

^{189}Tl $Z = 81$ $N = 108$ adopted link ENSDF link

Based on ENSDF from Oct 2022, and mass evaluation from 2020

BE = 1486.725 (0.008) MeV

Qbeta+ = 5.010 (0.033) MeV

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

S-alpha=	-4.817 (0.009)				
189TL	1			0.000 (1/2+)	1 2.3 M 2
189TL	2			0.281 (9/2-)	2 1.4 M 1
189TL	3			0.319 (3/2+)	3
189TL	4			0.464 (3/2+)	4
189TL	5			0.600 (9/2-)	5
189TL	6			0.667 (11/2-)	6 37.8 PS 35
189TL	7			0.668 (3/2-)	7
189TL	8			0.745 (7/2-)	8
189TL	9			0.886	9
189TL	10			0.981 (13/2-)	10 1.9 PS 6

189TL	11			1.028 (13/2-)	11
189TL	12			1.033	12
189TL	13			1.062 (9/2-)	13
189TL	14			1.105 (11/2-)	14
189TL	15			1.148 (13/2+)	15 209 PS 12
189TL	16			1.228 (11/2-)	16
189TL	17			1.325 (13/2-)	17
189TL	18			1.332 (11/2-)	18
189TL	19			1.369	19
189TL	20			1.389 (11/2-)	20

189TL	21			1.409 (15/2-)	21
189TL	22			1.421	22
189TL	23			1.461 (13/2-)	23
189TL	24			1.464 (13/2-)	24
189TL	25			1.490	25
189TL	26			1.493 (11/2-)	26
189TL	27			1.533 (11/2,13/2,15/2)	27-
189TL	28			1.546 (15/2+)	28
189TL	29			1.553 (11/2,13/2-)	29
189TL	30			1.615 (11/2,13/2-)	30

189TL	31			1.646 (17/2-)	31 1.80 PS 42
S-p	= 1.707 (0.011)				
189TL	32			1.717	32
189TL	33			1.746	33
189TL	34			1.753 (11/2,13/2-)	34
189TL	35			1.757 (17/2-)	35

189TL 36				1.761	(11/2,13/2,15/2	36-)			
189TL 37				1.783	(13/2-)	37			
189TL 38				1.813	(11/2,13/2,15/	382)			
189TL 39				1.830	(17/2+)	39	9.0 PS	11	
189TL 40				1.845	(17/2-)	40			

189TL 41				1.861	(11/2,13/2,15/	412)			
189TL 42				1.865	(11/2,13/2,15/2	42-)			
189TL 43				1.878	(11/2,13/2,15/2	43-)			
189TL 44				1.894	(11/2,13/2,15/2	44)			
189TL 45				1.960	(11/2,13/2,15/2	45)			
189TL 46				1.962	(11/2,13/2,15/	462)			
189TL 47				1.995	(17/2+)	47			
189TL 48				2.006	(13/2-,15/2)	48			
189TL 49				2.025	(11/2,13/2,15/2	49-)			
189TL 50				2.062		50			

189TL 51				2.148	(19/2-)	51	7.1 PS	14	
189TL 52				2.163	(19/2-)	52			
189TL 53				2.174	(11/2,13/2,15/2	53-)			
189TL 54				2.185	(13/2-,15/2)	54			
189TL 55				2.213	(11/2,13/2,15/2	55-)			
189TL 56				2.237	(21/2+)	56	8.6 PS	12	
189TL 57				2.237		57			
189TL 58				2.308		58			
189TL 59				2.308	(19/2+)	59			
189TL 60				2.420	(11/2,13/2,15/	602)			

189TL 61				2.501	(21/2-)	61			
189TL 62				2.632	(25/2+)	62	2.08 PS	28	
189TL 63				2.650	(23/2-)	63	6.1 PS	LT	
189TL 64				2.669	(23/2-)	64			
189TL 65				2.698	(23/2-)	65			
189TL 66				2.788	(25/2-)	66			
189TL 67				3.025	(27/2-)	67			
189TL 68				3.095	(29/2+)	68	0.90 PS	14	
189TL 69				3.254	(27/2-)	69			
189TL 70				3.277	(29/2-)	70			

189TL 71				3.443		71			
189TL 72				3.627	(31/2-)	72			
189TL 73				3.629	(33/2+)	73	0.7 PS	LT	
189TL 74				3.902	(31/2-)	74			
189TL 75				3.958	(33/2-)	75			
189TL 76				4.232	(37/2+)	76			
189TL 77				4.360	(35/2-)	77			
189TL 78				4.606	(35/2-)	78			
189TL 79				4.729	(37/2-)	79			
189TL 80				4.896	(41/2+)	80			

189TL	81				5.362	(39/2-)	81
189TL	82				5.606	(45/2+)	82
S-2p	=	6.165	(0.024)	-----			
189TL	83				6.333	(49/2+)	83

S-p	=	1.707	(0.011)	-----			
S-n	=	10.351	(0.031)	-----			
S-2p	=	6.165	(0.024)	-----			
S-2n	=	18.314	(0.012)	-----			
S-alpha	=	-4.817	(0.009)	-----			

S+p	=	-3.089	(0.015)
S+n	=	-7.822	(0.011)
S+2p	=	-3.201	(0.011)
S+2n	=	-17.810	(0.011)
S+alpha	=	6.307	(0.011)

gap p	=	-1.383	(0.019)
gap n	=	2.529	(0.033)
gap 2p	=	2.964	(0.027)
gap 2n	=	0.505	(0.016)
gap alpha	=	1.490	(0.014)