^{130}Te(^{19}F,5nγ) 1993Gl03

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

E=85 MeV, measured Eγ, $\gamma(\theta)$, prompt/delayed $\gamma\gamma$, DCO (0°, 90°), ce, using a total of 6 Ge detectors (4 of them Compton suppressed) and a miniorange detector. Earlier publication 1993Gl02.

^{144}Pm Levels

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	Comments
0.0[#]	5^-		
171.90[#] *9*	6^-		
232.40[#] *9*	6^-		
514.50 *10*	7^-		
841.09[@] *11*	9^+	0.78 μs *20*	$T_{1/2}$: from 1993Mu03.
896.50 *16*			
1274.00[@] *12*	10^+		
1455.40 *11*	8		
1705.00[@] *12*	10^+		
1711.30[#] *11*	9^-		
1850.90 *12*	(9)		
1985.30[#] *12*	10^-		
2072.41[#] *13*	11^-		
2269.72[#] *14*	12^-		
2312.30[@] *12*	11^+		
2610.20 *13*			
2647.30 *13*	12		
2668.29[@] *14*	12^+		
2774.59[@] *13*	13^+		
3060.03[@] *15*	14^+		
3127.78 *14*	13		
3348.74 *15*	14		
3431.24[&] *15*	$14^{(-)}$		
3510.94[@] *15*	15^+		
3616.04 *15*	(14)		
3795.17 *15*	15		
3899.54[&] *15*	$15^{(-)}$		
3904.55 *15*			
4118.75[&] *16*	$16^{(-)}$		
4227.54 *17*	16		
4505.25[&] *19*	17		
4557.35[@] *17*	17^+		
4818.95 *19*	18		
5118.85[&] *21*			
5351.65 *19*	19		
5850.65 *21*	20		

[†] From least-square fit to Eγ's.
[‡] Author's values deduced from $\gamma(\theta)$ and ce values.
[#] Proposed configuration= $((\nu\ f_{7/2}))$ + core(^{143}Pm).
[@] Proposed configuration= $((\pi\ h_{11/2})(\nu\ f_{7/2}))$ + core(^{142}Nd).
[&] Proposed configuration=$((\pi\ h_{11/2})^2(\pi\ d_{5/2})^{-1}(\nu\ f_{7/2}))$ + core(^{142}Nd).

^{130}Te(^{19}F,5nγ) 1993Gl03 (continued)

$\gamma(^{144}Pm)$

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	δ	Comments
(55.4)		896.50		841.09	9^+			E_γ: from level-energy difference. γ not observed since below the energy detection threshold.
(58.1)		2668.29	12^+	2610.20				E_γ: from level-energy difference. γ not observed since below the energy detection threshold.
87.1 *1*	8.8† *8*	2072.41	11^-	1985.30	10^-	M1		Mult.: from intensity balance.
106.3 *1*	11.9† *7*	2774.59	13^+	2668.29	12^+			
109.4 *1*	3.8† *2*	3904.55		3795.17	15			
127.3 *1*	1.3† *4*	2774.59	13^+	2647.30	12			
134.4 *1*	2.2† *3*	1985.30	10^-	1850.90	(9)			
171.9 *1*	100 *6*	171.90	6^-	0.0	5^-			A2=− 0.25 *8*; A_4= 0.13 *9*.
197.3 *1*	18.7† *17*	2269.72	12^-	2072.41	11^-	M1(+E2)	−0.01 *8*	Ratio(DCO)= 0.47 *12*. Mult.: from intensity balance.
219.2 *1*	8.7 *5*	4118.75	$16^{(-)}$	3899.54	$15^{(-)}$	M1		A_2=−0.30 *7*; A_4=0.11 *7*. α(K)exp=0.155 *26*.
221.0 *1*	5.6 *4*	3348.74	14	3127.78	13			A_2=− 0.04 *8*; A_4= 0.15 *9*.
232.4 *1*	80 *4*	232.40	6^-	0.0	5^-			A_2=− 0.16 *4*; A_4= 0.04 *4*.
255.9 *1*	3.8 *3*	1711.30	9^-	1455.40	8	D+Q	+0.11 *7*	A_2=− 0.09 *11*; A_4= 0.04 *12*.
261.6 *1*	4.1 *3*	4818.95	18	4557.35	17^+	D(+Q)	−0.04 *5*	A_2=− 0.32 *9*; A_4=− 0.03 *10*.
274.0 *1*	16.6 *8*	1985.30	10^-	1711.30	9^-	M1(+E2)	+0.004 *23*	A_2=− 0.27 *3*; A_4= 0.05 *3*.
282.1 *1*	74 *3*	514.50	7^-	232.40	6^-			A_2=− 0.13 *3*; A_4= 0.02 *4*.
283.5 *1*	>2.1	3899.54	$15^{(-)}$	3616.04	(14)	D(+Q)	−0.03 *14*	Ratio(DCO)= 0.37 *16*.
285.4 *1*	57 *3*	3060.03	14^+	2774.59	13^+	M1+E2	+0.052 *18*	A_2=−0.17 *3*; A_4=0.02 *3*. α(K)exp=0.072 *10*.
288.5 *1*	>0.9†	3904.55		3616.04	(14)	(D+Q)	−0.07 *9*	Ratio(DCO)= 0.84 *20*.
323.6 *1*	2.5† *3*	4118.75	$16^{(-)}$	3795.17	15			
326.6 *1*	75 *3*	841.09	9^+	514.50	7^-			A_2=− 0.093 *24*; A_4= 0.00 *3*.
329.8 *1*	5.4 *3*	4557.35	17^+	4227.54	16	D(+Q)	+0.02 *4*	A_2=− 0.25 *5*; A_4= 0.03 *5*.
335.0 *1*	4.1 *3*	2647.30	12	2312.30	11^+	D(+Q)	−0.03 *8*	Ratio(DCO)= 0.45 *11*. A_2=− 0.22 *10*; A_4= 0.11 *12*.
342.6 *1*	41.0† *25*	514.50	7^-	171.90	6^-			
353.2 *1*	1.6† *3*	3127.78	13	2774.59	13^+			
356.0 *1*	54.6 *24*	2668.29	12^+	2312.30	11^+	M1(+E2)	+0.014 *17*	A_2=−0.218 *23*; A_4=−0.004 *25*. α(K)exp=0.042 *5*.
363.9 *1*	2.2† *3*	3795.17	15	3431.24	$14^{(-)}$	D+Q	+0.04 *7*	Ratio(DCO)= 0.55 *13*.
367.4 *1*	16.9 *8*	2072.41	11^-	1705.00	10^+	E1(+M2)	−0.039 *22*	A_2=−0.32 *3*; A_4=0.02 *3*. α(K)exp<0.014 *6*.
377.5 *1*	25.9† *12*	1274.00	10^+	896.50				Ratio(DCO)= 0.47 *3*.
386.5 *1*	11.9 *5*	4505.25	17	4118.75	$16^{(-)}$	D+Q	+0.030 *24*	A_2=− 0.225 *12*; A_4= 0.036 *13*.
393.6 *1*	2.8 *2*	3904.55		3510.94	15^+	(D+Q)	−0.18 *8*	A_2=− 0.58 *9*; A_4= 0.02 *10*.
431.0 *1*	30.3† *17*	1705.00	10^+	1274.00	10^+			Ratio(DCO)= 0.41 *9*.
432.9 *1*	49.7 *22*	1274.00	10^+	841.09	9^+	M1+E2	+0.249 *8*	A_2=0.289 *12*; A_4=−0.061 *15*. α(K)exp>0.025 *4*.
446.5 *1*	13.7 *7*	3795.17	15	3348.74	14			A_2=− 0.24 *3*; A_4=− 0.05 *4*.
450.9 *1*	17.5 *8*	3510.94	15^+	3060.03	14^+	M1		A_2=−0.068 *22*; A_4=0.097 *25*. α(K)exp=0.026 *3*.
459.5 *1*	4.3 *2*	3127.78	13	2668.29	12^+			A_2=− 0.10 *9*; A_4= 0.038 *11*.
462.3 *1*	4.0 *2*	2774.59	13^+	2312.30	11^+	E2(+M3)	−0.09 *4*	A_2=0.18 *3*; A_4=−0.09 *4*. α(K)exp<0.029 *8*.
468.3 *1*	9.1 *4*	3899.54	$15^{(-)}$	3431.24	$14^{(-)}$	M1+E2	+0.09 *3*	Ratio(DCO)= 0.53 *7*. A_2=−0.09 *4*; A_4=0.00 *4*. α(K)exp=0.018 *6*.
499.0 *1*	3.2 *2*	5850.65	20	5351.65	19	D(+Q)	+0.02 *3*	A_2=− 0.26 *7*; A_4= 0.03 *8*.
504.9 *1*	4.1 *2*	2774.59	13^+	2269.72	12^-	E1(+M2)	+0.02 *5*	A_2=− 0.17 *4*; A_4=− 0.05 *5*.
532.7 *1*	3.7 *2*	5351.65	19	4818.95	18	D+Q	+0.08 *4*	A_2=− 0.14 *5*; A_4=− 0.01 *6*.
574.2 *1*	6.0 *4*	3348.74	14	2774.59	13^+	D+Q	+0.05 *3*	A_2=− 0.16 *5*; A_4= 0.01 *7*.

Continued on next page (footnotes at end of table)

^{130}Te(^{19}F,5nγ) 1993Gl03 (continued)

γ(^{144}Pm) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ	Comments
607.8 *1*	9.6[†] *6*	4118.75	$16^{(-)}$	3510.94	15^+			
613.6 *1*	3.2 *2*	5118.85		4505.25	17			A_2= 0.07 *8*; A_4=− 0.10 *10*.
624.9 *1*	4.3[†] *5*	2610.20		1985.30	10^-			
669.2 *1*	34[†] *3*	841.09	9^+	171.90	6^-			
735.1 *1*	16.0[†] *10*	3795.17	15	3060.03	14^+			
794.3 *1*	8.1[†] *7*	5351.65	19	4557.35	17^+			
839.5 *1*	2.4[†] *7*	3899.54	$15^{(-)}$	3060.03	14^+			
863.9 *1*	11.5 *5*	1705.00	10^+	841.09	9^+	M1+E2	+0.252 *10*	A_2=0.20 *3*; A_4=−0.04 *4*. α(K)exp=0.0058 *15*.
942.3 *1*	5.7 *3*	2647.30	12	1705.00	10^+	Q+O	−0.07 *5*	A_2= 0.25 *3*; A_4=− 0.12 *3*.
1038.3 *1*	48.7 *22*	2312.30	11^+	1274.00	10^+	M1+E2	+0.233	A_2=0.22 *3*; A_4=−0.10 *3*. α(K)exp=0.0026 *4*.
1046.4 *1*	7.2 *3*	4557.35	17^+	3510.94	15^+	E2(+M3)[#]	−0.070 *25*	A_2= 0.26 *4*; A_4=− 0.20 *5*.
1161.5 *1*	13.2 *6*	3431.24	$14^{(-)}$	2269.72	12^-	Q(+O)	−0.084 *22*	A_2= 0.28 *3*; A_4=− 0.21 *4*.
1167.5 *1*	6.9 *3*	4227.54	16	3060.03	14^+	E2(+M3)[#]	−0.09 *4*	A_2= 0.26 *5*; A_4=− 0.22 *6*.
1196.8 *1*	16.6 *7*	1711.30	9^-	514.50	7^-	E2(+M3)	−0.11 *3*	A_2= 0.200 *14*; A_4=− 0.139 *18*.
1223.0 *1*	2.1[†] *3*	1455.40	8	232.40	6^-			A_2= 0.19 *16*; A_4=− 0.23 *20*.
1336.2 *1*	4.9[†] *8*	2610.20		1274.00	10^+			
1336.4 *1*	6.2[†] *4*	1850.90	(9)	514.50	7^-			
1346.3 *1*	5.3[†] *4*	3616.04	(14)	2269.72	12^-			
1471.2 *1*	23.1 *10*	2312.30	11^+	841.09	9^+	E2(+M3)	−0.089 *19*	A_2= 0.269 *23*; A_4=− 0.20 *3*.

[†] From $\gamma\gamma$ coin data.
[‡] From $\gamma(\theta)$ and ce.
[#] Author's values deduced from transition rates estimates.

^{130}Te(^{19}F,5nγ) 1993Gl03

Level Scheme

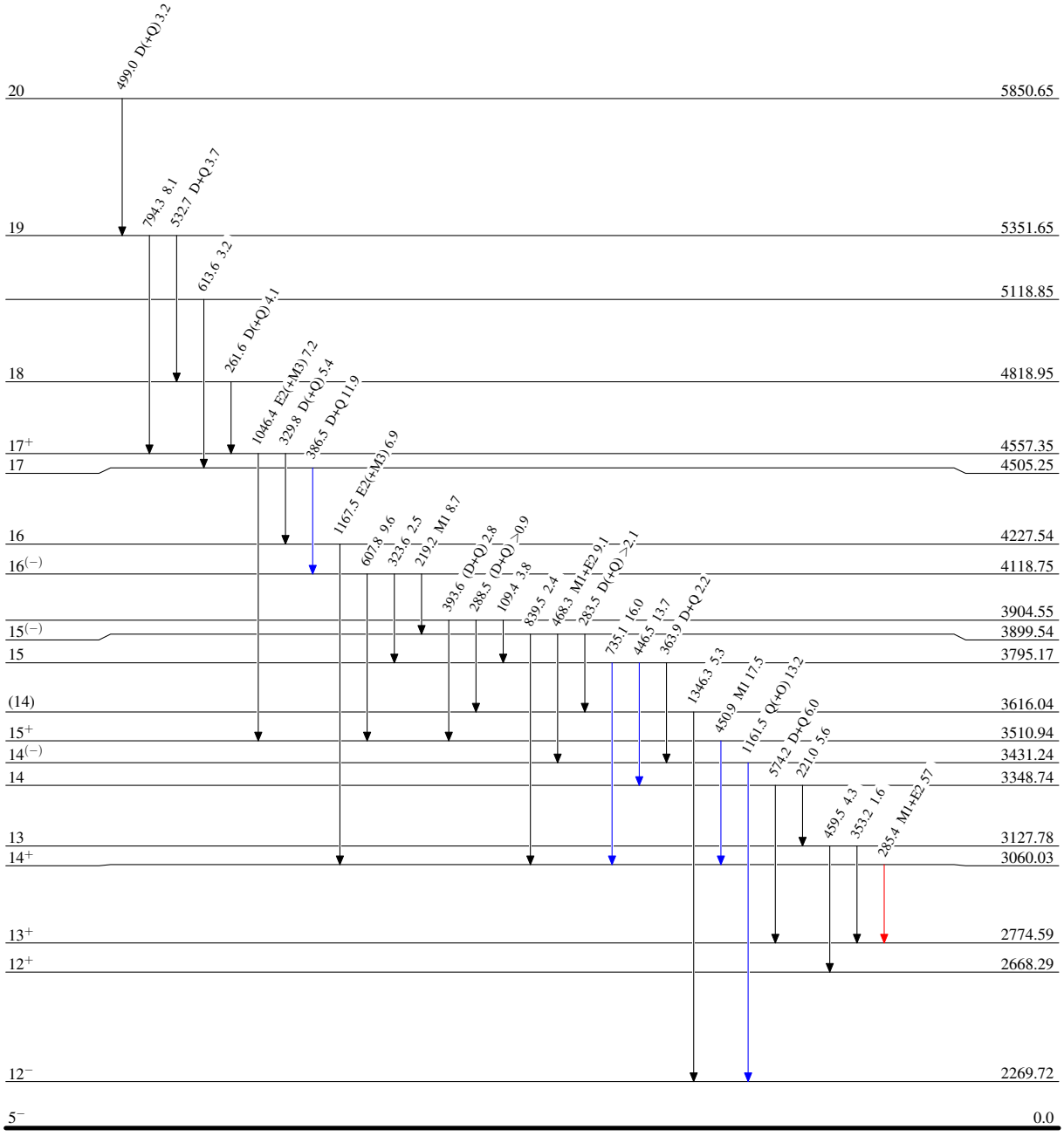
Intensities: Type not specified

Legend

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

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

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



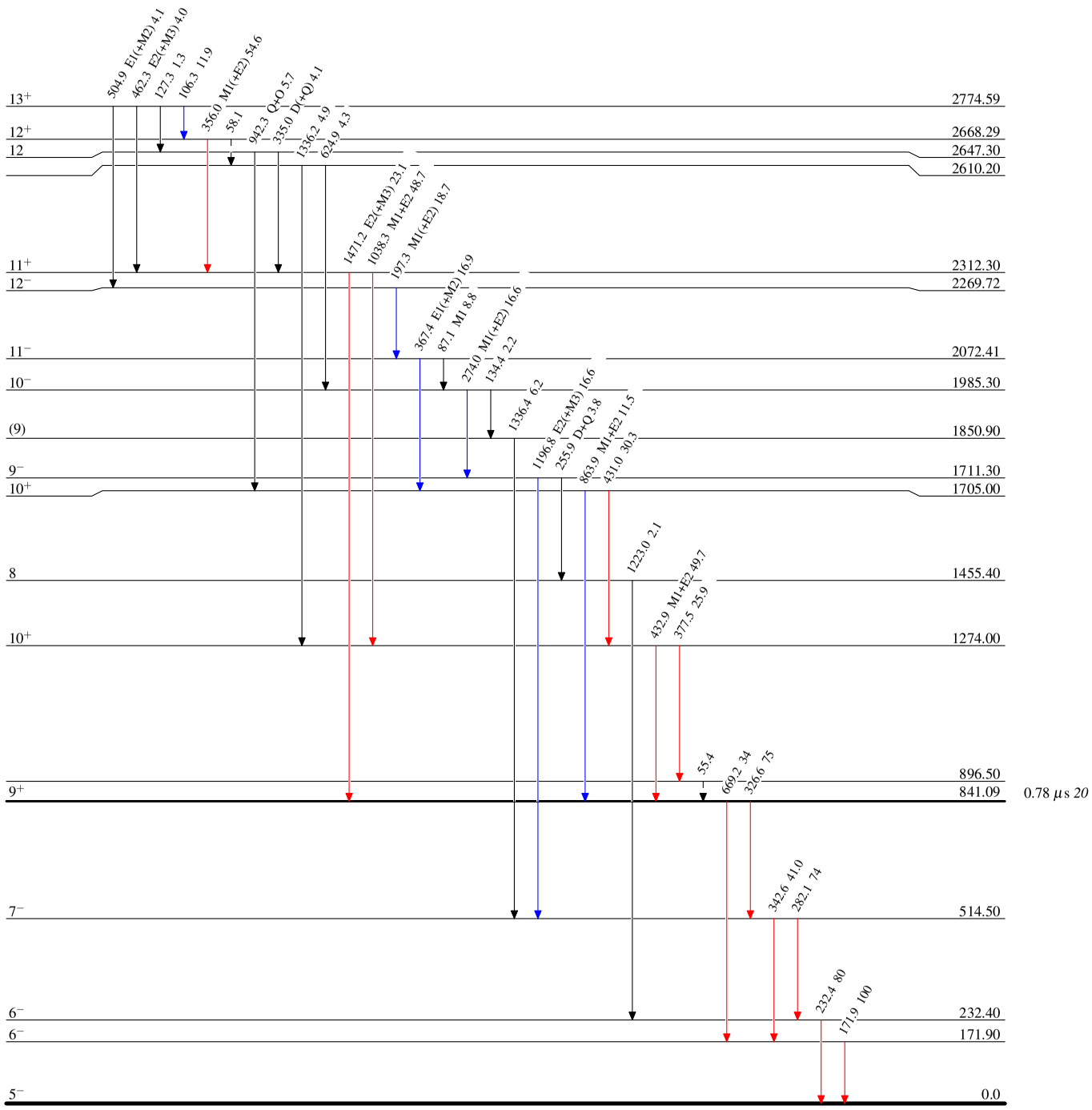
$^{144}_{61}Pm_{83}$

^{130}Te(^{19}F,5nγ) **1993Gl03**

Level Scheme (continued)

Intensities: Type not specified

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{144}_{61}Pm_{83}$