

$^{40}\text{Ca}$        $Z = 20$        $N = 20$       adopted link      ENSDF link

Based on ensdf\_240402 (Apr 2024), and mass evaluation from 2020

BE = 342.052 ( 0.000) MeV

	Energy T	J+	J-	J-other	T1/2
40CA 1	0.000	0+			1 STABLE
40CA 2	3.353	0+			2 2.17 NS 8
40CA 3			3.737 0 ( 3-		3 41 PS 4
40CA 4	3.904	2+			4 35 FS 7
40CA 5			4.491 0 ( 5-		5 289 PS 8
40CA 6	5.212	0+			6 1.02 PS 21
40CA 7	5.249	2+			7 83 FS +11-9
40CA 8	5.279	4+			8 0.21 PS 4
40CA 9			5.614 4-		9 0.69 PS 11
40CA 10	5.629	2+			10 40 FS 15
40CA 11			5.903 1-		11 15.8 FS 22
40CA 12			6.025 2-		12 171 FS 21
40CA 13	6.030	3+			13 0.40 PS 8
40CA 14			6.160 (3-		14
40CA 15			6.285 3-		15 0.33 PS 4
40CA 16	6.422	2+			16 12 FS +5-3
40CA 17	6.508	4+			17 128 FS 21
40CA 18	6.543	4+			18 121 FS 21
40CA 19			6.582 3-		19 0.173 FS 28
40CA 20			6.750 2-		20 96 FS 28
40CA 21	6.909	2+			21 2.41 FS +29-23
40CA 22	6.930	6+			22 0.34 PS +9-17
40CA 23			6.931 3-		23 1.4 PS 6
40CA 24				6.938 (1-:5-)	24 0.42 FS 17
40CA 25			6.950 1-		25 1.01 FS 5
S-alpha=	7.040 ( 0.000)				
40CA 26	7.100	(2+)			26
40CA 27			7.113 1-		27 55 FS 28
40CA 28			7.114 4-		28 50 FS 21
40CA 29				7.239 (3-,4,5-)	29 0.10 PS 5
40CA 30				7.278 (2,3)+	30 49 FS 35
40CA 31	7.301	0+			31 118 FS 35
40CA 32	7.397	(5+)			32 0.47 PS 14
40CA 33				7.422	33 0.20 PS 14
40CA 34				7.446 3+,4+	34 0.14 PS 5
40CA 35	7.466	2+			35 8 FS 4
40CA 36				7.481	36

40CA 37				7.532	2-			37	0.16	PS	4	
40CA 38		7.561	4+					38	0.17	PS	4	
40CA 39							7.623 (2-,3,4+)	39	0.111	PS	28	
40CA 40				7.658	1 4-			40	10	FS	LT	
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40CA 41		7.677	(6+)					41	0.20	PS	5	
40CA 42				7.694	1 3-			42	6	FS	LT	
40CA 43		7.702	0+					43				
40CA 44							7.769 (3,4,5-)	44	166	FS	35	
40CA 45		7.815	0+					45				
40CA 46				7.870	3-			46				
40CA 47		7.872	2+					47	2.44	FS	+24-20	
40CA 48		7.928	4+					48	49	FS	35	
40CA 49							7.972 (LE 3)-	49				
40CA 50		7.974	(6+)					50				
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40CA 51		7.977	2+					51	21	FS	21	
40CA 52		8.019	0+					52				
40CA 53							8.052	53				
40CA 54		8.092	2+					54	2.94	FS	+20-18	
40CA 55		8.100	8+					55	12.5	PS	17	
40CA 56				8.113	1-			56	30	FS	+20-9	
40CA 57				8.135	(3-)			57	28	FS	LT	
40CA 58							8.188 (3,4,5-)	58	17	FS	LT	
40CA 59							8.196	59				
40CA 60							8.271 (LE 3)-	60				
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40CA 61		8.276	0+					61				
40CA 62							8.323 (1-,2+)	62	58	FS	21	
S-p =		8.328 ( 0.000)		-----								
40CA 63							8.338 (2+,3,4)	63				
40CA 64							8.359 (0,1,2)-	64	104	FS	21	
40CA 65							8.364 (3-:7-)	65				
40CA 66		8.374	4+					66				
40CA 67				8.425	1 ( 2-			67	17	FS	LT	
40CA 68		8.439	0+					68				
40CA 69							8.484 (1-,2-,3-	69	24	FS	14	
40CA 70							8.540 1,2+	70	14	FS	14	
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40CA 71				8.551	1 5-			71	17	FS	LT	
40CA 72		8.579	2+					72	3.6	FS	+13-8	
40CA 73							8.587 (2+,3)	73				
40CA 74							8.633	74				
40CA 75				8.665	1-			75				
40CA 76		8.678	4+					76	42	FS	35	
40CA 77				8.701	(6-)			77				
40CA 78							8.717	78				
40CA 79		8.748	2+					79	5.8	FS	+11-8	
40CA 80				8.764	3-			80				
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40CA 81		8.810	2+					81
40CA 82							8.851 6-,7-,8-	82
40CA 83							8.909	83
40CA 84		8.935	2+					84
40CA 85		8.936	(7+)					85
40CA 86		8.938	0+					86
40CA 87							8.978 5+,6+,7+	87
40CA 88		8.983	2+					88 4.5 FS +39-14
40CA 89							8.995 (1-,2+)	89
40CA 90					9.032	4-		90
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40CA 91					9.033	(7-)		91
40CA 92							9.050	92
40CA 93							9.080	93
40CA 94					9.092	3-		94
40CA 95							9.136 2-,3-	95
40CA 96							9.162	96
40CA 97							9.185	97
40CA 98							9.210 (2,3)-	98
40CA 99							9.227 (1-,2,3-)	99
40CA 100							9.227 (1,2+)	100
-----								
40CA 101					9.246	(7)-		101
40CA 102							9.274	102
40CA 103		9.304	1 (0+					103
40CA 104		9.305	(8+)					104
40CA 105					9.363	0 (3-		105
40CA 106							9.378 2-,3-,4-	106
40CA 107		9.388	2+					107
40CA 108							9.396	108
40CA 109					9.405	1 2-		109 0.14 KEV
40CA 110		9.406	1 0+					110
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40CA 111							9.412	111
40CA 112					9.419	1 3-		112
40CA 113							9.429 (3,4)-	113
40CA 114					9.432	1 (1-		114 0.23 KEV
40CA 115					9.454	0 3-		115 0.09 KEV
40CA 116		9.500	2+					116
40CA 117							9.536	117
40CA 118					9.538	1-		118 0.4 KEV
40CA 119		9.564	(1) (2+)					119
40CA 120					9.603	1 3-		120 0.4 KEV
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40CA 121					9.605	1 1-		121 0.19 KEV 5
40CA 122							9.633	122
40CA 123					9.641	1 2-		123
40CA 124							9.656	124
40CA 125							9.662 LE 3-	125
40CA 126					9.669	1 3-		126

40CA 127				9.779 3	127		
40CA 128				9.785 (1,2+)	128		
40CA 129				9.802 LE 3-	129		
40CA 130				9.807	130		
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40CA 131				9.811 (3-,4-,5-	131		
40CA 132				9.829	132		
40CA 133				9.835	133		
40CA 134		9.854	(8+)		134		
40CA 135				9.854 LE 3-	135		
40CA 136				9.860 4-,5-,6-	136		
40CA 137				9.865 1	137	0.100 KEV	24
40CA 138				9.869 1+,2+	138	0.90 KEV	21
40CA 139				9.899	139		
40CA 140				9.921 (3-,4-,5-	140		
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40CA 141				9.940	141		
40CA 142		9.954 0	4+		142		
40CA 143				9.977 (3,4,5)	143		
40CA 144				9.994	144		
40CA 145				10.041 (2-,3-)	145		
40CA 146				10.046 (3-:7-)	146		
40CA 147			10.049 1	4-	147		
40CA 148				10.058	148		
40CA 149				10.065 (1-,2+)	149		
40CA 150				10.081	150		
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40CA 151				10.131 (3-,4+)	151		
40CA 152				10.154 (3-,4+,5-	152		
40CA 153				10.193 (3-,4+,5-	153		
40CA 154			10.199 0	1-	154		
40CA 155				10.205	155		
40CA 156				10.210 3-,4-	156		
40CA 157				10.233	157		
40CA 158			10.263	3-	158		
40CA 159			10.268 0	1-	159	0.9 KEV	
40CA 160				10.275 3+,4+,5+	160		
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40CA 161			10.278 0	(1-)	161	1.6 KEV	
40CA 162			10.285	1-	162	1.1 KEV	
40CA 163		10.319 1	1+		163	26 EV	7
40CA 164			10.334 0	(3)-	164	0.11 KEV	
40CA 165		10.340	4+		165		
40CA 166				10.358	166		
40CA 167				10.361	167		
40CA 168			10.363	1-	168	0.60 KEV	
40CA 169				10.365 (1,3)-	169		
40CA 170			10.377	1-	170	0.6 KEV	
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40CA 171				10.384 (1-,2+)	171		

40CA 172				10.415 3	172
40CA 173			10.420 0 1-		173 0.5 KEV
40CA 174		10.430 0 (2+)			174
40CA 175				10.441	175
40CA 176			10.444 2-		176 4.0 KEV
40CA 177			10.447 0 3-		177 0.44 KEV
40CA 178				10.470 (3,5)-	178
40CA 179			10.474 (8-)		179
40CA 180				10.479	180
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40CA 181				10.503 (3,4,5)-	181
40CA 182				10.515 (3-,4+,5)-	182
40CA 183			10.517 0 1-		183 1.2 KEV
40CA 184		10.517 1(+)			184 0.30 KEV
40CA 185		10.530 (1+)			185 0.40 KEV
40CA 186		10.542 0 2+			186 0.19 KEV
40CA 187				10.552	187
40CA 188				10.582 (3,4,5)	188
40CA 189			10.596 0 3-		189 0.16 KEV
40CA 190		10.599 (1+)			190 0.20 KEV
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40CA 191		10.608 0(+)			191 0.20 KEV
40CA 192			10.619 2-		192 3.5 KEV
40CA 193		10.622 0 0+			193 0.04 KEV
40CA 194				10.634 (1,3)-	194 1.1 KEV
40CA 195				10.639 (3-,4,5)-	195
40CA 196				10.646 NATURAL	196
40CA 197				10.653	197
40CA 198			10.656 0 (1-)		198 0.60 KEV
40CA 199		10.658 0 2+			199 0.35 KEV
40CA 200			10.667 2-		200 2.0 KEV
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40CA 201				10.670	201
40CA 202			10.674 2-		202
40CA 203			10.676 0 1-		203 1.6 KEV
40CA 204				10.691	204
40CA 205		10.693 1+			205 1.1 KEV
40CA 206				10.700 3	206
40CA 207		10.701 0+			207 0.60 KEV
40CA 208				10.721 (3,5)-	208
40CA 209		10.722 1+			209 1.1 KEV
40CA 210			10.738 0+1 1-		210
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40CA 211			10.740 1-		211 2.2 KEV
40CA 212		10.748 0 (4+)			212
40CA 213		10.749 0+			213 0.31 KEV
40CA 214				10.754 (3,4,5)	214
40CA 215		10.770 (1+)			215 0.05 KEV
40CA 216			10.776 (1-)		216
40CA 217		10.778 0 2+			217 0.18 KEV

40CA 218				10.781 0	3-			218	1.0 KEV
40CA 219				10.783	(0-)			219	0.70 KEV
40CA 220							10.788	220	
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40CA 221							10.800	221	
40CA 222		10.803 0			0(+)			222	0.70 KEV
40CA 223							10.814 (3-,4+,5-	223	
40CA 224				10.816	2-			224	6.0 KEV
40CA 225		10.817			3+			225	0.50 KEV
40CA 226							10.830	226	
40CA 227				10.833 0	3-			227	0.026 KEV
40CA 228							10.848 (3,4,5)-	228	
40CA 229				10.849	2-			229	11 KEV
40CA 230				10.852 0	1-			230	2.5 KEV
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40CA 231		10.861 0			2+			231	0.045 KEV
40CA 232				10.869	1-			232	26 KEV
40CA 233		10.870			0+			233	0.40 KEV
40CA 234				10.874	1-			234	4.0 KEV
40CA 235				10.895	(9-)			235	
40CA 236		10.899			1+			236	0.41 KEV
40CA 237							10.910 (3,4,5-)	237	
40CA 238				10.915 0	1-			238	5.0 KEV
40CA 239		10.916			3+			239	0.70 KEV
40CA 240							10.921 (2+,3,4-)	240	
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40CA 241				10.933 0	1-			241	2.0 KEV
40CA 242				10.933	2-			242	0.10 KEV
40CA 243							10.934	243	
40CA 244		10.947 0			2+			244	0.23 KEV
40CA 245				10.951 0	1-			245	7.0 KEV
40CA 246		10.954 0			0(+)			246	0.22 KEV
40CA 247				10.956	3-			247	
40CA 248							10.976 (3,4,5)	248	
40CA 249							10.988 (3-,4+)	249	
40CA 250				10.989	2-			250	9.0 KEV
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40CA 251		10.989			(1+)			251	0.4 KEV
40CA 252							10.995 (2+,3,4+)	252	
40CA 253				10.995	(1-)			253	6.7 KEV
40CA 254							10.999 (1,3)-	254	0.20 KEV
40CA 255							11.002	255	
40CA 256		11.003			(10+)			256	
40CA 257				11.007	1-			257	5.0 KEV
40CA 258				11.011 0+1	3-			258	
40CA 259							11.024 (1-,3-)	259	0.11 KEV
40CA 260		11.036			(1+)			260	0.10 KEV
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40CA 261							11.037 (3,4,5)	261	
40CA 262							11.042 (1-:4+)	262	

40CA 263		11.045	0	2+				263	0.50 KEV
40CA 264								11.071 (3,4+)	264
40CA 265		11.073		2+					265 0.66 KEV
40CA 266						11.078	0 1-		266 1.2 KEV
40CA 267		11.084	0	(1+)					267 0.35 KEV
40CA 268		11.089		0(+)					268 0.10 KEV
40CA 269								11.091 (3-,4+)	269
40CA 270						11.107	1-		270 3.9 KEV
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40CA 271						11.112	0-		271 5.2 KEV
40CA 272								11.117	272
40CA 273		11.119		2+					273 0.046 KEV
40CA 274								11.127	274
40CA 275		11.129	0	4+					275 0.11 KEV
40CA 276								11.142 (3,4,5)-	276
40CA 277						11.145	1(-)		277 0.20 KEV
40CA 278		11.146		1+					278 0.20 KEV
40CA 279						11.157	2-		279 48 KEV
40CA 280		11.161	0	4(+)					280 0.040 KEV
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40CA 281		11.163		2+					281 3.5 KEV
40CA 282								11.165	282
40CA 283		11.167	0	4+					283 0.083 KEV
40CA 284						11.188	3-		284 1.4 KEV
40CA 285						11.203	0 (3)-		285
40CA 286		11.210		(0+)					286
40CA 287						11.213	3-		287 2.8 KEV
40CA 288						11.217	3-		288 25 KEV
40CA 289		11.218		4+					289 1.4 KEV
40CA 290						11.231	2-		290 3.0 KEV
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40CA 291						11.236	1-		291 3.9 KEV
40CA 292						11.247	0 3-		292 0.092 KEV
40CA 293		11.256		1+					293 0.30 KEV
40CA 294						11.261	(0-)		294 6.0 KEV
40CA 295		11.264	0	2+					295 0.34 KEV
40CA 296						11.284	(2-)		296 0.60 KEV
40CA 297		11.290		1+					297 1.0 KEV
40CA 298		11.300		1+					298 0.40 KEV
40CA 299						11.302	(1-)		299 1.2 KEV
40CA 300								11.311 (3-,4+,5-300	
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40CA 301						11.320	(0-)		301 1.8 KEV
40CA 302		11.322	0	2+					302 0.52 KEV
40CA 303		11.329		2+					303
40CA 304						11.331	0 1-		304 4.0 KEV
40CA 305		11.339		(1+)					305 0.20 KEV
40CA 306						11.343	2-		306 40 KEV
40CA 307		11.346	0	4(+)					307 0.020 KEV
40CA 308		11.351		1+					308 0.80 KEV

40CA 309		11.362	1+				309	1.2 KEV
40CA 310		11.366 0	2+				310	0.19 KEV
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40CA 311					11.367	2-	311	4.4 KEV
40CA 312		11.368	4(+)				312	0.021 KEV
40CA 313					11.370	(5-)	313	
40CA 314		11.371 0	2+				314	1.4 KEV
40CA 315		11.382 0	2+				315	2.6 KEV
40CA 316					11.393	1(-)	316	0.10 KEV
40CA 317					11.404 0	1-	317	3.5 KEV
40CA 318		11.407	1+				318	0.22 KEV
40CA 319		11.415 0	4+				319	0.10 KEV
40CA 320					11.420	3-	320	0.30 KEV
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40CA 321					11.433 0	1-	321	0.30 KEV
40CA 322		11.437 0	2+				322	0.22 KEV
40CA 323					11.447 0	1-	323	5.3 KEV
40CA 324		11.451	1+				324	0.60 KEV
40CA 325					11.455 0	3-	325	0.060 KEV
40CA 326		11.460 0	2+				326	1.17 KEV
40CA 327		11.465 0	2(+)				327	0.13 KEV
40CA 328							11.468 (3-,4+,5-328	
40CA 329					11.469	2-	329	0.40 KEV
40CA 330		11.480	1+				330	0.30 KEV
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40CA 331		11.487	0+				331	0.11 KEV
40CA 332		11.490	1+				332	0.40 KEV
40CA 333		11.515	2+				333	0.62 KEV
40CA 334					11.515	1(-)	334	4.23 KEV
40CA 335		11.519	2+				335	0.70 KEV
40CA 336					11.538	2-	336	8.0 KEV
40CA 337		11.542	2+				337	0.62 KEV
40CA 338		11.544	(1+)				338	0.90 KEV
40CA 339					11.547	2-	339	18 KEV
40CA 340							11.549 (3,5)-	340
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40CA 341					11.554	1-	341	31 KEV
40CA 342		11.559	(2+)				342	0.40 KEV
40CA 343					11.564	(2-)	343	0.40 KEV
40CA 344					11.578	2-	344	1.0 KEV
40CA 345		11.578	2+				345	0.23 KEV
40CA 346					11.586	2-	346	0.15 KEV
40CA 347		11.597	(2+)				347	0.30 KEV
40CA 348		11.602	2+				348	0.30 KEV
40CA 349		11.603	2+				349	0.28 KEV
40CA 350					11.605	1-	350	13 KEV
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40CA 351					11.611	1-	351	0.86 KEV
40CA 352					11.614	(2-)	352	0.50 KEV
40CA 353							11.616 (3,4,5)	353



40CA 354	11.628	(3+)				354	0.70 KEV
40CA 355	11.629	2+				355	0.085 KEV
40CA 356				11.638	1-	356	0.09 KEV
40CA 357				11.645	(2-)	357	0.60 KEV
40CA 358	11.647	2+				358	0.60 KEV
40CA 359	11.651	2(+)				359	0.18 KEV
40CA 360				11.652	3-	360	
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40CA 361	11.653	2+				361	1.59 KEV
40CA 362				11.662	1-	362	1.56 KEV
40CA 363						11.663 (3-,4+,5-363	
40CA 364				11.673	(2-)	364	0.20 KEV
40CA 365	11.677	2+				365	0.96 KEV
40CA 366	11.686	(10+)				366	
40CA 367	11.688	(1+)				367	0.50 KEV
40CA 368				11.689	(2-)	368	0.60 KEV
40CA 369				11.690	7-	369	
40CA 370	11.693	4(+)				370	0.021 KEV
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40CA 371				11.696	0(-)	371	0.60 KEV
40CA 372	11.704	0+				372	4.65 KEV
40CA 373				11.705	2-	373	3.0 KEV
40CA 374				11.708	1-	374	0.30 KEV
40CA 375	11.709	(9+)				375	
40CA 376	11.714	1+				376	0.20 KEV
40CA 377				11.716	2-	377	1.5 KEV
40CA 378	11.721	1+				378	1.5 KEV
40CA 379				11.724	3(-)	379	0.060 KEV
40CA 380						11.726 (3,5)-	
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40CA 381				11.731	1(-)	381	3.6 KEV
40CA 382	11.731	1+				382	0.40 KEV
40CA 383	11.739	2+				383	3.0 KEV
40CA 384	11.743	4+				384	1.07 KEV
40CA 385				11.745	1(-)	385	0.55 KEV
40CA 386				11.750	2-	386	2.57 KEV
40CA 387				11.753	3-	387	
40CA 388	11.754	1+				388	0.35 KEV
40CA 389				11.757	2-	389	0.60 KEV
40CA 390	11.760	1+				390	
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40CA 391				11.768	2-	391	15 KEV
40CA 392				11.783	3(-)	392	0.041 KEV
40CA 393	11.788	2+				393	2.5 KEV
40CA 394	11.792	1+				394	0.46 KEV
40CA 395	11.799	4(+)				395	0.18 KEV
40CA 396	11.804	0+				396	0.26 KEV
40CA 397	11.809	(1+)				397	1.1 KEV
40CA 398	11.811	2+				398	1.8 KEV
40CA 399				11.812	3-	399	0.26 KEV

40CA 400			11.821	3-		400	3.5 KEV
-----							
40CA 401	11.831	2+				401	0.30 KEV
40CA 402	11.839	0+				402	1.05 KEV
40CA 403					11.841 (3-,4+,5-	403	
40CA 404	11.844	1+				404	0.78 KEV
40CA 405	11.856	2+				405	0.39 KEV
40CA 406	11.857	(1+)				406	1.3 KEV
40CA 407			11.863	(3-)		407	0.41 KEV
40CA 408	11.865	(0+)				408	1.6 KEV
40CA 409	11.869	(4+)				409	0.032 KEV
40CA 410			11.870	3-		410	0.040 KEV
-----							
40CA 411	11.872	2+				411	0.87 KEV
40CA 412			11.878	1-		412	0.32 KEV
40CA 413	11.884	1+				413	0.80 KEV
40CA 414	11.888	4+				414	0.13 KEV
40CA 415			11.891	1-		415	20 KEV
40CA 416			11.894	(2-)		416	1.0 KEV
40CA 417	11.901	1+				417	0.70 KEV
40CA 418			11.916	3-		418	1.0 KEV
40CA 419	11.925	2+				419	2.2 KEV
40CA 420	11.930	4(+)				420	0.030 KEV
-----							
40CA 421			11.933	1-		421	16.1 KEV
40CA 422	11.935	1+				422	0.9 KEV
40CA 423			11.937	2-		423	0.60 KEV
40CA 424	11.940	1+				424	0.40 KEV
40CA 425			11.943	3-		425	0.48 KEV
40CA 426			11.945	1-		426	0.40 KEV
40CA 427	11.948	0+				427	0.31 KEV
40CA 428	11.959	(2+)				428	1.0 KEV
40CA 429	11.963	0+				429	0.30 KEV
40CA 430	11.970	1+				430	0.80 KEV
-----							
40CA 431	11.971	2+				431	0.26 KEV
40CA 432			11.975	1-		432	0.055 KEV
40CA 433			11.983	(2-)		433	1.0 KEV
40CA 434			11.987	3-		434	0.38 KEV
40CA 435	11.988 2	0+				435	81 EV 10
40CA 436			11.994	0-		436	3.0 KEV
40CA 437					12.000 (3,5)-	437	
40CA 438	12.001	(2+)				438	1.02 KEV
40CA 439	12.007	1+				439	0.55 KEV
40CA 440			12.010	2-		440	6.0 KEV
-----							
40CA 441	12.012	4+				441	0.010 KEV
40CA 442	12.024	1+				442	0.90 KEV
40CA 443	12.027	4+				443	0.22 KEV
40CA 444			12.034	3-		444	0.31 KEV

40CA 445						12.038 (3,4,5)-	445	
40CA 446		12.048		2+			446	2.65 KEV
40CA 447						12.056	447	2.0 KEV
40CA 448		12.059		2+			448	1.11 KEV
40CA 449		12.067		2+			449	1.15 KEV
40CA 450		12.068		4+			450	1.11 KEV
-----								
40CA 451						12.068 (3,5)-	451	
40CA 452						12.077	452	3.07 KEV
40CA 453		12.082		4(+)			453	0.021 KEV
40CA 454		12.086		4(+)			454	0.011 KEV
40CA 455						12.089	455	10 KEV
40CA 456		12.090		2+			456	24 KEV
40CA 457		12.093		4(+)			457	0.060 KEV
40CA 458		12.095		2+			458	9.4 KEV
40CA 459		12.106		4(+)			459	0.090 KEV
40CA 460		12.111		2+			460	2.0 KEV
-----								
40CA 461						12.115	461	0.78 KEV
40CA 462		12.126		(3+)			462	
40CA 463		12.133		(4+)			463	0.13 KEV
40CA 464		12.135		(4+)			464	0.10 KEV
40CA 465		12.141		2+			465	1.24 KEV
40CA 466		12.152		4+			466	0.36 KEV
40CA 467		12.158		4(+)			467	0.12 KEV
40CA 468		12.159		4(+)			468	0.083 KEV
40CA 469						12.178	469	0.22 KEV
40CA 470		12.180		2+			470	1.50 KEV
-----								
40CA 471						12.184	471	2.0 KEV
40CA 472		12.193		2+			472	1.24 KEV
40CA 473						12.196	473	0.95 KEV
40CA 474						12.201	474	2.1 KEV
40CA 475						12.209	475	1.0 KEV
40CA 476		12.212		4+			476	0.021 KEV
40CA 477		12.218		1+			477	1.5 KEV
40CA 478						12.224	478	1.46 KEV
40CA 479		12.226		2+			479	0.43 KEV
40CA 480		12.238		1+			480	2.0 KEV
-----								
40CA 481		12.244		4+			481	0.030 KEV
40CA 482						12.245	482	2.0 KEV
40CA 483							483	5.5 KEV
40CA 484		12.270		(2+)			484	5.8 KEV
40CA 485						12.280	485	4.2 KEV
40CA 486						12.292	486	4.0 KEV
40CA 487		12.299		(2+)			487	4.0 KEV
40CA 488						12.305	488	6.7 KEV
40CA 489		12.331		2+			489	7.3 KEV
40CA 490		12.335		(10+)			490	

40CA 491			12.340	5-		491	
40CA 492			12.350	2-		492	
40CA 493					12.357 (3-,1-)	493	5.5 KEV
40CA 494					12.368	494	6.7 KEV
40CA 495					12.376	495	5.9 KEV
40CA 496					12.381	496	4.0 KEV
40CA 497					12.399 (2+,1-)	497	6.7 KEV
40CA 498					12.406	498	3.5 KEV
40CA 499					12.411	499	4.0 KEV
40CA 500					12.419	500	5.4 KEV
40CA 501			12.420	(1-)		501	0.05 MEV LT
40CA 502					12.425	502	6.4 KEV
40CA 503	12.450	(4+)				503	
40CA 504			12.488	2-		504	
40CA 505	12.490	1+				505	
40CA 506			12.503	2-		506	
40CA 507			12.530	1-		507	0.03 MEV LT
40CA 508			12.580	1-		508	0.03 MEV LT
40CA 509	12.592	(10+)				509	
40CA 510					12.604	510	
40CA 511					12.622 (2)	511	
40CA 512			12.650	7-		512	
40CA 513			12.668	1-		513	0.05 MEV LT
40CA 514					12.688	514	
40CA 515			12.720	3-		515	
40CA 516			12.750	2-		516	
40CA 517					12.830 1+, (2-)	517	
40CA 518					12.875	518	
40CA 519	12.900	4+				519	
40CA 520			12.923	(11-)		520	
40CA 521	12.965	2+				521	0.04 MEV LT
40CA 522					12.980	522	
40CA 523					12.996	523	
40CA 524	13.050	1+				524	
40CA 525	13.050	4+				525	
40CA 526					13.086	526	
40CA 527					13.113	527	
40CA 528	13.115	(12+)				528	
40CA 529	13.125	2+				529	0.04 MEV LT
40CA 530			13.150	2-		530	
40CA 531			13.170	3-		531	0.02 MEV LT
40CA 532					13.194	532	
40CA 533			13.195	(10-)		533	
40CA 534	13.200	4+				534	
40CA 535					13.203	535	

40CA 536						13.250		536
40CA 537						13.289		537
40CA 538		13.300	4+					538
40CA 539		13.301	2+					539 0.04 MEV LT
40CA 540					13.345	3-		540 0.03 MEV LT
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40CA 541		13.400	0+					541
40CA 542					13.410	3-		542 0.04 MEV LT
40CA 543					13.445	2-		543
40CA 544		13.470	4+					544
40CA 545					13.480	3-		545 0.03 MEV LT
40CA 546		13.480	1+					546
40CA 547					13.520	3-		547 0.04 MEV LT
40CA 548		13.535	(11+)					548
40CA 549					13.570	3-		549 0.05 MEV LT
40CA 550							13.600	550
-----								
40CA 551							13.610 1+,2+,3+	551
40CA 552		13.620	6+					552
40CA 553					13.620	3-		553 0.04 MEV LT
40CA 554					13.645	3-		554 0.04 MEV LT
40CA 555					13.670	2-		555
40CA 556					13.710	3-		556 0.03 MEV LT
40CA 557		13.720	6+					557
40CA 558					13.760	3-		558 0.04 MEV LT
40CA 559							13.822	559
40CA 560					13.830	7-		560
-----								
40CA 561							13.830 (1+,2+,3+)	561
40CA 562					13.850	3-		562 0.03 MEV LT
40CA 563							13.890 (0+,1+)	563
40CA 564		13.900	2+					564
40CA 565					13.910	3-		565 0.02 MEV LT
40CA 566							13.913	566
40CA 567							13.921 4	567
40CA 568		13.952	4+					568
40CA 569					13.960	3-		569 0.02 MEV LT
40CA 570							13.993	570
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40CA 571		14.000	4+					571
40CA 572					14.005	3-		572 0.02 MEV LT
40CA 573							14.020 (2-,3-,4-	573
40CA 574					14.047	3-		574 0.02 MEV LT
40CA 575		14.070	(0+)					575
40CA 576							14.096	576
40CA 577							14.100 1+,2+,3+	577
40CA 578					14.150	3-		578 0.03 MEV LT
40CA 579					14.177	3-		579 0.03 MEV LT
40CA 580		14.190	4+					580
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40CA 581				14.200	0+,1+	581			
40CA 582				14.210	(2-,3-,4-	582			
40CA 583			14.225	3-		583	0.02	MEV	LT
40CA 584	14.232	(12+)				584			
40CA 585			14.262	3-		585	0.02	MEV	LT
40CA 586					14.283 (6)	586			
40CA 587			14.292	3-		587	0.02	MEV	LT
40CA 588			14.312	3-		588	0.02	MEV	LT
40CA 589					14.320 (2-,3-,4-	589			
40CA 590			14.335	3-		590	0.02	MEV	LT
-----									
40CA 591	14.370	6+				591			
40CA 592			14.390	3-		592	0.03	MEV	LT
40CA 593					14.410 2-,3-,4-	593			
40CA 594					14.419	594			
40CA 595			14.435	3-		595	0.03	MEV	LT
40CA 596	14.460	(2)+				596			
40CA 597			14.490	3-		597	0.04	MEV	LT
40CA 598	14.530	(6+)				598			
40CA 599			14.540	3-		599	0.03	MEV	LT
40CA 600					14.600 (1,2+,3-,600				
-----									
40CA 601			14.605	3-		601	0.04	MEV	LT
40CA 602			14.640	3-		602	0.03	MEV	LT
40CA 603					14.660 1+,2+,3+	603			
40CA 604					14.680	604			
40CA 605			14.690	3-		605	0.03	MEV	LT
-----									
S-2p =	14.710 ( 0.000)								
40CA 606			14.725	3-		606	0.05	MEV	LT
40CA 607	14.750	4+				607			
40CA 608			14.760	3-		608	0.03	MEV	LT
40CA 609					14.780 1+,2+,3+	609			
40CA 610			14.790	3-		610	0.03	MEV	LT
-----									
40CA 611			14.835	3-		611	0.03	MEV	LT
40CA 612			14.869	(9-)		612			
40CA 613			14.888	3-		613	0.04	MEV	LT
40CA 614			14.942	3-		614	0.03	MEV	LT
40CA 615			15.002	3-		615	0.04	MEV	LT
40CA 616					15.080	616			
40CA 617			15.101	3-		617	0.03	MEV	LT
40CA 618					15.140	618			
40CA 619			15.150	3-		619	0.04	MEV	LT
40CA 620	15.152	(13+)				620			
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40CA 621			15.220	3-		621	0.03	MEV	LT
40CA 622					15.250	622			
40CA 623			15.260	3-		623	0.03	MEV	LT
40CA 624	15.267	(12+)				624			
40CA 625	15.285	4+				625	0.05	MEV	LT

40CA 626				15.306	(13-)		626	
40CA 627							627	
40CA 628		15.345	4+				628 0.04 MEV LT	
40CA 629		15.384	4+				629 0.04 MEV LT	
40CA 630		15.435	4+				630 0.04 MEV LT	
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40CA 631		15.490	4+				631 0.04 MEV LT	
40CA 632		15.525	4+				632 0.02 MEV LT	
40CA 633		15.550	4+				633 0.03 MEV LT	
40CA 634		15.580	4+				634 0.03 MEV LT	
40CA 635							635	
40CA 636		15.620	4+				636 0.03 MEV LT	
S-n	=	15.635	(0.001)	-----				
40CA 637		15.670	4+				637 0.02 MEV LT	
40CA 638							638	
40CA 639		15.707	4+				639 0.03 MEV LT	
40CA 640		15.748	(12+)				640	
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40CA 641		15.790	4+				641 0.04 MEV LT	
40CA 642		15.840	4+				642 0.03 MEV LT	
40CA 643		15.875	4+				643 0.03 MEV LT	
40CA 644					15.900	3-	644	
40CA 645		15.915	4+				645 0.02 MEV LT	
40CA 646		15.950	4+				646 0.02 MEV LT	
40CA 647		15.960	4+				647 0.02 MEV LT	
40CA 648					16.000	5-	648 0.02 MEV LT	
40CA 649					16.000	3-	649 0.63 MEV 10	
40CA 650		16.020	4+				650 0.03 MEV LT	
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40CA 651		16.065	4+				651 0.03 MEV LT	
40CA 652					16.110	5-	652 0.02 MEV LT	
40CA 653		16.120	4+				653 0.03 MEV LT	
40CA 654		16.160	4+				654 0.03 MEV LT	
40CA 655		16.210	4+				655 0.03 MEV LT	
40CA 656		16.255	4+				656 0.02 MEV LT	
40CA 657		16.290	4+				657 0.02 MEV LT	
40CA 658		16.360	4+				658 0.02 MEV LT	
40CA 659		16.395	4+				659 0.02 MEV LT	
40CA 660		16.450	4+				660 0.02 MEV LT	
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40CA 661		16.510	4+				661 0.02 MEV LT	
40CA 662		16.529	(14+)				662	
40CA 663					16.545	5-	663 0.02 MEV LT	
40CA 664		16.580	(13+)				664	
40CA 665					16.585	5-	665 0.02 MEV LT	
40CA 666		16.610	6+				666 0.02 MEV LT	
40CA 667		16.640	6+				667 0.02 MEV LT	
40CA 668		16.665	6+				668 0.02 MEV LT	
40CA 669							669 0.90 MEV 2	
40CA 670		16.735	6+				670 0.02 MEV LT	

40CA 671	16.810	6+				671	0.02	MEV	LT
40CA 672	16.910	6+				672	0.05	MEV	LT
40CA 673	16.945	6+				673	0.02	MEV	LT
40CA 674	17.010	6+				674	0.03	MEV	LT
40CA 675	17.065	6+				675	0.02	MEV	LT
40CA 676	17.113	6+				676	0.02	MEV	LT
40CA 677	17.170	6+				677	0.02	MEV	LT
40CA 678	17.210	6+				678	0.03	MEV	LT
40CA 679	17.280	6+				679	0.03	MEV	LT
40CA 680	17.320	6+				680	0.02	MEV	LT
40CA 681	17.360	6+				681	0.03	MEV	LT
40CA 682	17.410	6+				682	0.03	MEV	LT
40CA 683	17.450	6+				683	0.03	MEV	LT
40CA 684	17.513	6+				684	0.05	MEV	LT
40CA 685	17.590	6+				685	0.05	MEV	LT
40CA 686					17.669	686			
40CA 687	17.670	6+				687	0.05	MEV	LT
40CA 688	17.699	(14+)				688			
40CA 689	17.700	2+				689			
40CA 690	17.730	6+				690	0.03	MEV	LT
40CA 691	17.790	6+				691	0.03	MEV	LT
40CA 692	17.855	6+				692	0.04	MEV	LT
40CA 693					17.859	693			
40CA 694	17.915	6+				694	0.02	MEV	LT
40CA 695	17.950	6+				695	0.02	MEV	LT
40CA 696	18.000	2+				696	2.25	MEV	20
40CA 697	18.010	6+				697	0.02	MEV	LT
40CA 698	18.055	(14+)				698			
40CA 699	18.077	6+				699	0.05	MEV	LT
40CA 700	18.139	6+				700	0.05	MEV	LT
40CA 701					18.146	701			
40CA 702	18.174	6+				702	0.03	MEV	LT
40CA 703	18.200	2+				703			
40CA 704			18.215	(15-)		704			
40CA 705					18.260	705			
40CA 706	18.260	6+			1	706	0.05	MEV	LT
40CA 707					18.326	707			
40CA 708	18.328	6+				708	0.05	MEV	LT
40CA 709	18.406	6+				709	0.03	MEV	LT
40CA 710					18.452	710			
40CA 711	18.485	6+				711	0.02	MEV	LT
40CA 712	18.497	(14+)				712			
40CA 713	18.547	6+				713	0.03	MEV	LT
40CA 714	18.605	6+				714	0.04	MEV	LT
40CA 715	18.659	6+				715	0.02	MEV	LT



40CA 716				18.680	1	716		
40CA 717		18.705	6+			717	0.02 MEV	LT
40CA 718		18.719	(14+)			718		
40CA 719					18.731	719		
40CA 720		18.765	6+			720	0.04 MEV	LT
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40CA 721		18.865	6+			721	0.03 MEV	LT
40CA 722		18.930	6+			722	0.02 MEV	LT
40CA 723		19.020	6+			723	0.03 MEV	LT
40CA 724					19.037	724		
40CA 725					19.070	1	725	
40CA 726		19.080	6+			726	0.05 MEV	LT
40CA 727		19.150	6+			727	0.07 MEV	LT
40CA 728		19.180	0+			728	4.9 MEV	6
40CA 729		19.196	(15+)			729		
40CA 730		19.230	6+			730	0.03 MEV	LT
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40CA 731		19.280	6+			731	0.03 MEV	LT
40CA 732		19.385	6+			732	0.03 MEV	LT
40CA 733					19.450	1	733	
40CA 734		19.467	6+			734	0.04 MEV	LT
40CA 735		19.525	6+			735	0.02 MEV	LT
40CA 736		19.597	6+			736	0.02 MEV	LT
40CA 737		19.667	6+			737	0.04 MEV	LT
40CA 738		19.780	6+			738	0.06 MEV	LT
40CA 739					19.850	1	739	

S-p = 8.328 ( 0.000) -----  
S-n = 15.635 ( 0.001) -----  
S-2p = 14.710 ( 0.000) -----  
S-2n = 28.931 ( 0.000) -----  
S-alpha= 7.040 ( 0.000) -----

S+p = -1.085 ( 0.000)  
S+n = -8.363 ( 0.000)  
S+2p = -4.836 ( 0.000)  
S+2n = -19.844 ( 0.000)  
S+alpha = -5.127 ( 0.001)

gap p = 7.243 ( 0.000)  
gap n = 7.272 ( 0.001)  
gap 2p = 9.874 ( 0.000)  
gap 2n = 9.087 ( 0.000)  
gap alpha = 1.913 ( 0.001)