^{133}Pr $Z = 59$ $N = 74$ adopted link ENSDF link

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

BE = 1105.264 (0.013) MeV
Qbeta+ = 4.481 (0.021) MeV

	Energy	T	J+	J-		J-other		T1/2	
S-alpha=	-0.961 (0.025)								
133PR 1					0.000	(3/2+)	1	6.5 M	3
133PR 2					0.062	(5/2+)	2		
133PR 3					0.167	(5/2+,7/2+)	3		
133PR 4					0.192	(11/2-)	4	1.1 S	2
133PR 5					0.226	(7/2+)	5		
133PR 6					0.296	(7/2-)	6		
133PR 7					0.403	(1/2+,3/2+)	7		
133PR 8					0.429	(5/2+,7/2+)	8		
133PR 9					0.476	(9/2+)	9		
133PR 10					0.488	(5/2,7/2+)	10		
133PR 11					0.490	(3/2)	11		
133PR 12					0.502	(15/2-)	12	44.5 PS	27
133PR 13					0.551	(11/2-)	13		
133PR 14					0.586	(3/2+)	14		
133PR 15					0.619	(5/2+,7/2+)	15		
133PR 16					0.639	(1/2,3/2)	16		
133PR 17					0.656		17		
133PR 18					0.679		18		
133PR 19					0.702	(11/2+)	19		
133PR 20					0.744	(1/2+,3/2)	20		
133PR 21					0.753	(5/2,7/2+)	21		
133PR 22					0.791	(13/2-)	22		
133PR 23					0.860	(5/2,7/2,9/2)	23		
133PR 24					0.863	(5/2+,7/2,9/2+	24)		
133PR 25					0.872	(5/2+,7/2+)	25		
133PR 26					0.899		26		
133PR 27					0.904	(5/2+,7/2+)	27		
133PR 28					0.911	(5/2,7/2,9/2)	28		
133PR 29					0.916	(7/2-,9/2)	29		
133PR 30					0.938	(15/2-)	30		
133PR 31					0.939	(7/2-,9/2+)	31		
133PR 32					0.977	(5/2,7/2+)	32		
133PR 33					0.984	(5/2+,7/2,9/2+)	33		
133PR 34					1.002	(5/2+,7/2,9/2+	34)		
133PR 35					1.027	(5/2+,7/2,9/2)	35		
133PR 36					1.042	(1/2,3/2)	36		

133PR	37			1.054	(19/2-)	37	2.37 PS	7
133PR	38			1.056	(7/2+,9/2+)	38		
133PR	39			1.058	(5/2,7/2,9/2)	39		
133PR	40			1.081	(13/2+)	40		
133PR	41			1.130	(7/2-,9/2)	41		
133PR	42			1.167	(5/2,7/2,9/2+)	42		
133PR	43			1.172	(15/2-)	43		
133PR	44			1.188	(5/2+,7/2,9/2)	44		
133PR	45			1.220		45		
133PR	46			1.232	(5/2,7/2,9/2+)	46		
133PR	47			1.255	(5/2,7/2,9/2)	47		
133PR	48			1.265	(17/2-)	48		
133PR	49			1.284	(5/2+,7/2,9/2)	49		
133PR	50			1.296		50		
133PR	51			1.297	(7/2+,9/2)	51		
133PR	52			1.309		52		
133PR	53			1.313		53		
133PR	54			1.325	(15/2+)	54		
133PR	55			1.326	(5/2+,7/2+)	55		
133PR	56			1.367		56		
133PR	57			1.428		57		
133PR	58			1.431		58		
133PR	59			1.648	(19/2-)	59		
133PR	60			1.657	(7/2+,9/2)	60		
133PR	61			1.671	(19/2-)	61		
133PR	62			1.706	(9/2+)	62		
133PR	63			1.723	(7/2-,9/2)	63		
133PR	64			1.763	(23/2-)	64		
133PR	65			1.785	(9/2+)	65		
133PR	66			1.789	(17/2+)	66		
133PR	67			1.797		67		
133PR	68			1.828		68		
133PR	69			1.992	(19/2+)	69		
133PR	70			2.034	(21/2-)	70	35 NS	LE
133PR	71			2.045	(19/2+)	71		
133PR	72			2.118	(7/2+,9/2)	72		
133PR	73			2.180		73		
133PR	74			2.203	(19/2+)	74	35 NS	LE
133PR	75			2.331	(23/2-)	75		
133PR	76			2.352	(21/2+)	76		
133PR	77			2.356	(21/2+)	77		
133PR	78			2.445	(23/2+)	78		
133PR	79			2.474	(23/2-)	79		
133PR	80			2.555		80		
133PR	81			2.575	(27/2-)	81		

133PR 82			2.577	(23/2+)	82
133PR 83			2.598	(23/2+)	83
133PR 84			2.674		84
133PR 85			2.692	(21/2,23/2+)	85
133PR 86			2.722	(25/2-)	86
133PR 87			2.745	(25/2+)	87
S-p = 2.758 (0.024)					
133PR 88			2.802	(23/2+)	88
133PR 89			2.925	(25/2+)	89
133PR 90			2.933	(27/2+)	90
133PR 91			2.954	(25/2-)	91
133PR 92			3.078	(27/2-)	92
133PR 93			3.193	(27/2+)	93
133PR 94			3.252	(21/2-)	94
133PR 95			3.274	(29/2+)	95
133PR 96			3.319	(27/2+)	96
133PR 97			3.371	(23/2-)	97
133PR 98			3.438	(31/2-)	98
133PR 99			3.464	(27/2-)	99
133PR 100			3.529	(29/2-)	100
133PR 101			3.536	(25/2-)	101
133PR 102			3.565	(31/2+)	102
133PR 103			3.767	(29/2+)	103
133PR 104			3.787	(27/2-)	104
133PR 105			3.820	(31/2-)	105
133PR 106			3.882	(31/2+)	106
133PR 107			3.959	(29/2-)	107
133PR 108			3.973	(33/2+)	108
133PR 109			4.107	(29/2-)	109
133PR 110			4.124	(29/2-)	110
133PR 111			4.251	(31/2-)	111
133PR 112			4.264	(31/2+)	112
133PR 113			4.304	(35/2-)	113
133PR 114			4.352	(35/2+)	114
133PR 115			4.378	(33/2-)	115
133PR 116			4.533	(31/2-)	116
133PR 117			4.574	(35/2-)	117
133PR 118			4.678	(35/2+)	118
133PR 119			4.793	(33/2+)	119
133PR 120			4.805	(37/2+)	120
133PR 121			4.818	(37/2-)	121
133PR 122			5.005	(33/2-)	122
133PR 123			5.114	(39/2-)	123
133PR 124			5.171	(39/2-)	124
133PR 125			5.260	(39/2+)	125
133PR 126			5.354	(35/2+)	126

```
133PR 127 |                |                |   5.465     (41/2-)         127
133PR 128 |                |                |   5.533     (35/2-)         128
133PR 129 |                |                |   5.564     (39/2+)         129
133PR 130 |                |                |   5.745     (41/2+)         130
----------                                                                 -----------------
133PR 131 |                |                |   5.868     (43/2-)         131
133PR 132 |                |                |   5.907     (37/2+)         132
133PR 133 |                |                |   6.093     (43/2-)         133
133PR 134 |                |                |   6.107     (37/2-)         134
133PR 135 |                |                |   6.264     (43/2+)         135
133PR 136 |                |                |   6.322     (45/2-)         136
133PR 137 |                |                |   6.518     (43/2+)         137
133PR 138 |                |                |   6.725     (39/2-)         138
133PR 139 |                |                |   6.765     (45/2+)         139
133PR 140 |                |                |   6.823     (47/2-)         140
----------                                                                 -----------------
133PR 141 |                |                |   7.083     (47/2-)         141
133PR 142 |                |                |   7.337     (41/2-)         142
133PR 143 |                |                |   7.340     (47/2+)         143
133PR 144 |                |                |   7.372     (49/2-)         144
133PR 145 |                |                |   7.535     (47/2+)         145
133PR 146 |                |                |   7.859     (49/2+)         146
133PR 147 |                |                |   7.969     (51/2-)         147
133PR 148 |                |                |   8.122     (51/2-)         148
133PR 149 |                |                |   8.477     (51/2+)         149
133PR 150 |                |                |   8.614     (53/2-)         150
----------                                                                 -----------------
133PR 151 |                |                |   8.622     (51/2+)         151
S-2p   =   8.746 ( 0.031)-------------------------------------------------------------------------
133PR 152 |                |                |   9.017     (53/2+)         152
133PR 153 |                |                |   9.200     (55/2-)         153
133PR 154 |                |                |   9.666     (55/2+)         154


S-p    =   2.758 ( 0.024)-------------------------------------------------------------------------
S-n    =  10.781 ( 0.031)-------------------------------------------------------------------------
S-2p   =   8.746 ( 0.031)-------------------------------------------------------------------------
S-2n   =  19.780 ( 0.049)-------------------------------------------------------------------------
S-alpha=  -0.961 ( 0.025)-------------------------------------------------------------------------

S+p       =  -4.998 ( 0.017)
S+n       =  -8.662 ( 0.024)
S+2p      =  -6.703 ( 0.084)
S+2n      = -19.141 ( 0.017)
S+alpha   =   1.440 ( 0.018)

gap p     =  -2.240 ( 0.029)
gap n     =   2.120 ( 0.039)
gap 2p    =   2.044 ( 0.089)
gap 2n    =   0.639 ( 0.052)
```

```
gap alpha =   0.479 ( 0.031)
```