^{130}Te(^{20}Ne,7nγ) 2006Ra10

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 113, 715 (2012)	31-May-2011

E=137 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$(DCO), $\gamma\gamma$(lin pol,DCO) using an array of six Compton-suppressed 'Clover' detectors. Relativistic mean field calculations using BCS method.

^{143}Sm Levels

E(level)[†]	J$^{\pi}$	T$_{1/2}$[‡]	Comments
0	3/2$^+$		
754.0 *10*	11/2$^-$	66 s *2*	%IT=99.8
2327.0 *13*	13/2$^-$		
2460.0 *15*	15/2$^-$		
2509.0 *13*	15/2$^+$		
2586.0 *13*	17/2$^+$		
2794.0[a] *17*	23/2$^-$	30 ms *3*	%IT=100
3600.0 *18*	25/2$^-$		
3722.0 *18*	25/2$^-$		
3888.7 *19*	27/2$^-$		
3970.0 *18*	25/2$^-$		
4195.3 *20*	29/2$^-$		
4357.9 *21*	29/2$^-$		
4561.2 *20*			
4648.0[a] *18*	27/2$^-$		
5278.1 *20*	31/2$^+$		
5450.2[&] *20*	31/2$^+$		
5653.2[a] *20*	31/2$^-$		
5685.0[&] *21*	33/2$^+$		
5835.1 *22*	35/2$^+$		
5896.3[a] *21*	33/2$^-$		
5913.3[&] *22*	35/2$^+$		
6082.1 *22*			
6593.2 *21*	(35/2$^-$)		
6623.3 *23*	37/2$^+$		
6710.2 *23*	39/2$^+$		
6759.5[&] *21*	37/2$^+$		
6956.4 *22*	(37/2$^+$)		
7026.2[a] *21*	35/2$^-$		
7087.3 *23*			
7197.3[@] *24*	(39/2$^+$)		
7354.6[&] *23*	(39/2$^+$)		
7390.1[a] *23*	37/2$^-$		
7516.1[a] *24*	(39/2$^-$)		
7580.3[@] *24*	(43/2$^+$)		
7597.6[&] *24*	(41/2$^+$)		
7873[@] *3*	(45/2$^+$)		
8197.4[a] *24*	(41/2$^-$)		
8362[@] *3*	(47/2$^+$)		
8611.7[#] *24*	(43/2$^-$)		
8851[#] *3*	(45/2$^-$)		
9191[#] *3*	(47/2$^-$)		
9635[#] *3*	(49/2$^-$)		

Continued on next page (footnotes at end of table)

^{130}Te(^{20}Ne,7nγ) 2006Ra10 (continued)

^{143}Sm Levels (continued)

E(level)[†]	J$^\pi$
10213[#] *3*	(51/2$^-$)
10815[#] *4*	(53/2$^-$)
11542[#] *4*	(55/2$^-$)
12248[#] *4*	(57/2$^-$)

† Deduced by evaluators from least-squares fit to γ-ray energies using 1 keV uncertainty for all γ rays.
‡ From Adopted Levels.
# Band(A): Possible Magnetic-rotational dipole band.
@ Band(B): γ-ray sequence #1.
& Band(C): γ-ray sequence #2.
a Band(D): γ-ray sequence #3.

γ(^{143}Sm)

All DCO values correspond to gates on ΔJ=1, M1 transitions.

E$_\gamma$[†]	I$_\gamma$[‡]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	Comments
77 *1*		2586.0	17/2$^+$	2509.0	15/2$^+$		
87 *1*		4648.0	27/2$^-$	4561.2			E$_\gamma$: from figure 2 in 2006Ra10.
122 *1*		3722.0	25/2$^-$	3600.0	25/2$^-$		
126 *1*		7516.1	(39/2$^-$)	7390.1	37/2$^-$		
150 *1*	8 *1*	5835.1	35/2$^+$	5685.0	33/2$^+$	M1+E2	DCO=1.40 *15* 35/2$^-$ to 33/2$^-$ incorrectly listed in table I of 2006Ra10. POL=−.
167 *1*	99 *2*	3888.7	27/2$^-$	3722.0	25/2$^-$	M1	DCO=1.0 POL=−0.15 *19*.
172 *1*	35 *1*	5450.2	31/2$^+$	5278.1	31/2$^+$	M1	DCO=1.11 *3* POL=−0.19 *20*.
182 *1*		2509.0	15/2$^+$	2327.0	13/2$^-$		
[x]190[#]							
197 *1*		6956.4	(37/2$^+$)	6759.5	37/2$^+$		
208 *1*		2794.0	23/2$^-$	2586.0	17/2$^+$		
228 *1*	35 *1*	5913.3	35/2$^+$	5685.0	33/2$^+$	M1+E2	DCO=1.60 *5* POL=−0.06 *10*.
235 *1*	68 *1*	5685.0	33/2$^+$	5450.2	31/2$^+$	M1	DCO=1.00 *17* POL=−0.12 *11*.
239 *1*	17 *1*	8851	(45/2$^-$)	8611.7	(43/2$^-$)	M1	DCO=1.00 *14* POL=−0.23 *33*.
243 *1*	14 *1*	5896.3	33/2$^-$	5653.2	31/2$^-$	M1	DCO=1.25 *15* POL=−0.01 *2*.
243 *1*		7597.6	(41/2$^+$)	7354.6	(39/2$^+$)	(M1)	DCO=1.00 *12*
[x]252[#]							
293 *1*	6.0 *3*	7873	(45/2$^+$)	7580.3	(43/2$^+$)	(M1)	
307 *1*	92 *2*	4195.3	29/2$^-$	3888.7	27/2$^-$	M1+E2	DCO=1.31 *3* POL=−0.04 *11*.
[x]337[#]							
340 *1*	18 *2*	9191	(47/2$^-$)	8851	(45/2$^-$)	M1	DCO=1.00 *4* POL=−0.17 *15*.

Continued on next page (footnotes at end of table)

^{130}Te(^{20}Ne,7nγ) 2006Ra10 (continued)

$\gamma(^{143}Sm)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
364 *1*	14 *2*	7390.1	37/2$^-$	7026.2	35/2$^-$	M1+E2	DCO=1.25 *6* POL=−0.16 *18*.
366 *1*		4561.2		4195.3	29/2$^-$		
383 *1*	12 *5*	7580.3	(43/2$^+$)	7197.3	(39/2$^+$)	(E2)	DCO=2.0 *4* POL=+.
397 *1*		6082.1		5685.0	33/2$^+$		
414 *1*		8611.7	(43/2$^-$)	8197.4	(41/2$^-$)	(M1)	
433 *1*		7026.2	35/2$^-$	6593.2	(35/2$^-$)		
444 *1*	12 *2*	9635	(49/2$^-$)	9191	(47/2$^-$)	M1	DCO=1.00 *8*
469 *1*	13 *2*	4357.9	29/2$^-$	3888.7	27/2$^-$	M1+E2	DCO=1.25 *13* POL=+0.07 *27*.
489 *1*		8362	(47/2$^+$)	7873	(45/2$^+$)		
493 *1*		7580.3	(43/2$^+$)	7087.3			
x512#							
x527#							
574 *1*	7 *1*	7197.3	(39/2$^+$)	6623.3	37/2$^+$	(M1+E2)	DCO=1.60 *19*
578 *1*	5 *1*	10213	(51/2$^-$)	9635	(49/2$^-$)	M1	DCO=1.00 *9* POL=−0.24 *34*.
595 *1*	14 *2*	7354.6	(39/2$^+$)	6759.5	37/2$^+$	(M1+E2)	DCO=1.3 *6* POL=−0.18 *22*.
602 *1*	4 *1*	10815	(53/2$^-$)	10213	(51/2$^-$)	M1	DCO=1.00 *20*
x636#							
678 *1*		4648.0	27/2$^-$	3970.0	25/2$^-$	(M1)	
681 *1*		8197.4	(41/2$^-$)	7516.1	(39/2$^-$)	(M1)	POL=−.
706 *1*	2.0 *3*	12248	(57/2$^-$)	11542	(55/2$^-$)	(M1)	
710 *1*	5 *1*	6623.3	37/2$^+$	5913.3	35/2$^+$	M1	DCO=1.33 *12* POL=−0.22 *24*.
727 *1*	2.0 *2*	11542	(55/2$^-$)	10815	(53/2$^-$)	M1	DCO=1.0 *4* POL=−.
754		754.0	11/2$^-$	0	3/2$^+$		
x755#							
797 *1*	6 *1*	6710.2	39/2$^+$	5913.3	35/2$^+$	(E2)	
806 *1*	36 *1*	3600.0	25/2$^-$	2794.0	23/2$^-$	M1	DCO=0.93 *6* POL=−0.15 *10*.
846 *1*	12 *1*	6759.5	37/2$^+$	5913.3	35/2$^+$	M1+E2	DCO=1.5 *3* POL=−0.14 *21*.
863 *1*		6759.5	37/2$^+$	5896.3	33/2$^-$	(M2)	
875 *1*	17 *1*	6710.2	39/2$^+$	5835.1	35/2$^+$	E2	DCO=1.50 *17* 39/2$^-$ to 35/2$^-$ incorrectly listed in table I of 2006Ra10. POL=+0.32 *27*.
920 *1*	19 *1*	5278.1	31/2$^+$	4357.9	29/2$^-$	E1	DCO=1.57 *13* POL=+0.13 *23*.
926 *1*	15 *3*	4648.0	27/2$^-$	3722.0	25/2$^-$	(M1)	
928 *1*	100	3722.0	25/2$^-$	2794.0	23/2$^-$	M1+E2	DCO=1.33 *3* POL=−0.03 *6*.
940 *1*		6593.2	(35/2$^-$)	5653.2	31/2$^-$	(E2)	
944 *1*		7026.2	35/2$^-$	6082.1			
961 *1*		4561.2		3600.0	25/2$^-$		POL=−0.26 *29*.
1005 *1*	19 *2*	5653.2	31/2$^-$	4648.0	27/2$^-$	E2	DCO=1.5 *5* POL=+0.27 *22*.
1014 *1*	11 *1*	8611.7	(43/2$^-$)	7597.6	(41/2$^+$)	E1	DCO=1.4 *5* POL=+0.28 *19*.
1043 *1*	9 *1*	6956.4	(37/2$^+$)	5913.3	35/2$^+$	(M1)	
1075 *1*		6759.5	37/2$^+$	5685.0	33/2$^+$	(E2)	

Continued on next page (footnotes at end of table)

^{130}Te(^{20}Ne,7nγ) 2006Ra10 (continued)

$\gamma(^{143}Sm)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
1083 *1*	35 *2*	5278.1	$31/2^+$	4195.3	$29/2^-$	E1	DCO=1.38 *5* POL=+0.11 *13*.
1096 *1*	25 *6*	8611.7	$(43/2^-)$	7516.1	$(39/2^-)$	E2	DCO=1.3 *6* POL=+0.17 *8*.
1130 *1*	12 *1*	7026.2	$35/2^-$	5896.3	$33/2^-$	M1+E2	DCO=1.3 *6* POL=−0.08 *18*.
1174 *1*		7087.3		5913.3	$35/2^+$		
1176 *1*	22 *1*	3970.0	$25/2^-$	2794.0	$23/2^-$	(M1)	POL=−.
1255 *1*	35 *2*	5450.2	$31/2^+$	4195.3	$29/2^-$	E1	DCO=1.06 *6* POL=+0.16 *9*.
1573 *1*		2327.0	$13/2^-$	754.0	$11/2^-$		
1706 *1*		2460.0	$15/2^-$	754.0	$11/2^-$		
1755 *1*		2509.0	$15/2^+$	754.0	$11/2^-$		
1832 *1*		2586.0	$17/2^+$	754.0	$11/2^-$		
1854 *1*		4648.0	$27/2^-$	2794.0	$23/2^-$	(E2)	

† Additional information 1.
‡ Uncertainties quoted by 2006Ra10 are fractional values in percent.
# Weak transition belongs to ^{143}Sm but could not be placed in the level scheme.
x γ ray not placed in level scheme.

^{130}Te(^{20}Ne,7nγ) 2006Ra10

Level Scheme

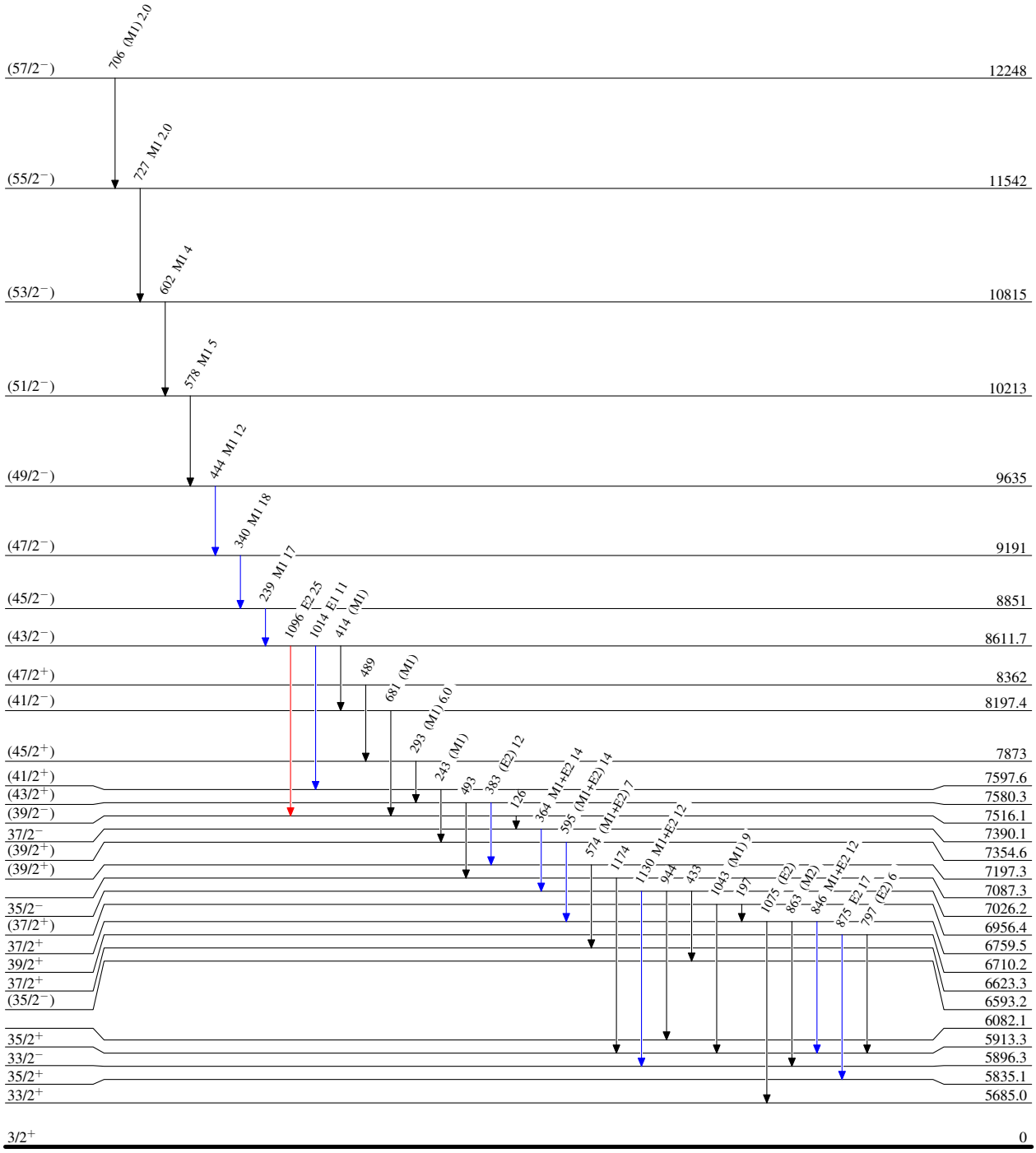
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

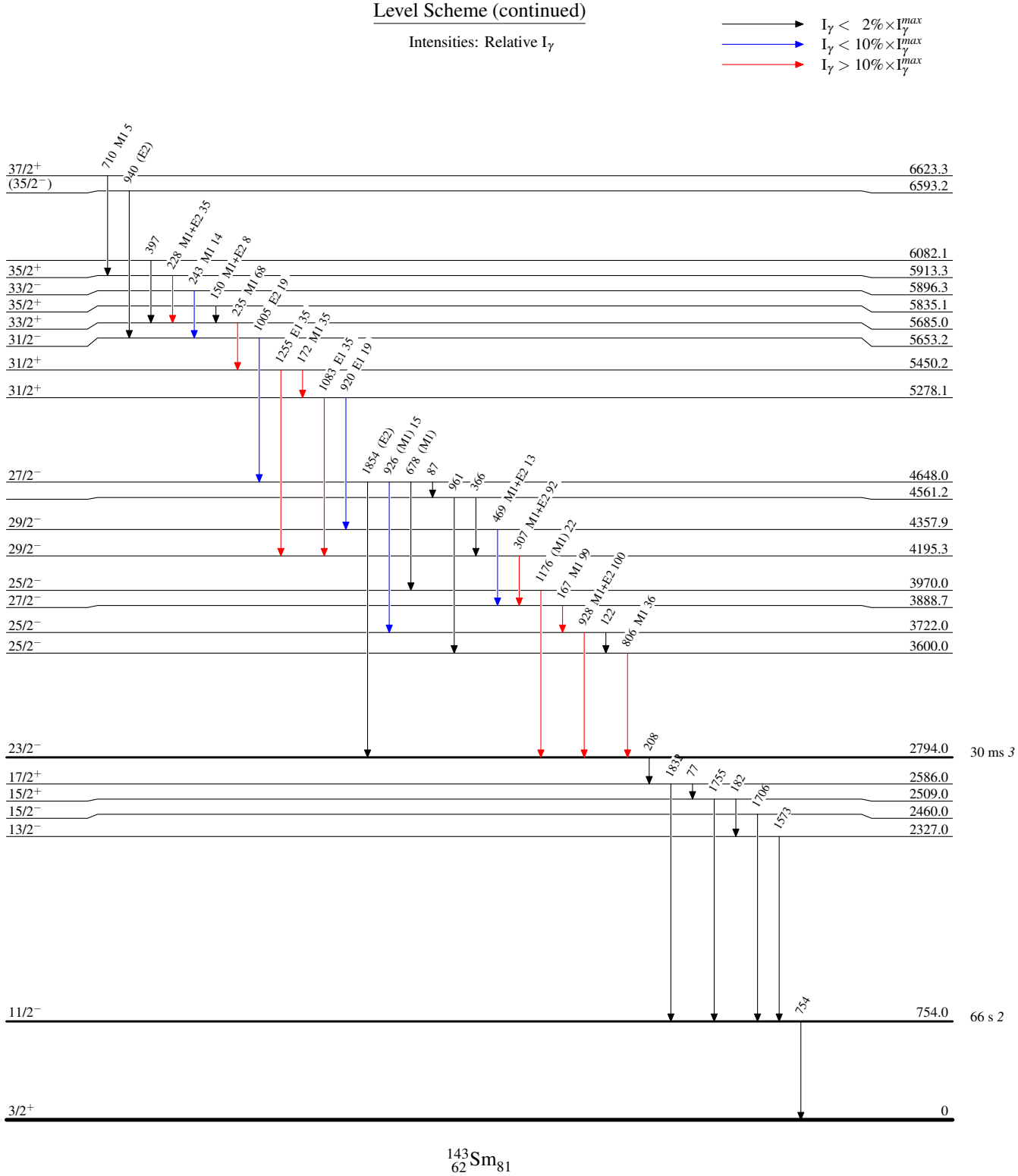


$^{143}_{62}Sm_{81}$

^{130}Te(^{20}Ne,7nγ) 2006Ra10

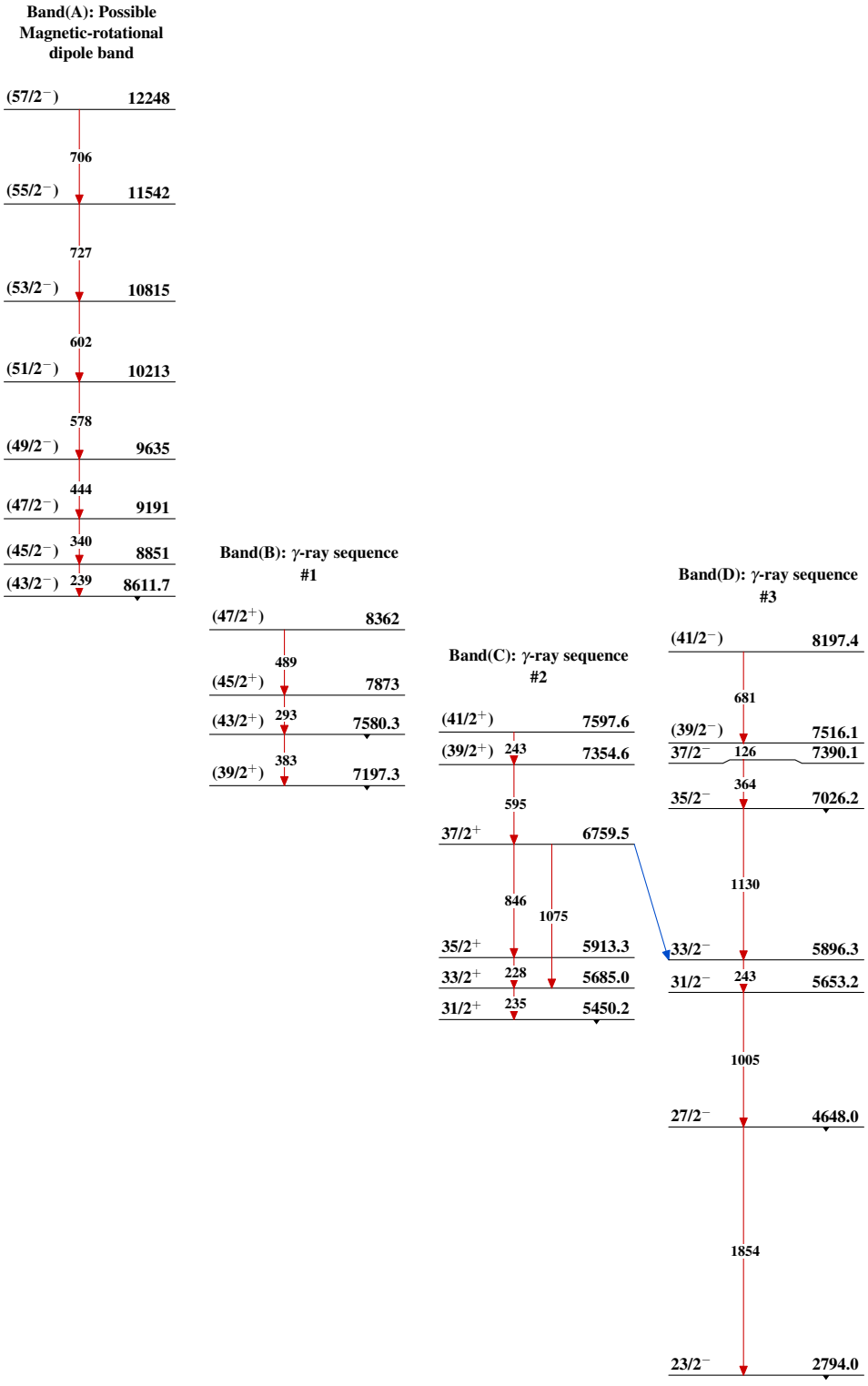
Level Scheme (continued)

Intensities: Relative I_γ



$^{143}_{62}Sm_{81}$

^{130}Te(^{20}Ne,7nγ) 2006Ra10



$^{143}_{62}Sm_{81}$