

$^{146}\text{Sm}$        $Z = 62$        $N = 84$       adopted link      ENSDF link

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

BE = 1210.903 ( 0.003) MeV

	Energy T	J+	J-	J-other	T1/2
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S-alpha=	-2.529	( 0.003)	-----		
146SM 1	0.000	0+			1 6.8E+7 Y 7
146SM 2	0.747	2+			2 7.2 PS LE
146SM 3			1.380	3-	3
146SM 4	1.381	4+			4 9 PS LE
146SM 5	1.648	2+			5
146SM 6				1.792	6
146SM 7	1.812	6+			7 0.09 NS +10-5
146SM 8				1.913	8
146SM 9				2.024	9
146SM 10			2.046	4-	10
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146SM 11			2.083	5-	11
146SM 12	2.156	2+			12
146SM 13	2.211	0+			13
146SM 14	2.222	6+			14
146SM 15				2.225 (2+)	15
146SM 16	2.270	3+			16
146SM 17	2.281	4+			17
146SM 18				2.329	18
146SM 19	2.331	0+			19
146SM 20				2.399	20
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146SM 21	2.401	2+			21
146SM 22				2.402 3-,4-	22
146SM 23	2.439	4+			23
146SM 24			2.513	3-	24
146SM 25	2.532	4+			25
146SM 26	2.544	2+			26
146SM 27				2.552	27
146SM 28				2.589	28
146SM 29	2.600	0+			29
146SM 30			2.600	7-	30 11 PS 4
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146SM 31				2.605	31
146SM 32				2.636	32
146SM 33				2.650 (2+)	33
146SM 34				2.652	34
146SM 35			2.667	4-	35
146SM 36	2.678	4+			36
146SM 37				2.685 (2+)	37

146SM	38	2.737	8+					38	11 PS	4
146SM	39					2.741		39		
146SM	40					2.744	(4+,5,6+)	40		
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146SM	41					2.783	(4+,5-)	41		
146SM	42			2.788	5-			42		
146SM	43			2.798	9-			43	0.83 NS	+20-13
146SM	44	2.800	3+					44		
146SM	45	2.824	2+					45		
146SM	46			2.826	6-			46		
146SM	47					2.829	3-,4-	47		
146SM	48					2.829	(2+)	48		
146SM	49	2.850	4+					49		
146SM	50	2.859	2+					50		
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146SM	51					2.879		51		
146SM	52	2.898	5+					52		
146SM	53					2.906	(4+)	53		
146SM	54	2.921	0+					54		
146SM	55					2.932	(4+)	55		
146SM	56					2.969	2+,3+	56		
146SM	57					2.973	3+,4+	57		
146SM	58			2.974	3-			58		
146SM	59					2.978		59		
146SM	60					2.984		60		
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146SM	61					2.991	(4+)	61		
146SM	62					3.011		62		
146SM	63	3.015	3+					63		
146SM	64					3.020		64		
146SM	65	3.021	0+					65		
146SM	66					3.039		66		
146SM	67	3.043	8+					67		
146SM	68					3.058		68		
146SM	69	3.068	3+					69		
146SM	70	3.073	5+					70		
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146SM	71					3.092	(4+,5,6+)	71		
146SM	72	3.093	3+					72		
146SM	73			3.099	7-			73		
146SM	74					3.105	(2+,3,4+)	74		
146SM	75					3.123	(2+,3,4+)	75		
146SM	76	3.126	0+					76		
146SM	77					3.130		77		
146SM	78			3.136	3-			78		
146SM	79					3.151		79		
146SM	80			3.167	8-			80		
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146SM	81	3.176	2+					81		
146SM	82			3.183	8-			82		

146SM 83		3.184	3+						83
146SM 84							3.186		84
146SM 85							3.199		85
146SM 86					3.200	4-			86
146SM 87		3.205	2+						87
146SM 88							3.208	(8+)	88
146SM 89							3.221	(3-,4,5-)	89
146SM 90							3.224	(2+,3+,4+)	90
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146SM 91		3.232	4+						91
146SM 92		3.239	4+						92
146SM 93							3.245	(2+,3,4+)	93
146SM 94					3.260	5-			94
146SM 95							3.268		95
146SM 96							3.278		96
146SM 97		3.278	2+						97
146SM 98							3.289	(2+,3,4+)	98
146SM 99		3.291	8+						99
146SM 100		3.308	2+						100
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146SM 101							3.327		101
146SM 102							3.330	(2+,3,4+)	102
146SM 103		3.338	3+						103
146SM 104							3.340	(5-,6-)	104
146SM 105					3.355	9-			105 28 PS +5-4
146SM 106							3.361	3-,4-	106
146SM 107							3.369	(4+)	107
146SM 108		3.377	4+						108
146SM 109							3.377		109
146SM 110							3.378	(3-,4,5-)	110
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146SM 111							3.388		111
146SM 112							3.391		112
146SM 113					3.392	3-			113
146SM 114							3.398	(4+)	114
146SM 115							3.413	(4+,5,6-)	115
146SM 116		3.419	3+						116
146SM 117							3.428		117
146SM 118							3.431	3-,4-	118
146SM 119					3.462	5-			119
146SM 120							3.466		120
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146SM 121							3.472	(2+),3+	121
146SM 122							3.475	5+,(6+)	122
146SM 123							3.477	(2+,3,4,5-)	123
146SM 124							3.484	(4+,5,6-)	124
146SM 125							3.489		125
146SM 126							3.496		126
146SM 127							3.509	(3+)	127
146SM 128		3.517	3+						128

146SM 129					3.526	3-,4-	129
146SM 130	3.531	4+					130
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146SM 131					3.546	2+,3+	131
146SM 132					3.560		132
146SM 133					3.565		133
146SM 134	3.567	9+					134
146SM 135					3.568		135
146SM 136					3.580	(4+)	136
146SM 137			3.584	4-			137
146SM 138					3.592	(4+)	138
146SM 139					3.593		139
146SM 140					3.595		140
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146SM 141			3.606	3-			141
146SM 142	3.618	0+					142
146SM 143					3.620		143
146SM 144	3.626	4+					144
146SM 145					3.634		145
146SM 146					3.647	(2+,3,4+)	146
146SM 147					3.652	(3-),4+	147
146SM 148					3.654	(2+,3,4+)	148
146SM 149					3.670		149
146SM 150					3.677		150
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146SM 151					3.685		151
146SM 152	3.686	0+					152
146SM 153					3.693	(2+,3,4+)	153
146SM 154					3.701	(7-,8,9)	154
146SM 155					3.716		155
146SM 156			3.721	3-			156
146SM 157					3.741	(3,4+)	157
146SM 158					3.749	(3-,4+)	158
146SM 159			3.754	10-			159
146SM 160					3.766	3-,4-	160
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146SM 161					3.767		161
146SM 162	3.770	2+					162
146SM 163	3.775	10+					163
146SM 164			3.783	11-			164 10 PS +4-3
146SM 165					3.786	(2+,3,4+)	165
146SM 166					3.790	3-,4-	166
146SM 167					3.801		167
146SM 168					3.804	(3-,4,5+)	168
146SM 169					3.810		169
146SM 170					3.810		170
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146SM 171					3.815		171
146SM 172					3.826		172
146SM 173					3.835	3-,4-	173

146SM 174						3.870				174
146SM 175		3.891		0+						175
146SM 176						3.901				176
146SM 177						3.917		3-,4-		177
146SM 178						3.924		(9-)		178
146SM 179						3.952				179
146SM 180						3.963				180
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146SM 181						3.970				181
146SM 182						3.990		(3-),4-		182
146SM 183						4.006				183
146SM 184						4.014		(4+)		184
146SM 185		4.021		0+						185
146SM 186		4.031		2+						186
146SM 187						4.032				187
146SM 188						4.034		(11+)		188
146SM 189						4.038				189
146SM 190						4.058				190
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146SM 191						4.080				191
146SM 192						4.087		3-,4-		192
146SM 193				4.091		11-				193 4.9 PS +15-13
146SM 194						4.116				194
146SM 195						4.126				195
146SM 196						4.128				196
146SM 197						4.136				197
146SM 198						4.144		(10-,11-)		198
146SM 199						4.145		(10+)		199
146SM 200						4.149				200
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146SM 201						4.165				201
146SM 202						4.174				202
146SM 203		4.195		12+						203 10.4 PS 14
146SM 204						4.202		(11+)		204
146SM 205						4.239				205
146SM 206						4.250				206
146SM 207						4.282				207
146SM 208						4.291				208
146SM 209						4.331				209
146SM 210						4.341				210
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146SM 211						4.341		(11-)		211
146SM 212						4.360				212
146SM 213						4.374				213
146SM 214						4.407				214
146SM 215						4.415				215
146SM 216						4.443				216
146SM 217						4.461		(12-)		217 5.8 PS LE
146SM 218						4.580		(12-)		218
146SM 219				4.629		13-				219 5.3 PS +23-20

146SM 220				4.663		220
146SM 221				4.752	(13-)	221
146SM 222				4.970	(14-)	222
146SM 223		5.129	13-			223
146SM 224				5.144		224
146SM 225	5.206	14+				225
146SM 226				5.218	(15-)	226
146SM 227				5.517	(16-)	227
146SM 228				5.614	(15-)	228
146SM 229				5.697	(16+)	229
146SM 230				5.800		230
146SM 231				5.873		231
146SM 232				5.972		232
146SM 233				6.177	(18+)	233

S-p = 7.018 ( 0.004)-----  
 S-n = 8.416 ( 0.003)-----  
 S-2p = 11.826 ( 0.003)-----  
 S-2n = 15.173 ( 0.003)-----  
 S-alpha= -2.529 ( 0.003)-----

S+p = -3.837 ( 0.004)  
 S+n = -6.341 ( 0.003)  
 S+2p = -9.851 ( 0.003)  
 S+2n = -14.482 ( 0.003)  
 S+alpha = 2.808 ( 0.007)

gap p = 3.181 ( 0.006)  
 gap n = 2.075 ( 0.005)  
 gap 2p = 1.975 ( 0.005)  
 gap 2n = 0.691 ( 0.005)  
 gap alpha = 0.279 ( 0.008)