(HI,xnγ)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows	NDS 109, 171 (2008)	30-Oct-2007

1971Bl14,1971BlZO,1971MaXE: E(^{16}O)=34 and 36 MeV. Measured ce′s (mag spect,Si), γ′s, and pγ- and γγ-coincidences; RDM.
1974Wa07: E(^{19}F)=45 MeV. See ^{45}Sc ^{28}Si(^{19}F,2pγ), ^{30}Si(^{18}O,p2nγ),... For details.
1975Ol01: E(^{19}F)=45 MeV. See ^{45}Sc ^{28}Si(^{19}F,2pγ), ^{30}Si(^{18}O,p2nγ),... For details.
1978Fo09: E(^{24}Mg)=50-71 MeV. Measured γ′s, γ-ray excitation functions (50-71 MeV, 7-MeV steps), and γγ-coincidences. E(^{16}O)=35-80 MeV. Measured γ′s, γ excitation functions (35-80 MeV, 5 MeV steps, and γ(θ=15°−90°, 15° steps, E(^{16}O)=60 MeV).
1980Gr04: E(^{7}Li)=14, 15, and 16 MeV. See ^{45}V ^{40}Ca(^{7}Li,2n) for experimental details.
See 1983Bu21 for a detailed comparison of these data. Others: see 1992Bu01.

Includes:
^{27}Al(^{24}Mg,αpnγ) 1978Fo09
^{28}Si(^{19}F,pnγ) 1974Wa07,1975Ol01
^{31}P(^{16}O,pnγ) 1971Bl14,1971BlZO,1971MaXE
tvSee Also ^{24}Mg(^{24}Mg,2pnγ) And ^{30}Si(^{18}O,3nγ)
^{35}Cl(^{16}O,αpnγ) 1978Fo09
^{40}Ca(^{7}Li,pnγ) 1980Gr04

^{45}Ti Levels

E(level)†	Jπ‡	T1/2#	Comments
0.0	7/2−		
36.75 *18*	3/2−	2.9 μs *3*	
38.35 *25*	5/2−	12.3 ns *9*	
329.58@ *18*	3/2+	1.19 ns *7*	
744.26@ *16*	5/2+	10.5 ps *17*	
1226.83@ *16*	7/2+	2.8 ps *6*	
1468.16 *15*	11/2−		
1882.05@ *10*	9/2+	1.1 ps *6*	
2656.48 *21*	13/2−		Jπ: 13/2 from 1188γ(θ) (1978Fo09) assuming J_f>J_i and J_f-J_i≤2.
3015.27 *20*	15/2−		Jπ: 15/2 from γ(θ)(358γ). Iγ(1547γ)/Iγ(358γ)=4/1 supports the 13/2, 15/2 sequence (1978Fo09).
3601.68 *25*	17/2−		Jπ: 17/2 from 586γ(θ) (1978Fo09).
5419.5 *4*	(21/2−)		Jπ: (19/2,21/2) from γ excit. Assignment based on “stretched E2 arguments” (1978Fo09).
6162.6 *5*	23/2−		Jπ: if J(5422)=21/2, 23/2 from 743γ(θ) (1978Fo09).
7143.0 *6*	27/2−		Jπ: (Q) to (23/2−) (1978Fo09). see comment on 980γ.

† From least-squares fit to Eγ′s.
‡ From the Adopted Levels. Contributing arguments from these data given In comments.
# From RDM (1971Bl14), except $T_{1/2}$(39) which is from nγ(t) (1980Gr04). Other $T_{1/2}$(330)=1.2 ns (nγ(t), 1980Gr04).
@ Band(A): 3/2+ rotational band (1971Bl14).

γ(^{45}Ti)

Coincidences shown on drawing are from 1978Fo09 and 1980Gr04.

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	δ	α(exp)[@]	Comments
36.75	3/2⁻	36.7[&] *3*	100	0.0	7/2⁻	D,E2			
38.35	5/2⁻	39.8[a]		0.0	7/2⁻	D			
329.58	3/2⁺	292.70 *15*	100	36.75	3/2⁻	E1		9.3×10^{-4} *14*	Mult.: from α(exp).
744.26	5/2⁺	414.6[&] *2*	100 *4*	329.58	3/2⁺	M1(+E2)[b]	≤0.43[b]	6.0×10^{-4} *8*	
		703.6[a]		38.35	5/2⁻				
		707.7[&] *2*	8.7 *11*	36.75	3/2⁻	D			
1226.83	7/2⁺	482.56 *15*	86 *11*	744.26	5/2⁺	M1+E2[b]	0.58[b] *35*	5.7×10^{-4} *13*	
		897.1[&] *2*	100 *9*	329.58	3/2⁺	D,E2			
		1188.61[e] *20*	11.9[e] *21*	38.35	5/2⁻	D,E2			
		1226.6[&] *7*	10.6 *21*	0.0	7/2⁻	D,E2			
1468.16	11/2⁻	1468.14 *15*	100	0.0	7/2⁻	E2			Mult.,δ: from γ(θ) (1978Fo09) and linear polarization (1975Ol01).
1882.05	9/2⁺	655.2[&] *2*	35.6 *5*	1226.83	7/2⁺	D,E2		2.9×10^{-4} *9*	
		1137.8[&] *2*	100.0 *9*	744.26	5/2⁺	D,E2			
		1882.0[&] *1*	6.8 *14*	0.0	7/2⁻	D,Q			
2656.48	13/2⁻	1188.61[e] *20*	100[e]	1468.16	11/2⁻	D+Q[c]	−2.6[c] *5*		
3015.27	15/2⁻	358.97 *15*	25.4 *19*	2656.48	13/2⁻	D+Q[c]	−2.6[c] *3*		
		1546.90 *15*	100 *7*	1468.16	11/2⁻				
3601.68	17/2⁻	586.41 *15*		3015.27	15/2⁻	D+Q[c]	−2.3[c] *1*		Iγ<618>355 I_γ,Mult.,δ: limits deduced after subtraction of ^{48}V, 586γ. The small contamination of this line did not seem to alter the results from γ(θ).
		944.8 *5*	100 *9*	2656.48	13/2⁻				E_γ: from 1978Fo09 In (^{16}O,αpnγ).
5419.5	(21/2⁻)	1817.78[d] *30*	100	3601.68	17/2⁻	(Q)			Mult.: see comment on J^π(5420).
6162.6	23/2⁻	743.06[d] *25*	100	5419.5	(21/2⁻)	D+Q[c]	−2.7[c] *3*		
7143.0	27/2⁻	980.45 *25*		6162.6	23/2⁻	(Q)			Mult.: Iγ(15°)/Iγ(90°)>1? linear polarization (1975Ol01) consistent with L≤2. degenerate with a 984γ from ^{48}Ti. Placement At top of cascade based only on γγ-coin (1978Fo09).

† From 1974Wa07, except As noted.

‡ Relative photon branching ratio from each level. Converted from % photon branching ratios of 1971Bl14 for gammas from states below 1.4 MeV and from the 1.9-MeV state and from relative photon intensities of 1978Fo09 In (^{16}O,αpnγ) (Iγ(1468γ)=100) for the other gammas.

From comparison to RUL, except As noted.

@ From simultaneous measurement of Ice and Iγ (1971Bl14).

$^{45}_{22}Ti_{23}$-2

(HI,xnγ) (continued)

γ(^{45}Ti) (continued)

[&] From 1971Bl14.
[a] From 1980Gr04.
[b] From α(exp) and comparison to RUL.
[c] From $\gamma(\theta)$ (1978Fo09).
[d] From comparison of the Iγ's of the sequentially emitted γ's, 1818 and 743 keV, In (^{18}O,3nγ) 1998Be29 conclude that the ordering by 1978Fo09 In (HI,xnγ) should Be inverted. This conclusion is supported by the existence of the 1330γ crossover.
[e] Multiply placed with intensity suitably divided.
[x] γ ray not placed in level scheme.

$^{45}_{22}Ti_{23}$-3

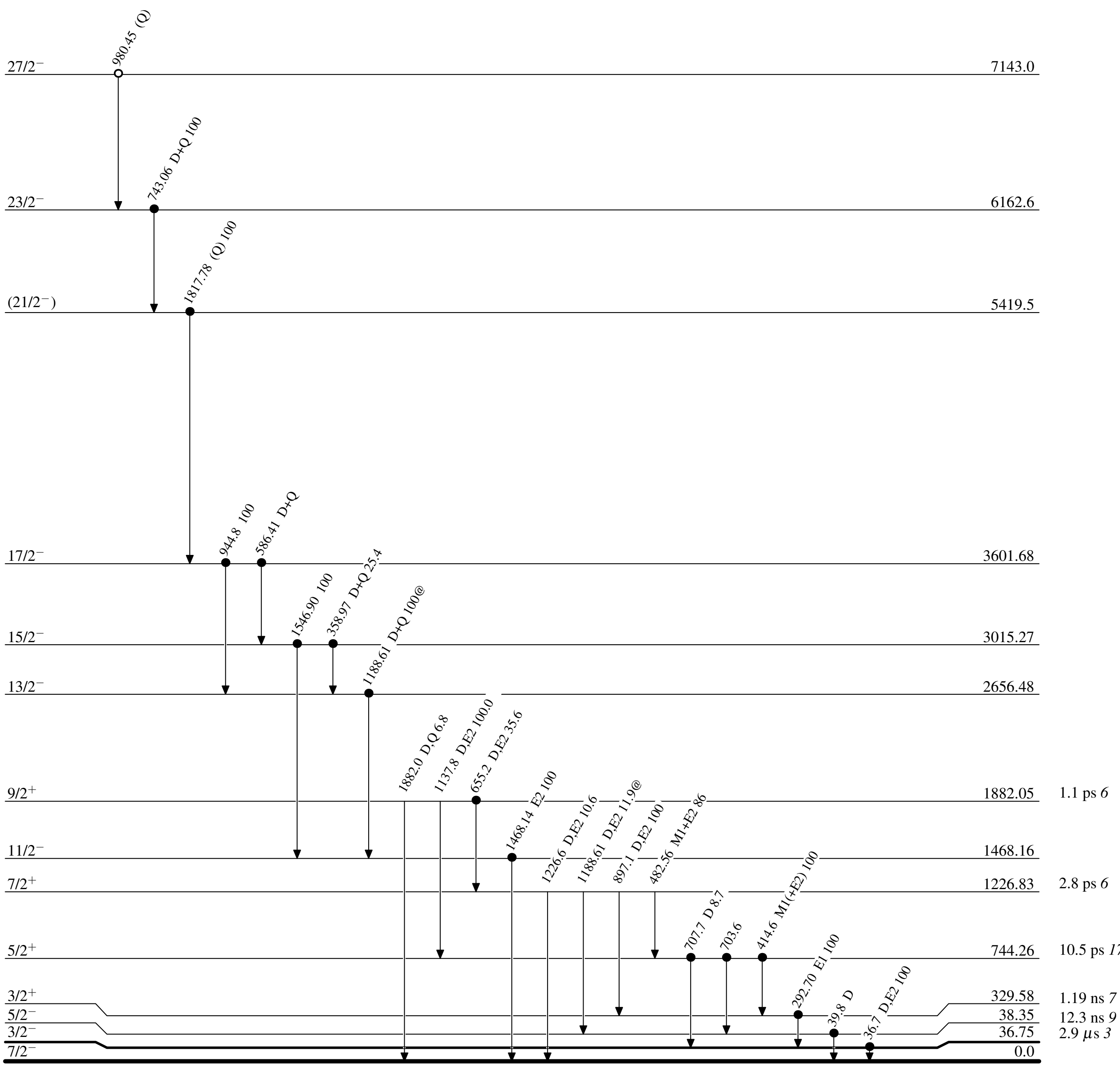
(HI,xnγ)

Legend

Level Scheme

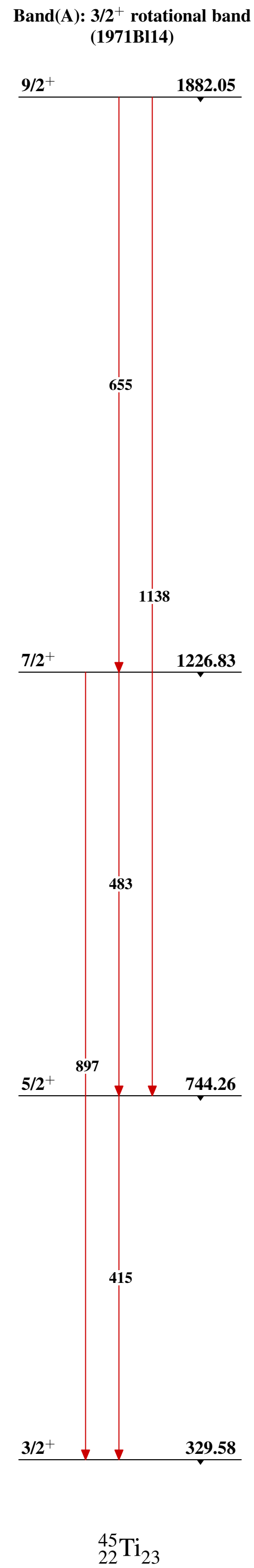
Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

● Coincidence
○ Coincidence (Uncertain)



$^{45}_{22}Ti_{23}$

(HI,xnγ)


Band(A): 3/2+ rotational band
(1971Bl14)
9/2+
1882.05
655
1138
7/2+
1226.83
483
897
5/2+
744.26
415
3/2+
329.58
$^{45}_{22}Ti_{23}$