

^{164}Hf $Z = 72$ $N = 92$ adopted link ENSDF link

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

BE = 1319.186 (0.016) MeV

Qbeta+ = 2.824 (0.032) MeV

	Energy T	J+	J-	J-other	T1/2

S-alpha=	-3.920	(0.017)	-----		
164HF 1	0.000	0+			1 111 S 8
164HF 2	0.211	2+			2 301 PS 29
164HF 3	0.587	4+			3 13.0 PS +26-22
164HF 4				0.620	4
164HF 5				0.816 (2+)	5
164HF 6				1.073 (2+,3,4+)	6
164HF 7	1.085	6+			7 2.0 PS +26-4
164HF 8				1.238	8
164HF 9				1.353 (2+,3,4+)	9
164HF 10				1.458	10

164HF 11				1.486	11
164HF 12				1.521 (5-)	12
164HF 13				1.615 (4-)	13
164HF 14	1.669	8+			14 1.4 PS LT
164HF 15				1.676	15
164HF 16				1.836 (7)-	16
164HF 17				1.947 (6)-	17
164HF 18				2.245 (9)-	18
164HF 19				2.302 (8)-	19
164HF 20	2.304	10+			20

164HF 21				2.576 (10-)	21
164HF 22				2.698 (11)-	22 3.0 PS +16-10
164HF 23	2.871	12+			23 5.2 PS +15-12
164HF 24				2.961 (12-)	24
164HF 25				2.994 (12+)	25
164HF 26				3.155 (13)-	26 4.1 PS +12-10
164HF 27	3.210	14+			27 14.8 PS +10-12
164HF 28				3.301 (13-)	28
164HF 29				3.493 (14-)	29
164HF 30				3.618 (14+)	30

164HF 31	3.678	16+			31 2.9 PS +10-7
164HF 32				3.700 (15-)	32
164HF 33				3.944 (15-)	33
164HF 34				4.129 (16-)	34
164HF 35	4.262	18+			35 2.1 PS +12-10
S-p	= 4.316	(0.032)	-----		

164HF	36						4.335	(17-)	36
164HF	37						4.614	(17-)	37
164HF	38						4.766	(18-)	38
164HF	39		4.939	20+					39
164HF	40						5.009	(19-)	40

164HF	41						5.259	(19-)	41
164HF	42						5.359	(20-)	42
164HF	43						5.669	(21-)	43
164HF	44		5.699	22+					44
164HF	45						5.894	(21-)	45
164HF	46						5.982	(22-)	46
164HF	47						6.335	(23-)	47
164HF	48		6.544	24+					48
S-2p	=		6.575	(0.022)	-----	-----	-----	-----	-----
164HF	49						6.602	(23-)	49
164HF	50						6.673	(24-)	50

164HF	51						7.062	(25-)	51
164HF	52						7.350	(25-)	52
164HF	53						7.443	(26-)	53
164HF	54		7.458	26+					54
164HF	55						7.873	(27-)	55
164HF	56						8.166	(27-)	56
164HF	57						8.292	(28-)	57
164HF	58		8.436	28+					58
164HF	59						8.764	(29-)	59
164HF	60						8.990	(29-)	60

164HF	61						9.084	(29-)	61
164HF	62						9.215	(30-)	62
164HF	63		9.418	30+					63
164HF	64						9.726	(31-)	64
164HF	65						9.770	(31-)	65

S-p	=		4.316	(0.032)	-----	-----	-----	-----	-----
S-n	=		10.620	(0.030)	-----	-----	-----	-----	-----
S-2p	=		6.575	(0.022)	-----	-----	-----	-----	-----
S-2n	=		18.793	(0.018)	-----	-----	-----	-----	-----
S-alpha	=		-3.920	(0.017)	-----	-----	-----	-----	-----
S+p	=		-1.318	(0.021)					
S+n	=		-7.888	(0.032)					
S+2p	=		-4.647	(0.018)					
S+2n	=		-18.183	(0.032)					
S+alpha	=		4.501	(0.021)					
gap p	=		2.997	(0.038)					
gap n	=		2.732	(0.044)					

gap 2p = 1.928 (0.029)
gap 2n = 0.609 (0.037)
gap alpha = 0.581 (0.027)