

$^{228}\text{Ra}$        $Z = 88$        $N = 140$       [link to full NNDC output](#)

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

BE = 1742.474 ( 0.002) MeV

Qbeta- = 0.045 ( 0.003) MeV

	Energy T	J+	J-	J-other	T1/2
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S-alpha=	-4.070	( 0.010)	-----		
228RA 1	0.000	0+			1 5.75 Y 3
228RA 2	0.064	2+			2 550 PS 20
228RA 3	0.205	4+			3 181 PS 3
228RA 4				0.412 (6+)	4
228RA 5			0.474 1-		5 7 PS LE
228RA 6			0.538 3-		6 6 PS LE
228RA 7				0.656 (5-)	7
228RA 8				0.674 (8+)	8
228RA 9	0.721	0+			9
228RA 10	0.771	2+			10
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228RA 11				0.830 (7-)	11
228RA 12	0.846	2+			12
228RA 13	0.880	4+			13
228RA 14				0.899 (3+)	14
228RA 15				0.967 (2+,4+)	15
228RA 16				0.983 (10+)	16
228RA 17	1.013	2+			17
228RA 18				1.042 (0+,1,2,3-)	18
228RA 19				1.053 (2+,3,4+)	19
228RA 20				1.055 (9-)	20
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228RA 21				1.070 (3+)	21
228RA 22				1.087 (1-,2,3-)	22
228RA 23				1.109 (2+,3)	23
228RA 24				1.140 (4+)	24
228RA 25				1.158 (2+,3,4+)	25
228RA 26				1.182 (3-)	26
228RA 27				1.200 (2+)	27
228RA 28				1.220 (2+)	28
228RA 29				1.238 (1,2,3-)	29
228RA 30				1.327 (11-)	30
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228RA 31				1.331 (12+)	31
228RA 32				1.349 (4+)	32
228RA 33				1.420	33
228RA 34				1.472 (1-,2,3,4+)	34
228RA 35				1.495 (1+,2,3,4+)	35
228RA 36				1.507 (2+,3-)	36

228RA 37				1.519	(0+,1,2,3-)	37
228RA 38				1.580	(1-,2,3-)	38
228RA 39				1.639	(13-)	39
228RA 40				1.710	(14+)	40
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228RA 41				1.912	1+,2+	41
228RA 42				1.975	1,2+	42
228RA 43				1.988	(15-)	43
228RA 44				2.041	(2+)	44
228RA 45				2.108	(2+,3)	45
228RA 46				2.111	(2,3-)	46
228RA 47				2.114	(16+)	47
228RA 48				2.138	(2+)	48
228RA 49				2.161	(2+)	49
228RA 50				2.168	(2+,3)	50
-----						
228RA 51				2.368	(17-)	51
228RA 52				2.536	(18+)	52
228RA 53				2.777	(19-)	53
228RA 54				2.972	(20+)	54
228RA 55				3.419	(22+)	55

S-p = 8.031 ( 0.006)-----  
S-n = 6.309 ( 0.003)-----  
S-2p = 14.385 ( 0.011)-----  
S-2n = 10.870 ( 0.003)-----  
S-alpha= -4.070 ( 0.010)-----

S+p = -5.539 ( 0.012)  
S+n = -4.449 ( 0.015)  
S+2p = -12.656 ( 0.002)  
S+2n = -10.567 ( 0.011)  
S+alpha = 4.082 ( 0.002)

gap p = 2.492 ( 0.014)  
gap n = 1.859 ( 0.016)  
gap 2p = 1.729 ( 0.011)  
gap 2n = 0.304 ( 0.011)  
gap alpha = 0.011 ( 0.010)