

^{64}Cu $Z = 29$ $N = 35$ [link to full NNDC output](#)

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

BE = 559.301 (0.000) MeV
 Qbeta- = 0.579 (0.001) MeV
 Qbeta+ = 1.674 (0.001) MeV

	Energy T	J+	J-	J-other	T1/2
64CU 1	0.000	1+			1 12.701 H 2
64CU 2	0.159	2+			2 21 PS 4
64CU 3	0.278	2+			3 9 PS LT
64CU 4	0.344	1+			4 4 PS LT
64CU 5	0.362	3+			5 4 PS LT
64CU 6				0.575 (4)+	6 17 PS LT
64CU 7	0.609	2+			7 9 PS LT
64CU 8	0.663	1+			8 8 PS LT
64CU 9	0.739	2+			9 11 PS LT
64CU 10				0.746 (3)+	10 13 PS LT
64CU 11				0.878 (0)+	11 15 PS LT
64CU 12				0.896 (3)+	12 20 PS LT
64CU 13	0.927	1+			13 11 PS LT
64CU 14				1.241 1(+),2(+)	14
64CU 15				1.243 (LE 3)	15
64CU 16				1.287 (1+,2,3-)	16
64CU 17				1.289 (LE 3)	17
64CU 18				1.291	18
64CU 19				1.298 (1)+	19
64CU 20				1.320 (1+,2+,3+)	20
64CU 21				1.354 (3)+	21
64CU 22				1.363 (LE 4)	22
64CU 23				1.439 (1)+	23
64CU 24				1.461 (2-)	24
64CU 25				1.499 (2)-	25
64CU 26				1.521 (2)+	26
64CU 27				1.551 (2+,3+,4+)	27
64CU 28			1.594 6-		28 20.4 NS 6
64CU 29				1.594 (1+,2)	29
64CU 30				1.607 (2+,3,4-)	30
64CU 31				1.616 (4+,5+,6+)	31
64CU 32				1.630 (1:5)(+)	32
64CU 33				1.648 (1-,2-)	33
64CU 34				1.683 (LE 3)	34
64CU 35				1.701 (1,2+)	35
64CU 36				1.707 (1 TO 5)	36

64CU 37				1.740	(3+,4+,5+)	37
64CU 38				1.743	(1+,2,3+)	38
64CU 39				1.749	(LE 4)	39
64CU 40				1.769	(3+,4+,5+)	40

64CU 41				1.780	(1+,2+)	41
64CU 42				1.853	(1+,2+)	42
64CU 43				1.884		43
64CU 44				1.900	(1+)	44
64CU 45				1.905	(1+,2)	45
64CU 46				1.918	(LE 4)	46
64CU 47				1.940	(1)+	47
64CU 48				1.970	(LE 3)	48
64CU 49				1.976	(2 TO 6)	49
64CU 50				1.979	(3+,4+,5+)	50

64CU 51				2.021	(1+,2+,3+)	51
64CU 52				2.042	(LE 3)	52
64CU 53				2.050	(1+,2,3-)	53
64CU 54				2.053	(LE 4)	54
64CU 55				2.060	(LE 3)	55
64CU 56				2.065	(LE 4)	56
64CU 57				2.073	(5,6,7)	57
64CU 58				2.075	(2-,3-,4-)	58
64CU 59				2.080	(LE 3)	59
64CU 60				2.092	(1+,2+,3+)	60

64CU 61				2.115	(LE 3+)	61
64CU 62				2.140	(LE 3)	62
64CU 63				2.145	(2+)	63
64CU 64				2.184	(3+)	64
64CU 65				2.212	(1+ TO 5+)	65
64CU 66				2.221	(3+)	66
64CU 67				2.244	(1+,2+,3+)	67
64CU 68				2.252	(4,5,6+)	68
64CU 69				2.254	(LE 3)	69
64CU 70				2.267	(2-,3-,4-)	70

64CU 71				2.274	(LE 3)	71
64CU 72				2.280	(LE 3)	72
64CU 73				2.301	(LE 3)	73
64CU 74				2.309	(3+)	74
64CU 75				2.316	(1-,2-)	75
64CU 76				2.323	(5:8)	76
64CU 77				2.325	(1+,2+,3+)	77
64CU 78				2.355	(LE 3)	78
64CU 79				2.360	(LE 4)	79
64CU 80				2.376	(1+)	80

64CU 81				2.378	(7-)	81

64CU 82			2.381	(LE 3)	82
64CU 83			2.387	(5:8)	83
64CU 84			2.388	(1+)	84
64CU 85			2.417	(1+,2+,3+)	85
64CU 86			2.457	(1+)	86
64CU 87			2.465	(1-,2-)	87
64CU 88			2.491	(LE 3)	88
64CU 89			2.494	(2-)	89
64CU 90			2.498	(1,2+)	90

64CU 91			2.507	(LE 3)	91
64CU 92			2.522		92
64CU 93			2.534	(1,2-)	93
64CU 94			2.567	(3+,4+,5+)	94
64CU 95			2.586	(3+,4+)	95
64CU 96			2.595	(1+)	96
64CU 97			2.607		97
64CU 98			2.622	(1+)	98
64CU 99			2.636	(LE 3)	99
64CU 100			2.648	(1+)	100

64CU 101			2.657	(1+,2)	101
64CU 102			2.670	(1,2)	102
64CU 103			2.693	(6,7,8-)	103
64CU 104			2.695	(1-,2-)	104
64CU 105			2.717	(6,7,8-)	105
64CU 106			2.718	(1-,2-)	106
64CU 107			2.726	(1+,2+,3+)	107
64CU 108			2.732	(0+,1,2)	108
64CU 109			2.764	(1-,2-)	109
64CU 110			2.777	(1+,2+)	110

64CU 111			2.807	(1-,2-)	111
64CU 112			2.831	(LE 3)	112
64CU 113			2.854	(0+ T0 3+)	113
64CU 114			2.869	(3+)	114
64CU 115			2.892	(1+)	115
64CU 116			2.897	(1+)	116
64CU 117			2.932	(2-)	117
64CU 118			2.970	(3+,4+,5+)	118
64CU 119			2.985	(2-)	119
64CU 120			3.013	(1-,2-)	120

64CU 121			3.034	(0-,1-,2-)	121
64CU 122			3.051	(5:10)	122
64CU 123			3.052	(LE 3)	123
64CU 124			3.072	(2-)	124
64CU 125			3.081	(2-,3-,4-)	125
64CU 126			3.112	(0,1,2)	126
64CU 127			3.125	(1+,2+,3+)	127

64CU 128				3.127	(6,7,8-)	128
64CU 129				3.154	(0- TO 4-)	129
64CU 130				3.191	(8-)	130

64CU 131				3.191	(1+)	131
64CU 132				3.208	(0,1,2)	132
64CU 133				3.231	(1+,2+,3+)	133
64CU 134				3.258	(1+,2+)	134
64CU 135				3.296	(3+,4+,5+)	135
64CU 136				3.313	(0,1,2)	136
64CU 137				3.344	(LE 3)	137
64CU 138				3.353	(LE 3)	138
64CU 139				3.412	(0-,1-,2-)	139
64CU 140				3.440	(LE 3)	140

64CU 141				3.466	(LE 3)	141
64CU 142				3.476	(0,1,2)	142
64CU 143				3.493	(LE 3)	143
64CU 144				3.511	(1,2)	144
64CU 145				3.525	(LE 4)	145
64CU 146				3.596	(LE 3)	146
64CU 147				3.603	(LE 3)	147
64CU 148				3.629	(LE 3)	148
64CU 149				3.687		149
64CU 150				3.712	(LE 3)	150

64CU 151				3.763		151
64CU 152				3.783	(1,2+)	152
64CU 153	3.799	9+				153
64CU 154				3.803	(LE 3)	154
64CU 155				3.827	(1+,2,3)	155
64CU 156				3.902	(1-,2-)	156
64CU 157				3.973	(1+,2+,3+)	157
64CU 158				3.988	(7,8,9-)	158
64CU 159				3.991	(1 TO 4)	159
64CU 160				4.034	(1+,2+)	160

64CU 161				4.072	(1+,2,3+)	161
64CU 162				4.141	(0-,1-,2-)	162
64CU 163				4.257	(2-,3-,4-)	163
64CU 164				4.264	(1,2+)	164
64CU 165				4.316	(4-)	165
64CU 166				4.328	(1+,2+)	166
64CU 167				4.430	(4-,5-,6-)	167
64CU 168				4.433	(1-,2-)	168
64CU 169				4.444	(LE 3)	169
64CU 170				4.550	(LE 3)	170

64CU 171				4.560	(7+)	171
64CU 172				4.571	(4-,5-,6-)	172

64CU 173				4.763	(LE 4)	173
64CU 174				5.043	(2-,3-,4-)	174
64CU 175				5.320	(2-,3-,4-)	175

S-alpha=	6.199	(0.001)				
64CU 176				6.630		176
64CU 177				6.810	(0+)	177
64CU 178	6.826	0+				178
S-p	=	7.201	(0.001)			

64CU 179				7.339	(1+)	179
S-n	=	7.916	(0.001)			

64CU 180				8.188	(2+)	180

S-p = 7.201 (0.001)-----
S-n = 7.916 (0.001)-----
S-2p = 18.578 (0.019)-----
S-2n = 18.780 (0.001)-----
S-alpha= 6.199 (0.001)-----

S+p = -7.776 (0.001)
S+n = -9.910 (0.001)
S+2p = -12.877 (0.001)
S+2n = -16.976 (0.001)
S+alpha = -4.086 (0.001)

gap p = -0.576 (0.001)
gap n = -1.994 (0.001)
gap 2p = 5.701 (0.019)
gap 2n = 1.804 (0.001)
gap alpha = 2.113 (0.002)