

^{42}Ca $Z = 20$ $N = 22$ adopted link ENSDF link

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

BE = 361.896 (0.000) MeV

	Energy T	J+	J-	J-other	T1/2
42CA 1	0.000	0+			1 STABLE
42CA 2	1.525	2+			2 0.83 PS 3
42CA 3	1.837	0+			3 387 PS 6
42CA 4	2.424	2+			4 140 FS 40
42CA 5	2.752	4+			5 2.8 PS 4
42CA 6	3.189	6+			6 5.28 NS 15
42CA 7	3.254	4+			7 123 FS 21
42CA 8	3.300	0+			8 0.9 PS GT
42CA 9	3.392	2+			9 135 FS 40
42CA 10			3.447 3-		10 0.27 PS 9
42CA 11	3.654	2+			11 49 FS 35
42CA 12				3.780 (2+,3-)	12
42CA 13			3.885 1-		13
42CA 14			3.954 4-		14 3.36 PS 21
42CA 15	4.000	4+			15
42CA 16			4.047 3-		16 0.17 PS 5
42CA 17			4.100 5-		17 0.45 PS 10
42CA 18			4.117 3-		18
42CA 19				4.180 0	19
42CA 20				4.232 1	20
42CA 21				4.342 (0+:4+)	21
42CA 22			4.354 4-		22 0.47 PS 7
42CA 23			4.418 3-		23
42CA 24	4.443	4+			24
42CA 25	4.449	2+			25
42CA 26				4.505 (2,3,4)+	26
42CA 27				4.567 (1,2+)	27
42CA 28				4.666 (3,4)-	28
42CA 29			4.690 3-		29
42CA 30	4.718	6+			30 83 FS 32
42CA 31			4.718 3-		31
42CA 32	4.760	2+			32
42CA 33	4.866	2+			33
42CA 34			4.897 5-		34 47 FS 21
42CA 35			4.904 3-		35
42CA 36				4.947 (1,2,3)-	36
42CA 37			4.971 3-		37
42CA 38	5.017	4+			38

42CA 39						5.075		(1,2,3)-		39		
42CA 40				5.158		3-				40		

42CA 41						5.188		(2,3,4)+		41		
42CA 42						5.210		(2+)		42		
42CA 43						5.213		6		43		
42CA 44						5.214		(2+)		44		
42CA 45						5.320		(3,4)-		45		
42CA 46		5.345		0+						46		
42CA 47		5.358		2+						47		
42CA 48						5.380		5-		48		
42CA 49								5.393		(3)-	49	
42CA 50						5.407		3-		50		

42CA 51								5.439		(3,4)-	51	
42CA 52								5.466		(1 TO 5)-	52	
42CA 53								5.472		(2,3,4)+	53	
42CA 54						5.491		6-		54	59 FS	14
42CA 55						5.491		3-		55		
42CA 56						5.510		3-		56		
42CA 57		5.530		2+						57		
42CA 58								5.578		(0+:4+)	58	
42CA 59						5.593		3-		59		
42CA 60								5.601		(3-,4-)	60	

42CA 61						5.624		3-		61		
42CA 62								5.665		(3-)	62	
42CA 63								5.670		(3-)	63	
42CA 64		5.692		6+						64		
42CA 65		5.716		2+						65		
42CA 66								5.725		(2+:6+)	66	
42CA 67								5.738		(2+)	67	
42CA 68						5.744		7-		68	0.42 PS	10
42CA 69						5.769		3-		69		
42CA 70								5.775		(4,5)+	70	

42CA 71								5.797		(1,2)+	71	
42CA 72						5.802		3-		72		
42CA 73								5.822		(1,2,3)-	73	
42CA 74		5.860		0+						74		
42CA 75								5.866		(1,2,3-)	75	
42CA 76		5.875		2+						76		
42CA 77								5.924		(3,4)-	77	
42CA 78								5.925		(5)	78	
42CA 79								5.956		(3,4)-	79	
42CA 80						5.980		3-		80		

42CA 81						5.994		3-		81		
42CA 82								6.003		3-,4-	82	
42CA 83		6.016		0+						83		

42CA 84						6.020	(4+,5,6-)	84
42CA 85						6.028	(3)-	85
42CA 86						6.038	(1,2,3)-	86
42CA 87		6.080	0+					87
42CA 88						6.094	(3-:7-)	88
42CA 89						6.104	(0+:4+)	89
42CA 90		6.113	4+					90

42CA 91				6.141	6-			91 49 FS +21-14
42CA 92				6.145	7-			92 70 FS LT
42CA 93				6.158	3-			93
42CA 94						6.182	(1,2,3-)	94
42CA 95				6.212	3-			95
42CA 96				6.240	3-			96
42CA 97						6.248	(4+,5,6-)	97
S-alpha=	6.257	(0.000)	-----					
42CA 98		6.274	2+					98
42CA 99						6.313	(2:5)+	99
42CA 100						6.390	(3,4)-	100

42CA 101				6.409	8-			101 31.0 PS 25
42CA 102						6.426	(2:5)+	102
42CA 103						6.462	(3,4)-	103
42CA 104						6.516		104
42CA 105		6.542	5+					105
42CA 106				6.554	9-			106 42 PS 3
42CA 107						6.572	(2:5)+	107
42CA 108						6.585	(5-:8-)	108
42CA 109						6.614	(3,4)+	109
42CA 110		6.636	8+					110 36 FS 15

42CA 111						6.675	(4+:8+)	111
42CA 112						6.716	(4+)	112
42CA 113						6.718	7	113
42CA 114		6.720	0+					114
42CA 115		6.747	4+					115
42CA 116						6.781		116
42CA 117						6.817	(4,5)+	117
42CA 118		6.896	4+					118
42CA 119						6.920	(3,4)+	119
42CA 120						6.931	(2,3)+	120

42CA 121						6.940	(5-,6,7-)	121
42CA 122						6.961	(3,4)+	122
42CA 123						6.976	(5+)	123
42CA 124		7.020	4+					124
42CA 125						7.041	(3-,4-)	125
42CA 126						7.103	(1:4)-	126
42CA 127		7.130	4+					127
42CA 128						7.153	(3,4)+	128

42CA 129	7.180	2+					129
42CA 130					7.198		130

42CA 131					7.228	(3-,4-)	131
42CA 132					7.273	(3,4)+	132
42CA 133			7.282	9-			133
42CA 134					7.345	(6-:10-)	134
42CA 135					7.348	(3,4)+	135
42CA 136					7.361	(5-:9-)	136
42CA 137			7.368	10-			137 1.9 PS 8
42CA 138	7.389	4+					138
42CA 139	7.416	8+					139
42CA 140					7.421	(4+:8+)	140

42CA 141					7.468	(2:5)(+)	141
42CA 142					7.520	(3,4)+	142
42CA 143					7.543	(4+:7-)	143
42CA 144					7.562	(4+,5+)	144
42CA 145					7.600	(2+:5+)	145
42CA 146					7.634	(6,8+)	146
42CA 147					7.643	3+,4+	147
42CA 148	7.697	4+					148
42CA 149					7.727	(4+:8+)	149
42CA 150					7.751	(11)-	150 2.1 PS LT

42CA 151					7.758	(6-,7-)	151
42CA 152					7.760	(3,4)+	152
42CA 153					7.793	(3,4)+	153
42CA 154					7.801	(5-:9-)	154
42CA 155					7.839	(2+:6+)	155
42CA 156					7.921	(4+:8+)	156
42CA 157					7.940	(4+:8+)	157
42CA 158					8.053	(4+:8+)	158
42CA 159					8.060	(6-:9-)	159
42CA 160					8.083	(7-:11-)	160

42CA 161					8.103	(4+:8+)	161
42CA 162					8.170		162
42CA 163			8.297	11-			163 1.7 PS LT
42CA 164					8.365	(6-,7,8+)	164
42CA 165					8.450	(7,8)-	165
42CA 166	8.450	0+					166
42CA 167					8.512	(6-:9-)	167
42CA 168					8.517	(3:9)	168
42CA 169					8.522	(10)	169
42CA 170					8.581	(2+:6+)	170

42CA 171					8.612	(2+:6+)	171
42CA 172					8.615	9	172
42CA 173					8.722	9	173

42CA 174				8.745	(8-:12-)	174
42CA 175				8.774	(5,6,7)	175
42CA 176				8.848	(10+)	176
42CA 177				8.951	(6+:10+)	177
42CA 178		9.015	10+			178
42CA 179				9.037	(8-:12-)	179
42CA 180				9.115		180

42CA 181				9.191		181
42CA 182				9.206	(7-:9-)	182
42CA 183				9.242		183
42CA 184				9.270		184
42CA 185		9.280	1-			185
42CA 186				9.311	(8,10+)	186
42CA 187				9.330		187
42CA 188				9.367		188
42CA 189				9.378	(5-:9-)	189
42CA 190				9.426		190

42CA 191				9.470		191
42CA 192				9.561		192
42CA 193				9.600	(5-,6+)	193
42CA 194				9.635		194
42CA 195				9.672		195
42CA 196				9.699		196
42CA 197				9.723		197
42CA 198				9.750	2 (2-)	198
42CA 199				9.757		199
42CA 200				9.760	(7-:11-)	200

42CA 201				9.770	(2+)	201
42CA 202				9.784		202
42CA 203				9.786	(9-,11)	203
42CA 204				9.842	(5,6)-	204
42CA 205				9.850	2 (3-)	205
42CA 206				9.947		206
42CA 207				10.000	2 (4)-	207

S-p = 10.277 (0.000)-----
S-n = 11.481 (0.000)-----
S-2p = 18.085 (0.000)-----
S-2n = 19.844 (0.000)-----
S-alpha= 6.257 (0.000)-----

S+p = -4.930 (0.002)
S+n = -7.933 (0.000)
S+2p = -13.579 (0.001)
S+2n = -19.064 (0.000)
S+alpha = -8.006 (0.000)

gap p = 5.347 (0.002)
gap n = 3.548 (0.000)
gap 2p = 4.506 (0.001)
gap 2n = 0.779 (0.000)
gap alpha = -1.748 (0.000)