

$^{140}\text{Ce}$        $Z = 58$        $N = 82$       [link to full NNDC output](#)

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

BE = 1172.684 ( 0.002) MeV

	Energy T	J+	J-	J-other	T1/2
140CE 1	0.000	0+			1 STABLE
140CE 2	1.596	2+			2 0.0916 PS 19
S-alpha= 1.614 ( 0.002)					
140CE 3	1.903	0+			3 0.40 NS 3
140CE 4	2.083	4+			4 3.45 NS 3
140CE 5	2.108	6+			5 7.3 US 15
140CE 6	2.348	2+			6 0.2 NS LE
140CE 7	2.350	5+			7 10 NS LE
140CE 8	2.412	3+			8 55 PS 15
140CE 9			2.464	3-	9 0.10 PS 2
140CE 10	2.481	4+			10 3.2 NS 3
140CE 11	2.516	3+			11
140CE 12	2.521	2+			12 0.1 NS LE
140CE 13	2.547	1+			13
140CE 14	2.629	6+			14
140CE 15				2.658	15
140CE 16	2.900	2+			16 4.0E-3 EV 9
140CE 17	3.001	2+			17
140CE 18	3.017	0+			18
140CE 19			3.040	3-	19
140CE 20	3.119	2+			20 12.9E-3 EV10
140CE 21				3.168	21
140CE 22	3.226	0+			22
140CE 23			3.256	5-	23
140CE 24	3.320	2+			24 3.0E-3 EV 7
140CE 25	3.331	4+			25
140CE 26				3.391	26
140CE 27				3.395 (4-)	27
140CE 28				3.395 (4+)	28
140CE 29			3.425	7-	29
140CE 30	3.433	7+			30
140CE 31			3.474	3-	31
140CE 32			3.477	8-	32
140CE 33	3.484	6+			33
140CE 34			3.493	9-	34 1.7 NS 2
140CE 35	3.513	8+			35
140CE 36				3.521 (4+)	36
140CE 37				3.522 (5)	37

140CE	38					3.535	(3,4)	38
140CE	39					3.551	2+,3-	39
140CE	40					3.602		40
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140CE	41	3.621	8+					41
140CE	42			3.643	1-			42 289E-3 EV 18
140CE	43					3.653	2+,3-	43
140CE	44					3.662	(7,8)	44
140CE	45			3.710	5-			45
140CE	46	3.715	10+					46 23.1 NS 4
140CE	47	3.729	2+					47
140CE	48					3.746		48
140CE	49					3.780	(3+,4+)	49
140CE	50			3.792	3-			50
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140CE	51	3.895	9+					51
140CE	52			3.911	5-			52
140CE	53			3.912	2-			53
140CE	54					3.956		54
140CE	55					3.971		55
140CE	56			3.980	3-			56
140CE	57			4.000	4-			57
140CE	58					4.017		58
140CE	59					4.061		59
140CE	60	4.125	2+					60
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140CE	61			4.158	2-			61
140CE	62					4.170		62
140CE	63			4.182	1-			63
140CE	64					4.183	2+, (3-,4+)	64
140CE	65					4.208		65
140CE	66	4.242	2+					66
140CE	67	4.264	10+					67
140CE	68					4.296	3-,4+	68
140CE	69					4.340	(1-)	69
140CE	70					4.360	+	70
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140CE	71			4.364	1-			71
140CE	72					4.424	2+,3-	72
140CE	73					4.450	(9,11)	73
140CE	74					4.450		74
140CE	75					4.485		75
140CE	76			4.538	3-			76
140CE	77					4.571	(8+,10+)	77
140CE	78			4.580	2-			78
140CE	79					4.640		79
140CE	80					4.660		80
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140CE	81					4.700		81
140CE	82					4.720		82

140CE 83			4.748	2-			83
140CE 84					4.760		84
140CE 85			4.770	1-			85
140CE 86					4.790		86
140CE 87					4.827	2+,3-	87
140CE 88	4.852	12+					88
140CE 89					4.860		89
140CE 90					4.880		90
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140CE 91			4.905	11-			91
140CE 92					4.910		92
140CE 93					4.959	(11+)	93
140CE 94					4.979	2+,3-	94
140CE 95					5.000		95
140CE 96					5.026	2-,3-	96
140CE 97					5.050		97
140CE 98					5.070	(9,11)	98
140CE 99					5.094	(12-)	99
140CE 100					5.101	GE 5	100
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140CE 101			5.103	13-			101
140CE 102					5.140		102
140CE 103					5.160		103
140CE 104					5.196	2-,3-	104
140CE 105					5.230		105
140CE 106					5.295	5-,6+	106
140CE 107					5.336	(12-)	107
140CE 108					5.377	4+,5-	108
140CE 109					5.424	2-,3-	109
140CE 110					5.449		110
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140CE 111					5.466	2-,3-	111
140CE 112					5.574	(0+)	112
140CE 113					5.650	2+,3-	113
140CE 114			5.660	1-			114 0.0121 EV 29
140CE 115					5.703	1-,2+	115
140CE 116					5.789		116
140CE 117					5.896	1-,2+	117
140CE 118					5.989	(3-,4+)	118
140CE 119					6.078	2+,3-	119
140CE 120					6.187	2+,3-	120
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140CE 121					6.233		121
140CE 122					6.268		122
140CE 123					6.364	3-,4+	123
140CE 124					6.678		124
140CE 125					7.050		125
140CE 126	7.370	0+					126

S-p = 8.139 ( 0.002)-----  
S-n = 9.199 ( 0.007)-----  
S-2p = 14.392 ( 0.002)-----  
S-2n = 16.648 ( 0.005)-----  
S-alpha= 1.614 ( 0.002)-----

S+p = -5.229 ( 0.002)  
S+n = -5.428 ( 0.002)  
S+2p = -12.452 ( 0.002)  
S+2n = -12.600 ( 0.003)  
S+alpha = 1.903 ( 0.002)

gap p = 2.910 ( 0.003)  
gap n = 3.771 ( 0.008)  
gap 2p = 1.940 ( 0.003)  
gap 2n = 4.048 ( 0.006)  
gap alpha = 3.517 ( 0.003)