

^{224}Th $Z = 90$ $N = 134$ [link to full NNDC output](#)

Based on ENSDF from Dec 2018, and mass evaluation from 2016

BE = 1717.570 (0.010) MeV

	Energy T	J+	J-	J-other	T1/2

S-alpha=	-7.299	(0.013)	-----		
224TH 1	0.000	0+			1 1.04 S 2
224TH 2	0.098	2+			2 0.590 NS 40
224TH 3				0.251 (1-)	3
224TH 4	0.284	4+			4
224TH 5				0.305 (3-)	5
224TH 6				0.465 (5-)	6
224TH 7	0.535	6+			7
224TH 8				0.700 (7-)	8
224TH 9	0.834	8+			9
224TH 10				0.998 (9-)	10

224TH 11	1.174	10+			11
224TH 12				1.347 (11-)	12
224TH 13	1.550	12+			13
224TH 14				1.739 (13-)	14
224TH 15	1.959	14+			15
224TH 16				2.165 (15-)	16
224TH 17	2.398	16+			17
224TH 18				2.620 (17-)	18
224TH 19	2.864	18+			19

S-p	= 5.121	(0.012)	-----		
S-n	= 7.464	(0.014)	-----		
S-2p	= 8.905	(0.011)	-----		
224TH 20				10.800	20 4.4 MEV 6

S-2n	= 13.352	(0.016)	-----		
224TH 21				14.100	21 5.9 MEV 10

S-p	= 5.121	(0.012)	-----		
S-n	= 7.464	(0.014)	-----		
S-2p	= 8.905	(0.011)	-----		
S-2n	= 13.352	(0.016)	-----		
S-alpha=	-7.299	(0.013)	-----		

S+p	= -2.942	(0.072)	-----		
S+n	= -5.755	(0.011)	-----		
S+2p	= -7.243	(0.017)	-----		
S+2n	= -12.939	(0.011)	-----		
S+alpha	= 6.804	(0.018)	-----		

gap p = 2.180 (0.073)
gap n = 1.709 (0.018)
gap 2p = 1.662 (0.020)
gap 2n = 0.413 (0.019)
gap alpha = -0.495 (0.022)