$^{130}Te(^{18}O,4n\gamma)$ 1995Je03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. A. Sonzogni	NDS 93, 599 (2001)	1-Dec-2000

1995Je03: E=85 MeV, measured Eγ, Iγ, γγ(θ)(DCO) using an array of 9 Compton-suppressed Ge detectors. Band configurations obtained from Shell Model calculations.
1991Ca10: E=70 MeV, a Ge and a mini-orange detectors; measured Eγ, α(K)exp. Level scheme suppperseded by 1995Je03.
1989Co18: E=70 MeV, 4 Compton-suppressed Ge detectors; measured Eγ, Iγ γ(θ), γγ-coincidence. Level scheme suppperseded by 1995Je03.

^{144}Nd Levels

E(level)[‡]	Jπ[†]	E(level)[‡]	Jπ[†]	E(level)[‡]	Jπ[†]	E(level)[‡]	Jπ[†]
0.0[#]	0+	2971.6 4	8+	4353.7 4		5965.5[&] 5	(17−)
695.60[#] 20	2+	3232.8 4	(9+)	4460.6[@] 4	12−	6647.3[b] 5	(18−)
1313.8[#] 3	4+	3395.5[@] 4	9−	4622.9[@] 4	13−	6962.1[b] 5	(19−)
1790.7[#] 4	6+	3486.1 4	9+	4741.9[&] 4	13−	7002.3[a] 5	(19−)
2217.4 4	6+	3671.8 4	10+	4935.5[@] 5	(14−)	7375.7[a] 6	(20−)
2612.1 4	7−	3828.7[&] 4	11−	5237.8[@] 5	15−	7544.1[b] 5	(20−)
2709.1[#] 4	8+	3909.6 4	(10−)	5471.8[&] 5	(15−)	7813.0[b] 5	(21−)
2875.6 4	(8+)	4044.7 4	11−	5551.6[@] 5	(16−)	7963.8[b] 6	(22−)
2902.2[&] 4	9−	4064.6[@] 4	11−	5960.9[b] 5	(17−)	8944.6[b] 6	(24−)

[†] From 1995Je03, based on γ(θ) and α(K)exp values.
[‡] From least-squares fit to Eγ.
[#] Band(A): Yrast band.
[@] Band(B): $\pi(g^{-1}_{7/2}h_{11/2}d^{-4}_{5/2})_9\nu f^2_{7/2}$.
[&] Band(C): $\nu(f_{7/2}i_{13/2}\ _9)\pi^{-4}$.
[a] Band(D): $\pi(h^2_{11/2}\ _{10})\nu(f_{7/2}i_{13/2})_{9,10}$.
[b] Band(E): $\pi(h^3_{11/2}g^{-1}_{7/2})_{17}\nu^2$.

γ(^{144}Nd)

Eγ[†]	Iγ[‡]	Ei(level)	Jπi	Ef	Jπf	Mult.[#]	Comments
96.6 2	3 2	2709.1	8+	2612.1	7−	D	Mult.: published value not consistent with connecting level's spins. DCO=0.48 13.
150.8 2	3 1	7963.8	(22−)	7813.0	(21−)	(M1)	DCO=0.56 26.
155.1 2	0.5 1	4064.6	11−	3909.6	(10−)		
162.2 2	10 1	4622.9	13−	4460.6	12−	M1	DCO=0.56 8; α(K)exp=0.20 2 (1991Ca10); A_2=−0.25 1 , A_4=−0.02 2 (1989Co18).
185.7 2	7 2	3671.8	10+	3486.1	9+	(M1)	DCO=0.54 6; α(K)exp=0.10 1 (1991Ca10); A_2=−0.26 1 , A_4=−0.06 2 (1989Co18).
193.1 2	17 1	2902.2	9−	2709.1	8+	E1	DCO=0.50 2; α(K)exp=0.023 3 (1991Ca10); A_2=−0.29 1 , A_4=−0.01 1 (1989Co18).
193.7 2	6 1	4935.5	(14−)	4741.9	13−	(M1)	DCO=0.57 2.
236.0 2	1.0 5	4064.6	11−	3828.7	11−		
268.9 2	4 2	7813.0	(21−)	7544.1	(20−)	(M1)	DCO=0.50 8.
269.3 2	2 1	4622.9	13−	4353.7			
281.3 2	5 1	4741.9	13−	4460.6	12−	M1	DCO=0.52 2; α(K)exp=0.090 20 (1991Ca10); A_2=−0.26 3 , A_4=−0.08 4 (1989Co18).
290.4 2	2 1	2902.2	9−	2612.1	7−	E2	DCO=1.01 10; A_2=+0.11 8, A_4=+0.22 13 (1989Co18).

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^{130}Te(^{18}O,4nγ) 1995Je03 (continued)

γ(^{144}Nd) (continued)

E_γ †	I_γ ‡	E_i(level)	J^π_i	E_f	J^π_f	Mult. #	Comments
302.2 *2*	12 *1*	5237.8	15⁻	4935.5	(14⁻)	(M1)	DCO=0.58 *9*; A_2=−0.11 *2* , A_4=−0.10 *3* (1989Co18).
309.2 *2*	4 *1*	4353.7		4044.7	11⁻	(M1+E2)	DCO=0.61 *6*.
312.6 *2*	7 *1*	4935.5	(14⁻)	4622.9	13⁻	(M1)	DCO=0.54 *12*; A_2=+0.04 *8* , A_4=−0.04 *13* (1989Co18).
314.6 *2*	30 *6*	5551.6	(16⁻)	5237.8	15⁻	(M1)	DCO=0.59 *10*.
315.0 *2*	4 *2*	6962.1	(19⁻)	6647.3	(18⁻)		
357.1 *2*	2 *1*	3232.8	(9⁺)	2875.6	(8⁺)		A_2=−0.22 *8* , A_4=−0.26 *13* (1989Co18).
373.0 *2*	18 *2*	4044.7	11⁻	3671.8	10⁺	(E1)	DCO=0.58 *17*.
373.4 *2*	14 *1*	7375.7	(20⁻)	7002.3	(19⁻)	(M1)	DCO=0.60 *15*.
392.8 *2*	5 *1*	4064.6	11⁻	3671.8	10⁺	D	Mult.: published value not consistent with connecting level's spins. DCO=0.46 *21*.
396.1 *2*	13 *2*	4460.6	12⁻	4064.6	11⁻	M1+E2	DCO=0.64 *12*; α(K)exp=0.029 *3* (1991Ca10); A_2=+0.06 *2* , A_4=+0.07 *3* (1989Co18).
409.8 *2*	12 *5*	5960.9	(17⁻)	5551.6	(16⁻)	(M1)	DCO=0.68 *26*.
415.9 *2*	14 *1*	4460.6	12⁻	4044.7	11⁻	M1	DCO=0.57 *4*; α(K)exp=0.021 *2* (1991Ca10).
423.6 *2*	5 *2*	3909.6	(10⁻)	3486.1	9⁺	(E1)	DCO=0.65 *11*.
423.7 *2*	25 *8*	3395.5	9⁻	2971.6	8⁺	E1	DCO=0.50 *3*; α(K)exp=0.0072 *20* (1991Ca10); A_2=−0.28 *1* , A_4=+0.02 *2* (1989Co18).
426.9 *2*	27 *1*	2217.4	6⁺	1790.7	6⁺	M1+E2	DCO=1.02 *5*; α(K)exp=0.022 *4* (1991Ca10); A_2=+0.30 *1* , A_4=+0.01 *2* (1989Co18).
476.9 *2*	84 *6*	1790.7	6⁺	1313.8	4⁺	E2	DCO=0.95 *12*; α(K)exp=0.087 *10* (1991Ca10); A_2=+0.27 *1* , A_4=−0.05 *1* (1989Co18).
493.7 *2*	20 *4*	5965.5	(17⁻)	5471.8	(15⁻)	(E2)	DCO=0.86 *17*.
494.2 *2*	11 *4*	3395.5	9⁻	2902.2	9⁻	M1+E2	DCO=1.03 *5*; A_2=+0.40 *5* , A_4=−0.17 *8* (1989Co18).
514.4 *2*	6 *1*	3486.1	9⁺	2971.6	8⁺	M1+E2	DCO=0.97 *33*; α(K)exp=0.019 *2* (1991Ca10).
525.0 *2*	3 *1*	4353.7		3828.7	11⁻		DCO=0.75 *8*.
551.0 *2*	5 *2*	4460.6	12⁻	3909.6	(10⁻)	(E2)	DCO=1.10 *11*; α(K)exp=0.007 *2* (1991Ca10); A_2=+0.04 *4* , A_4=+0.01 *6* (1989Co18).
558.4 *2*	20 *4*	4622.9	13⁻	4064.6	11⁻	E2	DCO=1.00 *12*; A_2=+0.20 *3*, A_4=−0.17 *5* (1989Co18).
610.7 *2*	2 *1*	3486.1	9⁺	2875.6	(8⁺)		
614.9 *2*	11 *1*	5237.8	15⁻	4622.9	13⁻		
617.0 @ *2*	7 *3*	5551.6	(16⁻)	4935.5	(14⁻)		
618.2 *2*	93 *5*	1313.8	4⁺	695.60	2⁺	E2	DCO=0.99 *2*; α(K)exp=0.0058 *4* (1991Ca10); A_2=+0.26 *1* , A_4=−0.07 *1* (1989Co18).
658.4 *2*	6 *1*	2875.6	(8⁺)	2217.4	6⁺	(E2)	DCO=1.05 *13*; α(K)exp=0.015 *3* (1991Ca10); A_2=+0.44 *4* , A_4=−0.08 *6* (1989Co18).
669.4 *2*	29 *3*	4064.6	11⁻	3395.5	9⁻	E2	DCO=0.98 *25*; α(K)exp=0.0038 *5* (1991Ca10); A_2=+0.19 *1* , A_4=+0.04 *2* (1989Co18).
676.8 *2*	1.0 *5*	3909.6	(10⁻)	3232.8	(9⁺)	D	Mult.: published value not consistent with connecting level's spins.
677.0 *2*	11 *1*	4741.9	13⁻	4064.6	11⁻	(E2)	DCO=1.11 *7*.
686.1 *2*	4 *1*	3395.5	9⁻	2709.1	8⁺	E1	DCO=0.56 *5*; A_2=−0.16 *13* , A_4=−0.04 *22* (1989Co18).
686.2 *2*	1.0 *5*	6647.3	(18⁻)	5960.9	(17⁻)	(M1)	
695.6 *2*	100	695.60	2⁺	0.0	0⁺	E2	DCO=1.05 *3*; α(K)exp=0.0047 *5* (1991Ca10); A_2=+0.17 *1* , A_4=−0.04 *1* (1989Co18).
700.4 *2*	12 *7*	3671.8	10⁺	2971.6	8⁺	(E2)	DCO=1.04 *7*.
722.4 *2*	8 *4*	5960.9	(17⁻)	5237.8	15⁻	(E2)	DCO=1.13 *6*.
729.8 *2*	10 *1*	5471.8	(15⁻)	4741.9	13⁻	(E2)	DCO=1.08 *17*.
754.3 *2*	25 *2*	2971.6	8⁺	2217.4	6⁺	E2	DCO=1.00 *7*; α(K)exp=0.0028 *5* (1991Ca10); A_2=+0.14 *2* , A_4=+0.01 *3* (1989Co18).
821.3 *2*	8 *2*	2612.1	7⁻	1790.7	6⁺	E1	DCO=0.58 *9*; A_2=−0.30 *9* , A_4=+0.28 *14* (1989Co18).
849.1 *2*	9 *1*	5471.8	(15⁻)	4622.9	13⁻	(E2)	DCO=1.18 *12*.
851.0 *2*	6 *2*	7813.0	(21⁻)	6962.1	(19⁻)	(E2)	DCO=1.14 *22*.
896.7 *2*	7 *1*	7544.1	(20⁻)	6647.3	(18⁻)	(E2)	DCO=1.03 *18*.
913.2 *2*	8 *1*	4741.9	13⁻	3828.7	11⁻	E2	DCO=0.99 *5*; A_2=+0.47 *7*, A_4=−0.25 *11* (1989Co18).

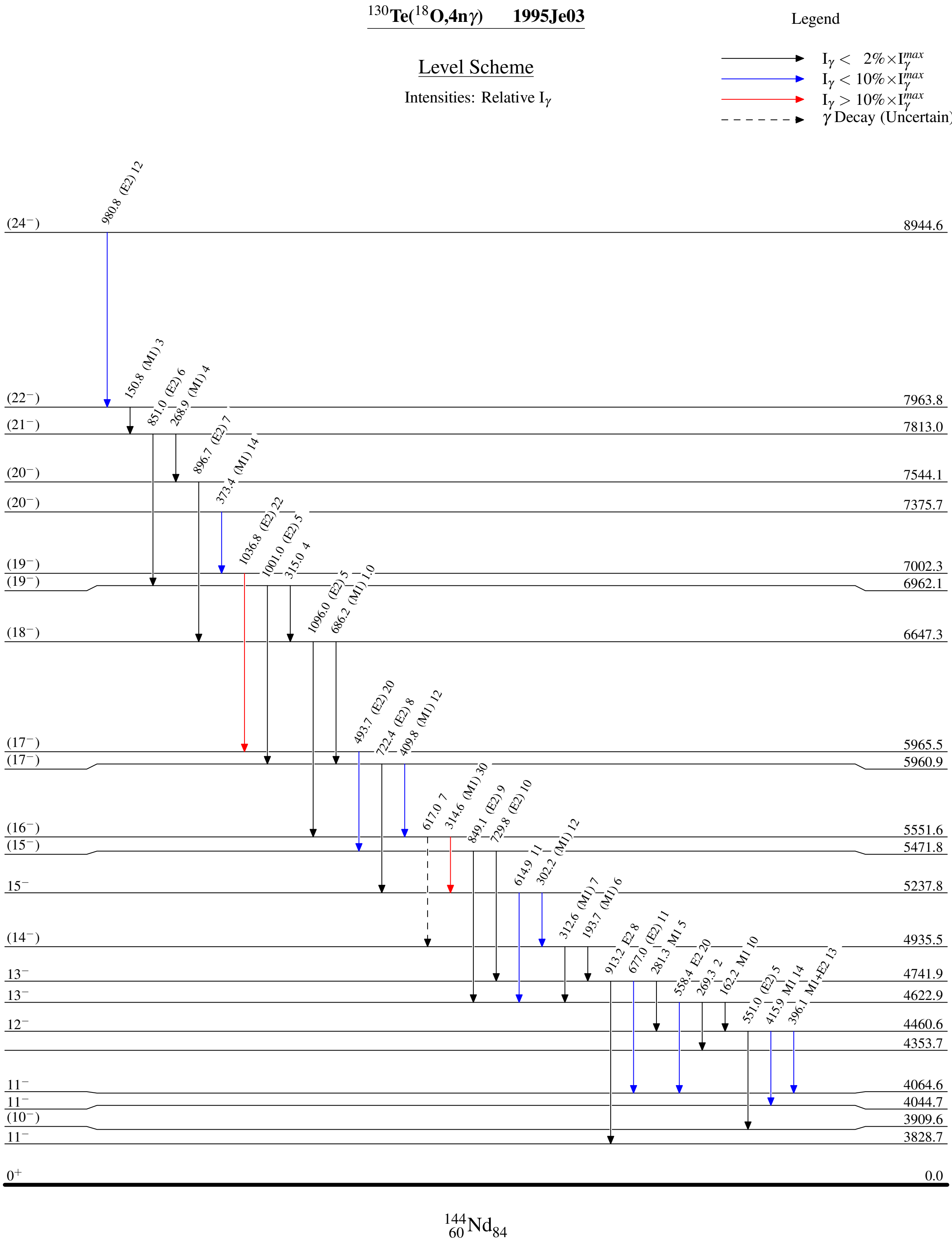
Continued on next page (footnotes at end of table)

^{130}Te(^{18}O,4nγ) 1995Je03 (continued)

γ(^{144}Nd) (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult. #	Comments
918.6 *2*	40 *4*	2709.1	8^+	1790.7	6^+	E2	DCO=1.04 *19*; α(K)exp=0.0027 *4* (1991Ca10); A_2=+0.36 *5* , A_4=−0.05 *8* (1989Co18).
926.4 *2*	15 *1*	3828.7	11^-	2902.2	9^-	E2	DCO=1.10 *11*, α(K)exp=0.0024 *6* (1991Ca10); A_2=+0.26 *11* , A_4=+0.10 *17* (1989Co18).
980.8 *2*	12 *8*	8944.6	(24^-)	7963.8	(22^-)	(E2)	DCO=1.23 *12*.
1001.0 *2*	5 *2*	6962.1	(19^-)	5960.9	(17^-)	(E2)	DCO=1.01 *22*.
1036.8 *2*	22 *4*	7002.3	(19^-)	5965.5	(17^-)	(E2)	DCO=1.11 *17*.
1096.0 *2*	5 *1*	6647.3	(18^-)	5551.6	(16^-)	(E2)	DCO=0.94 *11*.
1161.9 *2*	7 *1*	4064.6	11^-	2902.2	9^-	E2	DCO=1.07 *12*; A_2=+0.05 *2* , A_4=−0.07 *3* (1989Co18).
1180.6 *2*	20 *3*	2971.6	8^+	1790.7	6^+	E2	DCO=1.11 *18*; A_2=+0.31 *3* , A_4=−0.08 *4* (1989Co18).

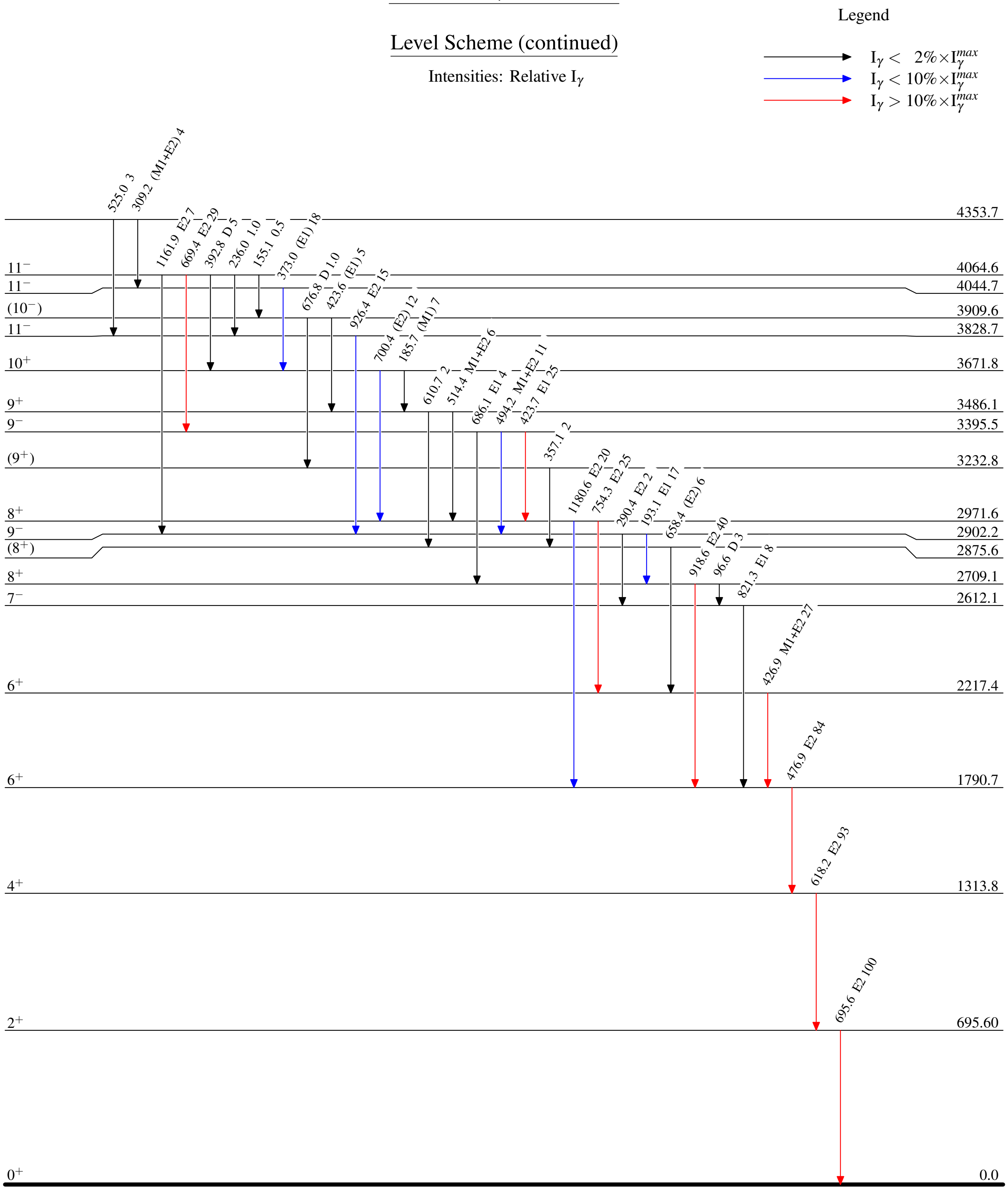
† From 1995Je03.
‡ From 1995Je03 at E=85 MeV; see 1989Co18 for Iγ at E=70 MeV.
\# Based on α(K)exp (1991Ca10) and/or γ(θ) (1989Co18) and/or DCO(1995Je03). Expected DCO values are≈1 (for ΔJ=2 or D,ΔJ=0) or≈0.55 for pure D, ΔJ=1 (1995Je03).
@ Placement of transition in the level scheme is uncertain.


^{130}Te(^{18}O,4nγ) 1995Je03
Level Scheme
Intensities: Relative Iγ
Legend
Iγ < 2%×Iγ^max
Iγ < 10%×Iγ^max
Iγ > 10%×Iγ^max
γ Decay (Uncertain)
(24⁻) 8944.6
(22⁻) 7963.8
(21⁻) 7813.0
(20⁻) 7544.1
(20⁻) 7375.7
(19⁻) 7002.3
(19⁻) 6962.1
(18⁻) 6647.3
(17⁻) 5965.5
(17⁻) 5960.9
(16⁻) 5551.6
(15⁻) 5471.8
15⁻ 5237.8
(14⁻) 4935.5
13⁻ 4741.9
13⁻ 4622.9
12⁻ 4460.6
4353.7
11⁻ 4064.6
11⁻ 4044.7
(10⁻) 3909.6
11⁻ 3828.7
0⁺ 0.0
980.8 (E2) 12
150.8 (M1) 3
851.0 (E2) 6
268.9 (M1) 4
896.7 (E2) 7
373.4 (M1) 14
1036.8 (E2) 22
1001.0 (E2) 5
315.0 4
1096.0 (E2) 5
686.2 (M1) 1.0
493.7 (E2) 20
722.4 (E2) 8
409.8 (M1) 12
617.0 7
314.6 (M1) 30
849.1 (E2) 9
729.8 (E2) 10
614.9 11
302.2 (M1) 12
312.6 (M1) 7
193.7 (M1) 6
913.2 E2 8
677.0 (E2) 11
281.3 M1 5
558.4 E2 20
269.3 2
162.2 M1 10
551.0 (E2) 5
415.9 M1 14
396.1 M1+E2 13
$^{144}_{60}Nd_{84}$

^{130}Te(^{18}O,4nγ) 1995Je03

Level Scheme (continued)

Intensities: Relative I_γ



$^{144}_{60}Nd_{84}$

^{130}Te(^{18}O,4nγ) 1995Je03