

^{88}Zr $Z = 40$ $N = 48$ adopted link ENSDF link

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

BE = 762.611 (0.005) MeV

Qbeta+ = 0.670 (0.006) MeV

	Energy T	J+	J-	J-other	T1/2
88ZR 1	0.000	0+			1 83.4 D 3
88ZR 2	1.057	2+			2 2.50 PS 28
88ZR 3	1.521	0+			3
88ZR 4	1.818	2+			4 0.59 PS 5
88ZR 5	2.140	4+			5 1.52 PS 14
88ZR 6	2.231	0+			6
88ZR 7			2.456 3-		7 1.94 PS 21
88ZR 8			2.539 5-		8
88ZR 9	2.568	2+			9
88ZR 10	2.605	4+			10
88ZR 11				2.674	11
88ZR 12			2.801 5-		12
88ZR 13	2.811	6+			13
88ZR 14	2.888	8+			14 1.320 US 25
88ZR 15				2.888 (2+)	15
88ZR 16			2.928 3-		16
88ZR 17			2.990 5-		17
88ZR 18				2.998	18
88ZR 19	3.027	2+			19
88ZR 20			3.033 3-		20
88ZR 21				3.075 (4+)	21
88ZR 22			3.094 5-		22
88ZR 23				3.214 (6+)	23
88ZR 24				3.224	24
88ZR 25				3.277 (3-,4,5-)	25
88ZR 26				3.300	26
88ZR 27				3.374 (3-,4,5-)	27
88ZR 28	3.391	8+			28 21 PS 1
88ZR 29				3.426	29
88ZR 30				3.430 (0+)	30
88ZR 31				3.484 (7-)	31
88ZR 32				3.568 (3,4+)	32
88ZR 33				3.617 (7-)	33
88ZR 34				3.638 (3,4+)	34
88ZR 35				3.875 (3-,4,5-)	35
88ZR 36				3.938 (3,4,5)	36
88ZR 37				3.948 (3,4,5)	37

88ZR 38						3.968	(3-,4,5)	38		
88ZR 39						3.990		39		
88ZR 40						4.025	(3-,4,5)	40		

88ZR 41						4.059	(3-,4,5-)	41		
88ZR 42						4.084	(3-,4,5)	42		
88ZR 43						4.112	(3,4,5)	43		
88ZR 44						4.155	(3,4,5)	44		
88ZR 45						4.170		45		
88ZR 46						4.206	(3,4,5-)	46		
88ZR 47						4.208	(3-,4,5-)	47		
88ZR 48						4.237	(7,8+)	48		
88ZR 49						4.308	(3-,4,5-)	49		
88ZR 50						4.336	(3,4+)	50		

88ZR 51						4.348		51		
88ZR 52						4.370		52		
88ZR 53						4.388	(7,8+)	53		
88ZR 54		4.413		10+				54	1.4 PS	LT
88ZR 55						4.462	(7,8+)	55		
88ZR 56						4.486	(9-)	56		
88ZR 57		4.612		9+				57	0.17 NS	LT
88ZR 58						4.673	(3-,4,5)	58		
88ZR 59				4.713		10-		59	2.25 NS	17
88ZR 60				4.798		11-		60	50 PS	4

88ZR 61						4.935	(7,8+)	61		
88ZR 62						5.088	(7,8+)	62		
88ZR 63						5.166	(10,11,12)	63	0.66 PS	14
88ZR 64		5.229		12+				64	10 PS	1

S-alpha=		5.404		(0.006)						
88ZR 65				5.584		12-		65	0.7 PS	LT
88ZR 66		5.666		12+				66	0.28 PS	10
88ZR 67						5.787	(7,8,9)	67		
88ZR 68						5.951	(13)+	68	0.10 PS	LT
88ZR 69						6.001	(13)-	69	0.7 PS	LT
88ZR 70						6.033	(12-)	70		

88ZR 71				6.193		13-		71	1.70 PS	14
88ZR 72						6.239	(14)+	72	1.0 PS	3
88ZR 73						6.501	(14)+	73	0.16 PS	3
88ZR 74						6.578		74		
88ZR 75						6.765	(14)-	75	0.49 PS	LE
88ZR 76						6.827	(15)+	76	0.10 PS	2
88ZR 77						7.228	(15)-	77	0.8 PS	LE
88ZR 78						7.432		78	0.10 PS	3
88ZR 79						7.536	(15-)	79	0.33 PS	LE
88ZR 80						7.879	(16-)	80	0.50 PS	LE

S-p		=		7.900		(0.006)				

88ZR	81				8.200	(17-)	81	0.3	PS	+4-1
88ZR	82				8.925	(18-)	82	0.3	PS	LT
88ZR	83				9.913	(19-)	83	0.7	PS	GT

S-p = 7.900 (0.006)-----
 S-n = 12.353 (0.007)-----
 S-2p = 13.684 (0.005)-----
 S-2n = 21.802 (0.006)-----
 S-alpha= 5.404 (0.006)-----

S+p = -4.286 (0.024)
 S+n = -9.320 (0.006)
 S+2p = -11.122 (0.006)
 S+2n = -21.286 (0.005)
 S+alpha = -5.605 (0.005)

gap p = 3.614 (0.025)
 gap n = 3.033 (0.009)
 gap 2p = 2.562 (0.008)
 gap 2n = 0.516 (0.008)
 gap alpha = -0.200 (0.008)