^{128}Ba $Z = 56$ $N = 72$ link to full NNDC output

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

BE = 1074.696 (0.005) MeV
Qbeta+ = 0.553 (0.008) MeV

	Energy	T	J+		J-		J-other		T1/2	
128BA 1	0.000		0+					1	2.43 D	5
S-alpha= 0.142 (0.006)										
128BA 2	0.284		2+					2	105 PS	9
128BA 3	0.763		4+					3	5.34 PS	24
128BA 4	0.885		2+					4	3.4 PS	4
128BA 5	0.942		0+					5		
128BA 6	1.321		2+					6		
128BA 7	1.324		3+					7		
128BA 8	1.372		4+					8	3.3 PS	3
128BA 9	1.407		6+					9	1.33 PS	12
128BA 10	1.710		0+					10		
128BA 11	1.800		4+					11		
128BA 12	1.834		4+					12		
128BA 13	1.908		4+					13		
128BA 14	1.931		5+					14		
128BA 15	1.939		6+					15	1.86 PS	22
128BA 16						1.954		16		
128BA 17						2.009		17		
128BA 18						2.039	(1+ to 4+)	18		
128BA 19				2.039	5-			19	1.12 PS	17
128BA 20	2.055		2+					20		
128BA 21						2.176	(4 to 6)	21		
128BA 22	2.189		8+					22	0.53 PS	7
128BA 23						2.193	(4+)	23		
128BA 24						2.198	3-,4+	24		
128BA 25						2.203	(3-,4+)	25		
128BA 26	2.219		0+					26		
128BA 27						2.247	(4 to 6+)	27		
128BA 28	2.251		4+					28		
128BA 29	2.347		2+					29		
128BA 30						2.396	(7)-	30	6.1 NS	2
128BA 31				2.413	7-			31	3.6 PS	3
128BA 32						2.425	(4-,5+)	32		
128BA 33	2.444		0+					33		
128BA 34						2.451	(3- to 6+)	34		
128BA 35						2.474	(2+ to 6+)	35		
128BA 36						2.486		36		

128BA	37					2.511		37		
128BA	38					2.532	(4+ to 7-)	38		
128BA	39	2.552	4+					39		
128BA	40					2.571	(4+ to 7-)	40		
128BA	41	2.590	2+					41		
128BA	42	2.600	8+					42	0.8 PS	3
128BA	43					2.613	(8)-	43	119 PS	5
128BA	44					2.627		44		
128BA	45	2.629	0+					45		
128BA	46	2.631	7+					46		
128BA	47					2.659	(3-)	47		
128BA	48					2.670		48		
128BA	49					2.710	(2+)	49		
128BA	50					2.721	(5,6+)	50		
128BA	51					2.746		51		
128BA	52					2.749		52		
128BA	53	2.770	0+					53		
128BA	54					2.804		54		
128BA	55	2.840	0+					55		
128BA	56					2.849		56		
128BA	57					2.861	(8-)	57	25 PS	3
128BA	58					2.870		58		
128BA	59					2.878	(5-,6+)	59		
128BA	60			2.906	9-			60	3.8 PS	3
128BA	61	2.923	0+					61		
128BA	62					2.927	(9)-	62	11.8 PS	8
128BA	63					2.930		63		
128BA	64					2.950		64		
128BA	65					2.975		65		
128BA	66					2.978	(4,5)	66		
128BA	67					3.039		67		
128BA	68	3.082	10+					68	0.40 PS	6
128BA	69					3.086	(3-)	69		
128BA	70					3.117		70		
128BA	71					3.127		71		
128BA	72					3.204		72		
128BA	73					3.246		73		
128BA	74					3.293	(10)-	74	2.6 PS	6
128BA	75					3.334	(10-)	75	3.4 PS	3
128BA	76					3.341	(4+)	76		
128BA	77	3.346	10+					77	0.63 PS	19
128BA	78					3.387	(9+)	78		
128BA	79					3.474	(3-)	79		
128BA	80			3.507	11-			80		
128BA	81	3.522	10+					81	2.4 PS	3

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128BA  82 |                |                |   3.536                 82
128BA  83 |                |                |   3.611     (3-)        83
128BA  84 |                |                |   3.683     (11-)       84   1.1 PS    4
128BA  85 |                |                |   3.985     (12-)       85
128BA  86 |  3.988     12+ |                |                         86   0.58 PS   19
128BA  87 |  4.018     12+ |                |                         87   0.70 PS   12
128BA  88 |  4.112     12+ |                |                         88
128BA  89 |                |                |   4.116     (12)-       89   0.7 PS    3
128BA  90 |  4.195     12+ |                |                         90
----------                                                            -----------------
128BA  91 |                |   4.218     13- |                         91
128BA  92 |                |                |   4.557     (13-)       92
128BA  93 |  4.646     14+ |                |                         93   0.89 PS   18
128BA  94 |  4.651     12+ |                |                         94
128BA  95 |  4.720     14+ |                |                         95   0.44 PS   9
128BA  96 |                |                |   4.816     (14-)       96   0.23 PS   3
128BA  97 |                |                |   4.902     (13+)       97
128BA  98 |  4.956     13+ |                |                         98   1.00 PS   9
128BA  99 |  5.036     14+ |                |                         99
128BA 100 |                |                |   5.040     (14-)      100
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128BA 101 |                |   5.052     15- |                        101
128BA 102 |  5.233     14+ |                |                        102   1.6 PS    3
128BA 103 |                |                |   5.384     (15+)      103
128BA 104 |  5.496     16+ |                |                        104   0.46 PS   4
128BA 105 |                |                |   5.499     (15-)      105
128BA 106 |  5.530     15+ |                |                        106   1.06 PS   15
128BA 107 |                |                |   5.551     (16+)      107
128BA 108 |                |                |   5.754     (16-)      108   0.27 PS   3
128BA 109 |  5.853     16+ |                |                        109   0.68 PS   23
128BA 110 |                |   5.998     17- |                        110
----------                                                            -----------------
128BA 111 |                |                |   6.011     (16-)      111
128BA 112 |  6.215     17+ |                |                        112   0.49 PS   6
128BA 113 |                |                |   6.240     (17+)      113
S-p    =   6.427 ( 0.008)-----------------------------------------------------------------------
128BA 114 |  6.436     18+ |                |                        114   0.19 PS   4
128BA 115 |                |                |   6.493     (18+)      115
128BA 116 |  6.608     18+ |                |                        116   0.34 PS   5
128BA 117 |                |                |   6.733     (18-)      117
128BA 118 |                |                |   6.994     (19-)      118
128BA 119 |  7.036     19+ |                |                        119   0.21 PS   3
128BA 120 |                |                |   7.178     (19+)      120
----------                                                            -----------------
128BA 121 |  7.443     20+ |                |                        121   0.16 PS   4
128BA 122 |  7.494     20+ |                |                        122
128BA 123 |                |                |   7.530     (20+)      123
128BA 124 |                |                |   7.929     (21-)      124
128BA 125 |  7.981     21+ |                |                        125
128BA 126 |                |                |   8.163     (21+)      126
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128BA 127 |  8.485     22+  |                |                          127
128BA 128 |  8.497     22+  |                |                          128
128BA 129 |                 |                |   8.659     (22+)        129
128BA 130 |                 |                |   8.935     (23-)        130
----------                                                              ----------
128BA 131 |  9.032     23+  |                |                          131
128BA 132 |                 |                |   9.168     (23+)        132
128BA 133 |                 |                |   9.564     (24+)        133
128BA 134 |  9.601     24+  |                |                          134
128BA 135 |                 |                |   9.814     (24+)        135
128BA 136 |                 |                |  10.024     (25-)        136
128BA 137 | 10.168     25+  |                |                          137
128BA 138 |                 |                |  10.238     (25+)        138
S-n    =  10.632 ( 0.012)-------------------------------------------------------------------------
128BA 139 |                 |                |  10.650     (26+)        139
128BA 140 |                 |                |  10.785     (26+)        140
----------                                                              ----------
S-2p   =  10.810 ( 0.006)-------------------------------------------------------------------------
128BA 141 |                 |                |  11.055     (26+)        141
128BA 142 |                 |                |  11.196     (27-)        142
128BA 143 |                 |                |  11.387     (27+)        143
128BA 144 |                 |                |  11.776     (28+)        144
128BA 145 |                 |                |  12.442     (29-)        145
128BA 146 |                 |                |  12.591     (29+)        146
128BA 147 |                 |                |  12.982     (30+)        147
128BA 148 |                 |                |  13.737     (31-)        148
128BA 149 |                 |                |  14.238     (32+)        149
128BA 150 |                 |                |  15.062     (33-)        150
----------                                                              ----------
128BA 151 |                 |                |  15.500     (34+)        151
128BA 152 |                 |                |  16.288     (35-)        152
128BA 153 |                 |                |  16.780     (36+)        153
128BA 154 |                 |                |  17.653     (37-)        154
128BA 155 |                 |                |  18.217     (38+)        155


S-p    =   6.427 ( 0.008)-------------------------------------------------------------------------
S-n    =  10.632 ( 0.012)-------------------------------------------------------------------------
S-2p   =  10.810 ( 0.006)-------------------------------------------------------------------------
S-2n   =  18.851 ( 0.014)-------------------------------------------------------------------------
S-alpha=   0.142 ( 0.006)-------------------------------------------------------------------------

S+p       =  -3.235 ( 0.022)
S+n       =  -7.756 ( 0.012)
S+2p      =  -8.622 ( 0.028)
S+2n      = -18.026 ( 0.006)
S+alpha   =   0.483 ( 0.021)

gap p     =   3.192 ( 0.023)
gap n     =   2.876 ( 0.017)
```

```
gap 2p    =   2.187 ( 0.029)
gap 2n    =   0.825 ( 0.015)
gap alpha =   0.625 ( 0.022)
```