

^{209}Fr $Z = 87$ $N = 122$ adopted link ENSDF link

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

BE = 1622.624 (0.011) MeV

Qbeta+ = 5.159 (0.015) MeV

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

S-alpha=	-6.777 (0.017)				
209FR 1			0.000 9/2-		1 50.5 S 7
209FR 2			0.606 13/2-		2
209FR 3			0.623 11/2-		3
209FR 4			1.089 15/2-		4
209FR 5			1.225 17/2-		5
209FR 6			1.330 17/2-		6

S-p	= 1.416 (0.015)				
209FR 7			1.764 21/2-		7
209FR 8			1.929 23/2-		8 1.0 NS LT
209FR 9	2.131 25/2+				9 35 NS 3
209FR 10	2.176 25/2+				10 0.69 NS LT

209FR 11				2.245 23/2(+)	11
209FR 12	2.408 27/2+				12
209FR 13	2.425 29/2+				13 0.69 NS LT
209FR 14				2.559 25/2(-)	14
209FR 15			2.599 27/2-		15
209FR 16	2.697 27/2+				16
209FR 17				2.717 (29/2)	17
209FR 18				2.858	18
209FR 19	2.903 29/2+				19
209FR 20				2.918 29/2(+)	20

209FR 21				2.938 (27/2)	21
209FR 22	3.027 31/2+				22
209FR 23	3.115 33/2+				23
209FR 24			3.127 31/2-		24
209FR 25				3.153 31/2	25
209FR 26				3.234 31/2(+)	26
209FR 27	3.370 33/2+				27
209FR 28				3.409 33/2(+)	28
209FR 29				3.416 33/2(-)	29 62 NS AP
209FR 30	3.631 37/2+				30

209FR 31				3.923 35/2(+)	31
209FR 32				3.969 35/2	32
209FR 33	4.040 39/2+				33
209FR 34				4.166 (37/2)	34
209FR 35	4.324 41/2+				35

209FR 36		4.364	39/2+					36
209FR 37						4.424	41/2(+)	37
209FR 38					4.660	45/2-		38 420 NS 18
209FR 39						5.046		39
209FR 40						5.069	(43/2)	40

S-2p	=	5.133	(0.017)	-----				
209FR 41					5.195	47/2(-)		41
209FR 42					5.302	(47/2)		42
209FR 43					5.399	49/2-		43
209FR 44						5.414		44
209FR 45						5.480		45
209FR 46					5.489	47/2-		46
209FR 47						5.657	47/2(-)	47
209FR 48						5.765	(47/2)	48
209FR 49					5.903	49/2-		49

S-p	=	1.416	(0.015)	-----
S-n	=	9.189	(0.016)	-----
S-2p	=	5.133	(0.017)	-----
S-2n	=	17.076	(0.021)	-----
S-alpha	=	-6.777	(0.017)	-----

S+p	=	-3.064	(0.015)
S+n	=	-7.633	(0.018)
S+2p	=	-3.652	(0.055)
S+2n	=	-16.501	(0.017)
S+alpha	=	7.498	(0.016)

gap p	=	-1.648	(0.021)
gap n	=	1.556	(0.024)
gap 2p	=	1.480	(0.058)
gap 2n	=	0.575	(0.027)
gap alpha	=	0.721	(0.023)