

$^{91}\text{Zr}$        $Z = 40$        $N = 51$       adopted link      ENSDF link

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

BE = 791.092 ( 0.000) MeV

	Energy T	J+	J-	J-other	T1/2
91ZR 1	0.000	5/2+			1 STABLE
91ZR 2	1.205	1/2+			2 0.62 PS 14
91ZR 3	1.466	5/2+			3 0.32 PS 3
91ZR 4	1.882	7/2+			4 76 FS 11
91ZR 5	2.042	3/2+			5 11.1 FS 11
91ZR 6				2.131 (9/2)+	6 127 FS 17
91ZR 7				2.170 (11/2)-	7 5.5 PS GT
91ZR 8				2.190 (5/2)-	8 1.8 PS LE
91ZR 9	2.201	7/2+			9 0.33 PS +9-6
91ZR 10				2.260 (13/2)-	10
91ZR 11				2.288 (15/2)-	11 29.0 NS 8
91ZR 12				2.320 (11/2)-	12
91ZR 13				2.356 (1/2)-	13
91ZR 14				2.367	14 105 FS +18-14
91ZR 15				2.395 (9/2)-	15
91ZR 16				2.535 (3/2+,5/2+)	16 78 FS +19-15
91ZR 17	2.558	1/2+			17 0.13 PS +6-4
91ZR 18				2.578 (3/2)-	18 84 FS 21
91ZR 19				2.640 (3/2)-	19 92 FS +32-21
91ZR 20				2.694 (3/2)-	20 25 FS 4
91ZR 21				2.765 (13/2,15/2)-	21
91ZR 22				2.775 (5/2)-	22 0.13 PS +5-3
91ZR 23				2.791 (GE5/2)	23
91ZR 24				2.811 (7/2+)	24 24 FS +5-4
91ZR 25				2.813 -	25
91ZR 26				2.826 3/2+,5/2+	26
91ZR 27				2.836 (3/2,5/2,7/2)-	27
91ZR 28				2.857 (13/2)+	28 7 NS LE
91ZR 29	2.872	3/2+			29
91ZR 30				2.902 (7/2)+	30
91ZR 31				2.914 (9/2+)	31
91ZR 32				2.928 3/2+,5/2+	32 61 FS +15-11
91ZR 33				2.992	33
91ZR 34				3.008 5/2-,7/2-	34 94 FS +43-26
91ZR 35				3.017	35
91ZR 36				3.034 -	36
91ZR 37				3.053	37
91ZR 38	3.083	3/2+			38 17 FS +6-4

91ZR 39						3.108	7/2+,9/2+	39	38 FS	+8-6
91ZR 40						3.147	(17/2)+	40	7 NS	LE
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91ZR 41						3.167	(21/2+)	41	4.35 US	14
91ZR 42						3.235	(3/2)-	42	27 FS	+6-5
91ZR 43						3.262		43		
91ZR 44						3.277	(3/2-)	44		
91ZR 45		3.290		3/2+				45		
91ZR 46						3.312	(+)	46		
91ZR 47						3.321		47		
91ZR 48		3.331		1/2+				48		
91ZR 49						3.356		49		
91ZR 50						3.378	(1/2-,3/2-)	50		
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91ZR 51						3.410		51		
91ZR 52						3.456	9/2-,11/2-	52		
91ZR 53		3.469		7/2+				53		
91ZR 54						3.476	1/2-,3/2-	54		
91ZR 55						3.476	3/2+,5/2+	55		
91ZR 56						3.489		56		
91ZR 57						3.555	(7/2)+	57		
91ZR 58						3.576	(3/2)-	58	7.6 FS	13
91ZR 59						3.597	5/2-,7/2-	59		
91ZR 60						3.636	3/2+,5/2+	60		
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91ZR 61						3.652	(-)	61		
91ZR 62						3.667		62		
91ZR 63		3.681		3/2+				63	6.6 FS	26
91ZR 64						3.704	7/2+,9/2+	64		
91ZR 65						3.725	1/2-,3/2-	65		
91ZR 66						3.750	3/2+,5/2+	66		
91ZR 67						3.776	(+)	67		
91ZR 68						3.820	(7/2+,9/2+)	68		
91ZR 69						3.829		69		
91ZR 70						3.850	(5/2)+	70		
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91ZR 71						3.884	(1/2-,3/2-)	71		
91ZR 72						3.898	7/2+,9/2+	72		
91ZR 73						3.908	9/2-,11/2-	73		
91ZR 74						3.924	3/2+,5/2+	74		
91ZR 75						3.949		75		
91ZR 76						3.962	7/2+,9/2+	76		
91ZR 77						3.984	3/2+,5/2+	77		
91ZR 78						4.007	7/2+,9/2+	78		
91ZR 79						4.026	(3/2+,5/2+)	79		
91ZR 80						4.040	(3/2+,5/2+)	80		
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91ZR 81						4.070	9/2-,11/2-	81		
91ZR 82						4.114	7/2+,9/2+	82		
91ZR 83						4.148	(3/2+,5/2+)	83		

91ZR 84				4.162	3/2+,5/2+	84
91ZR 85				4.180	1/2(+),3/2,5/2+	85
91ZR 86				4.192	(3/2+,5/2,7/2-)	86
91ZR 87				4.210	1/2-,3/2-	87
91ZR 88				4.230		88
91ZR 89				4.245		89
91ZR 90				4.268	(1/2-,3/2-)	90
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91ZR 91				4.279	7/2+,9/2+	91
91ZR 92				4.296	1/2-,3/2-	92
91ZR 93		4.320	3/2-			93 4.1 FS 18
91ZR 94				4.338		94
91ZR 95				4.354	3/2+,5/2+	95
91ZR 96				4.380	7/2+,9/2+	96
91ZR 97				4.400	(3/2+,5/2+)	97
91ZR 98				4.414	9/2-,11/2-	98
91ZR 99				4.437		99
91ZR 100				4.450		100
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91ZR 101				4.464	3/2+,5/2+	101
91ZR 102				4.504	1/2-,3/2-	102
91ZR 103				4.533	3/2+,5/2+	103
91ZR 104				4.549		104
91ZR 105				4.588	(3/2+,5/2,7/2-)	105
91ZR 106				4.611		106
91ZR 107				4.653	(1/2,3/2-)	107
91ZR 108				4.685	(1/2+,3/2-)	108
91ZR 109				4.704		109
91ZR 110				4.712		110
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91ZR 111				4.735	(1/2,3/2)-	111
91ZR 112				4.786	(-)	112
91ZR 113				4.808	(3/2+,5/2+)	113
91ZR 114				4.833	1/2-,3/2-	114
91ZR 115				4.876		115
91ZR 116				4.928		116
91ZR 117				4.953	(5/2-,7/2-)	117
91ZR 118				4.989		118
91ZR 119				5.017		119
91ZR 120				5.095	(1/2-,3/2-)	120
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91ZR 121				5.132		121
91ZR 122				5.158		122
91ZR 123				5.176		123
91ZR 124				5.217	(3/2+,5/2+)	124
91ZR 125				5.254		125
91ZR 126				5.308		126
91ZR 127				5.312	(3/2+,5/2+)	127
91ZR 128				5.357		128
91ZR 129				5.382		129

91ZR 130			5.426		130
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S-alpha=	5.440	( 0.000)	-----		
91ZR 131			5.450		131
91ZR 132			5.472		132
91ZR 133			5.496		133
91ZR 134			5.496		134
91ZR 135			5.530		135
91ZR 136			5.550		136
91ZR 137			5.598	(-)	137
91ZR 138			5.613		138
91ZR 139			5.645		139
91ZR 140			5.674		140
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91ZR 141			5.716		141
91ZR 142			5.741		142
91ZR 143			5.744		143
91ZR 144			5.781		144
91ZR 145			5.804		145
91ZR 146			5.843		146
91ZR 147			5.877		147
91ZR 148			5.894		148
91ZR 149			5.933		149
91ZR 150			5.954		150
-----					
91ZR 151			6.003		151
91ZR 152			6.027		152
91ZR 153			6.081		153
91ZR 154			6.103		154
91ZR 155			6.156		155
91ZR 156			6.179		156
91ZR 157			6.210		157
91ZR 158			6.262		158
91ZR 159			6.297		159
91ZR 160			6.352		160
-----					
91ZR 161			6.390		161
91ZR 162			6.431		162
91ZR 163			6.457		163
91ZR 164			6.773		164
91ZR 165			7.014		165
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S-n	=	7.194	( 0.000)	-----	
91ZR 166	7.194	1/2+			166
91ZR 167			7.199	1/2	167
91ZR 168			7.199	3/2	168
91ZR 169			7.202	3/2	169
91ZR 170			7.204	1/2	170
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91ZR 171			7.204	1/2	171
91ZR 172			7.207	1/2	172

91ZR 173			7.207	1/2	173
91ZR 174			7.207	1/2	174
91ZR 175			7.208	1/2	175
91ZR 176			7.208	1/2	176
91ZR 177			7.212	1/2	177
91ZR 178			7.212	1/2	178
91ZR 179			7.212	1/2	179
91ZR 180			7.212	1/2	180
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91ZR 181			7.214	1/2	181
91ZR 182			7.214	1/2	182
91ZR 183			7.214		183
91ZR 184			7.214	1/2	184
91ZR 185			7.221	3/2	185
91ZR 186			7.221	3/2	186
91ZR 187			7.223	3/2	187
91ZR 188			7.230	1/2	188
91ZR 189			7.234	3/2	189
91ZR 190			7.235	1/2	190
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91ZR 191			7.236	3/2	191
91ZR 192			7.237	3/2	192
91ZR 193			7.237	1/2	193
91ZR 194			7.237	1/2	194
91ZR 195			7.237	1/2	195
91ZR 196			7.239	3/2	196
91ZR 197			7.248	1/2	197
91ZR 198			7.248	1/2	198
91ZR 199			7.248	1/2	199
91ZR 200			7.249	1/2	200
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91ZR 201			7.249	1/2	201
91ZR 202			7.250	1/2	202
91ZR 203			7.251	1/2	203
91ZR 204			7.252	1/2	204
91ZR 205			7.253	1/2	205
91ZR 206			7.256	3/2	206
91ZR 207			7.257	1/2	207
91ZR 208			7.258	1/2	208
91ZR 209			7.259	1/2	209
91ZR 210			7.259	3/2	210
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91ZR 211			7.260	1/2	211
91ZR 212			7.263	3/2	212
91ZR 213			7.265	1/2	213
91ZR 214			7.267	3/2	214
91ZR 215			7.267	1/2	215
91ZR 216			7.269	3/2	216
91ZR 217			7.270		217
91ZR 218			7.270		218

91ZR 219				7.274		219
91ZR 220				7.274		220
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91ZR 221				7.274		221
91ZR 222				7.275		222
91ZR 223				7.276	3/2	223
91ZR 224				7.277	[1/2]	224
91ZR 225				7.280	1/2	225
91ZR 226				7.284	1/2	226
91ZR 227				7.287	3/2	227
91ZR 228				7.288	(1/2)	228
91ZR 229				7.289		229
91ZR 230				7.290	3/2	230
-----						
91ZR 231				7.291	3/2	231
91ZR 232				7.293	3/2	232
91ZR 233				7.294	3/2	233
91ZR 234				7.298	1/2	234
91ZR 235				7.299	3/2	235
91ZR 236				7.302		236
91ZR 237				7.303	3/2	237
91ZR 238				7.304	3/2	238
91ZR 239				7.305	3/2	239
91ZR 240				7.308	1/2	240
-----						
91ZR 241				7.312	1/2	241
91ZR 242				7.315	(3/2)	242
91ZR 243				7.316	[3/2]	243
91ZR 244				7.316		244
91ZR 245				7.318	1/2	245
91ZR 246				7.320		246
91ZR 247				7.321	3/2	247
91ZR 248				7.323	1/2	248
91ZR 249				7.324		249
91ZR 250				7.324		250
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91ZR 251				7.325	3/2	251
91ZR 252				7.327		252
91ZR 253				7.328	3/2	253
91ZR 254				7.332	3/2	254
91ZR 255				7.338	1/2	255
91ZR 256				7.339		256
91ZR 257				7.342		257
91ZR 258				7.344	1/2	258
91ZR 259				7.344	1/2	259
91ZR 260				7.349	1/2	260
-----						
91ZR 261				7.350	3/2	261
91ZR 262				7.353	1/2	262
91ZR 263				7.353		263

91ZR 264			7.354	[3/2]	264
91ZR 265			7.356	1/2	265
91ZR 266			7.357	1/2	266
91ZR 267			7.359	3/2	267
91ZR 268			7.362	1/2	268
91ZR 269			7.365	3/2	269
91ZR 270			7.367		270
-----					
91ZR 271			7.369	1/2	271
91ZR 272			7.371	3/2	272
91ZR 273			7.373	[1/2]	273
91ZR 274			7.374	3/2	274
91ZR 275			7.377	3/2	275
91ZR 276			7.379	1/2	276
91ZR 277			7.381		277
91ZR 278			7.382		278
91ZR 279			7.383	1/2	279
91ZR 280			7.386	1/2	280
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91ZR 281			7.386	1/2	281
91ZR 282			7.391	1/2	282
91ZR 283			7.393		283
91ZR 284			7.394		284
91ZR 285			7.397		285
91ZR 286			7.399		286
91ZR 287			7.400		287
91ZR 288			7.401	1/2	288
91ZR 289			7.404	3/2	289
91ZR 290			7.408	3/2	290
-----					
91ZR 291			7.412	1/2	291
91ZR 292			7.413	3/2	292
91ZR 293			7.415	1/2	293
91ZR 294			7.416	[3/2]	294
91ZR 295			7.420	3/2	295
91ZR 296			7.424	1/2	296
91ZR 297			7.430	3/2	297
91ZR 298			7.432	1/2	298
91ZR 299			7.437		299
91ZR 300			7.439		300
-----					
91ZR 301			7.441	1/2	301
91ZR 302			7.446	3/2	302
91ZR 303			7.448	1/2	303
91ZR 304			7.456	1/2	304
91ZR 305			7.457	1/2	305
91ZR 306			7.464	3/2	306
91ZR 307			7.465	1/2	307
91ZR 308			7.472	[3/2]	308
91ZR 309			7.476		309

91ZR 310			7.479	3/2	310
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91ZR 311			7.481	3/2	311
91ZR 312			7.483		312
91ZR 313			7.485	3/2	313
91ZR 314			7.492	1/2	314
91ZR 315			7.645		315
91ZR 316			7.666		316
91ZR 317			8.359		317
91ZR 318			8.471		318
91ZR 319			8.628		319
S-p	=	8.688 ( 0.000)	-----		
91ZR 320			8.889		320
-----					
91ZR 321			9.132		321
91ZR 322			9.188		322
91ZR 323			9.465		323
91ZR 324			9.596		324

S-p = 8.688 ( 0.000)-----  
 S-n = 7.194 ( 0.000)-----  
 S-2p = 16.264 ( 0.000)-----  
 S-2n = 19.160 ( 0.003)-----  
 S-alpha= 5.440 ( 0.000)-----

S+p = -5.847 ( 0.002)  
 S+n = -8.635 ( 0.000)  
 S+2p = -13.489 ( 0.000)  
 S+2n = -15.369 ( 0.000)  
 S+alpha = -2.241 ( 0.000)

gap p = 2.841 ( 0.002)  
 gap n = -1.440 ( 0.000)  
 gap 2p = 2.775 ( 0.000)  
 gap 2n = 3.791 ( 0.003)  
 gap alpha = 3.199 ( 0.000)