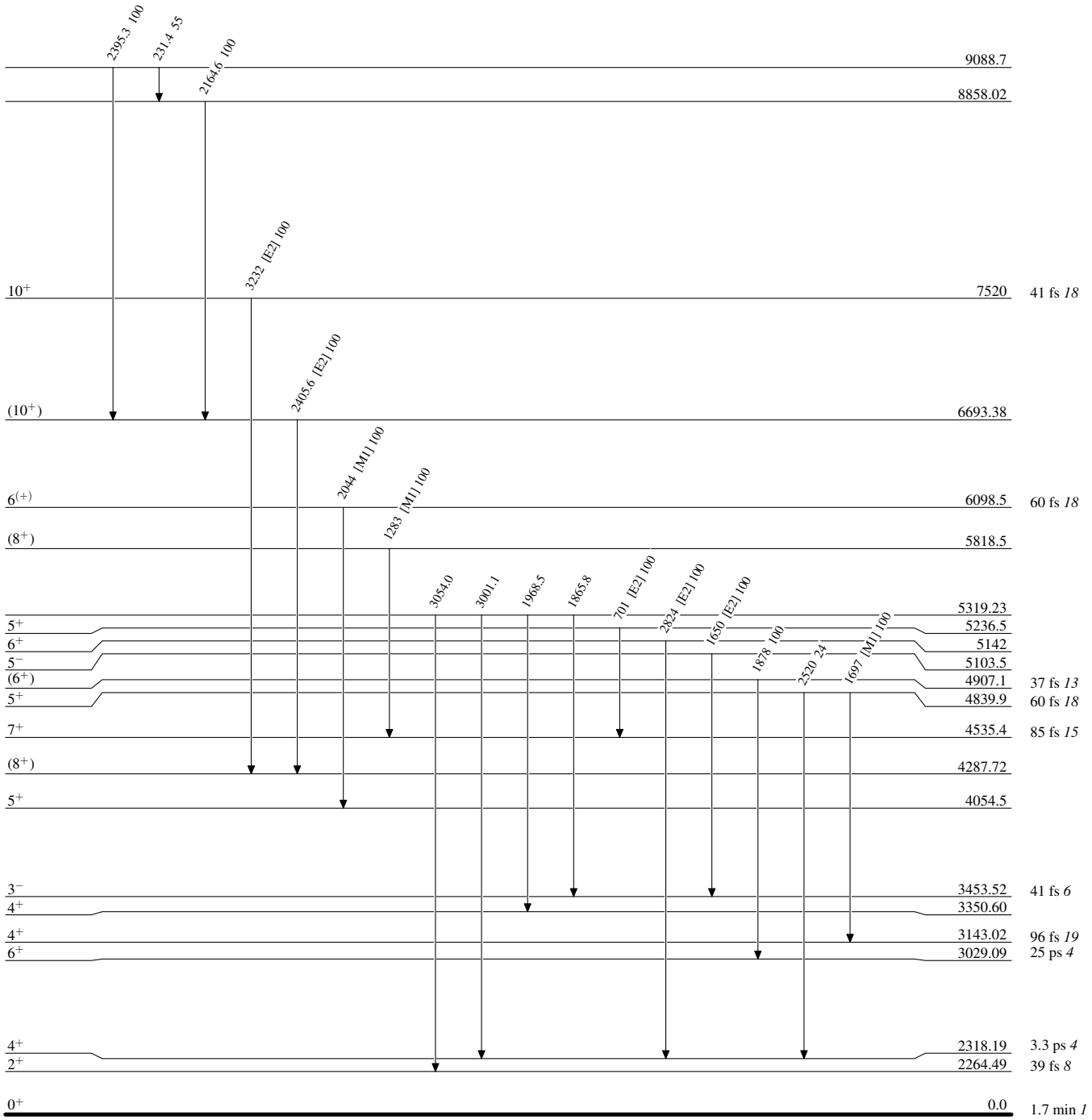
E_i(level)	J_i^π	E_γ[†]	I_γ[†&]	E_f	J_f^π	Mult.[@]
5103.5	5^-	1650[#] *1*	100[#]	3453.52	3^-	[E2]
5142	6^+	2824[#] *6*	100[#]	2318.19	4^+	[E2]
5236.5	5^+	701[#] *1*	100[#]	4535.4	7^+	[E2]
5319.23		1865.8[#] *2*		3453.52	3^-	
		1968.5[#] *2*		3350.60	4^+	
		3001.1[#] *3*		2318.19	4^+	
		3054.0[#] *5*		2264.49	2^+	
5818.5	(8^+)	1283[#] *1*	100[#]	4535.4	7^+	[M1]
6098.5	$6^{(+)}$	2044[#] *2*	100[#]	4054.5	5^+	[M1]
6693.38	(10^+)	2405.6[#] *1*	100[#]	4287.72	(8^+)	[E2]
7520	10^+	3232[#] *3*	100[#]	4287.72	(8^+)	[E2]
8858.02		2164.6[#] *1*	100[#]	6693.38	(10^+)	
9088.7		231.4[#] *1*	55[#] *23*	8858.02		
		2395.3[#] *1*	100[#] *45*	6693.38	(10^+)	

[†] From ^{52}Sc β^- decay, except as noted.
[‡] From ^{50}Ti(t,pγ). Eγ recalculated from level energy differences by evaluator using adopted level energies.
[#] From ^{9}Be(^{48}Ca,Xγ).
[@] From p$\gamma(\theta)$ in (t,pγ).
[&] Relative photon branching from each level.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

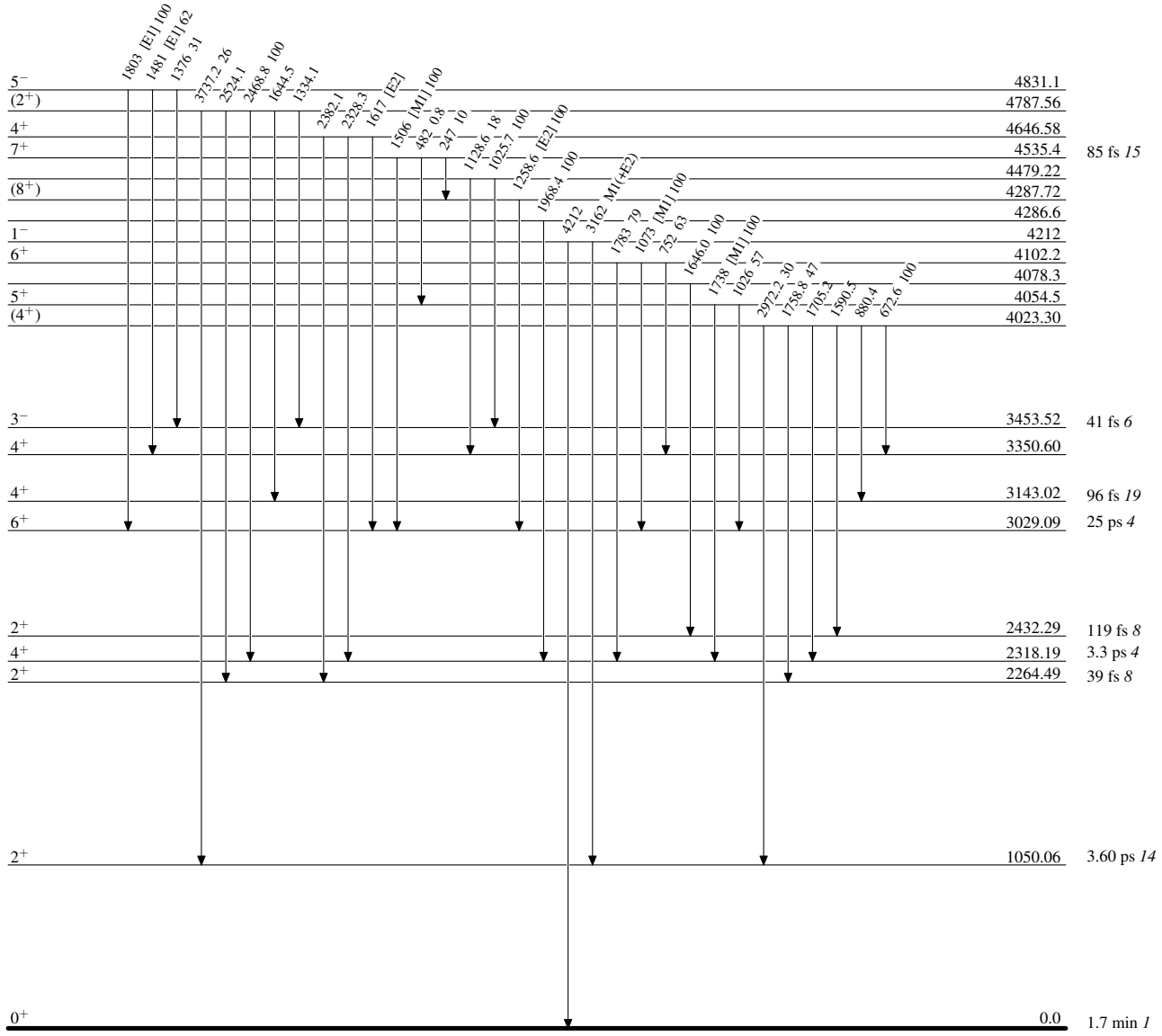


$^{52}_{22}Ti_{30}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

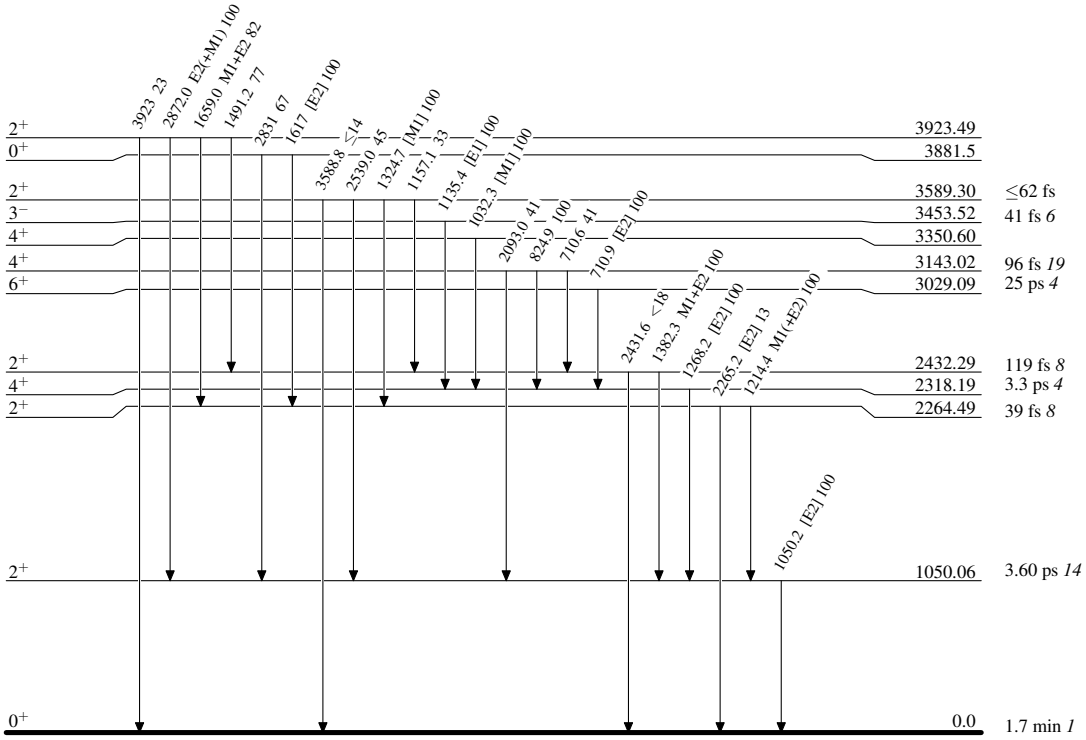


$^{52}_{22}Ti_{30}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{52}_{22}Ti_{30}$