$^{192}_{77}$Ir $_{115}$

1 Decay Scheme

Ir-192 decays by beta minus emission (95,13(13)%) to excited levels of Pt-192 and by electron capture (4,87(13) %) to excited levels of Os-192.
Ir-192 se désintègre par émission bêta moins vers le Pt-192 (95,13(13)%) et par capture électronique vers l'Os-192 (4,87(13) %).

2 Nuclear Data

$T_{1/2}$(^{192}Ir)	:	73,827	(13)	d
Q^+(^{192}Ir)	:	1046,2	(23)	keV
Q^-(^{192}Ir)	:	1459,7	(19)	keV

2.1 β^- Transitions

	Energy keV	Probability × 100	Nature	lg ft
$\beta^-_{0,8}$	53,5 (19)	0,0033 (5)	Allowed	9,2
$\beta^-_{0,7}$	75,7 (19)	0,0039 (17)	1st Forbidden	9,6
$\beta^-_{0,6}$	81,7 (19)	0,1026 (23)	1st Forbidden	8,3
$\beta^-_{0,5}$	258,7 (19)	5,59 (3)	Allowed	8,1
$\beta^-_{0,4}$	538,8 (19)	41,4 (3)	Allowed	8,3
$\beta^-_{0,3}$	675,1 (19)	47,9 (3)	Allowed	8,5

2.2 Electron Capture Transitions

	Energy keV	Probability × 100	Nature	lg ft	P_K	P_L	P_{M+}
$\epsilon_{0,5}$	136,6 (23)	0,095 (4)	Allowed	9,5	0,537 (9)	0,339 (14)	0,124 (5)
$\epsilon_{0,4}$	355,8 (23)	3,97 (3)	Allowed	8,5	0,758 (2)	0,182 (2)	0,060 (1)
$\epsilon_{0,3}$	465,9 (23)	0,686 (9)	Allowed	9,5	0,777 (2)	0,168 (2)	0,055 (1)

2.3 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{4,3}$(Os)	110,4 (3)	0,057 (5)	E2+45%M1	2,03 (6)	1,22 (4)	0,306 (9)	3,65 (11)
$\gamma_{4,3}$(Pt)	136,3426 (3)	0,51 (6)	E2+7,5%M1	0,57 (8)	0,747 (22)	0,192 (6)	1,56 (6)
$\gamma_{6,5}$(Pt)	176,98 (4)	0,0047 (12)	[E1]	0,0786 (24)	0,0137 (4)	0,00215 (6)	0,097 (3)
$\gamma_{4,2}$(Os)	201,3112 (7)	0,656 (13)	E2+12%M1	0,228 (11)	0,120 (3)	0,0301 (8)	0,387 (10)
$\gamma_{1,0}$(Os)	205,79430 (9)	4,36 (4)	E2	0,157 (5)	0,111 (3)	0,0281 (8)	0,305 (9)
$\gamma_{(-1,1)}$(Pt)	214,7 (5)						
$\gamma_{5,4}$(Pt)	280,27 (24)	0,010 (5)	E2+15%M1	0,11 (7)	0,039 (11)	0,0098 (25)	0,16 (7)
$\gamma_{2,1}$(Os)	283,2668 (8)	0,299 (3)	E2+6,5%M1	0,081 (4)	0,0318 (8)	0,00785 (20)	0,123 (4)
$\gamma_{2,1}$(Pt)	295,95650 (15)	31,76 (14)	E2+1%M1	0,0654 (20)	0,0305 (9)	0,00767 (23)	0,106 (3)
$\gamma_{4,2}$(Pt)	308,45507 (17)	32,53 (15)	E2+1,9%M1	0,0608 (18)	0,0262 (8)	0,00657 (20)	0,096 (3)
$\gamma_{(-1,2)}$(Pt)	314,8 (3)						
$\gamma_{1,0}$(Pt)	316,50618 (17)	89,78 (21)	E2	0,0537 (16)	0,0236 (7)	0,00591 (17)	0,0849 (25)
$\gamma_{5,3}$(Os)	329,17 (15)	0,0190 (17)	E2+17%M1	0,069 (7)	0,0195 (10)	0,00472 (24)	0,094 (7)
$\gamma_{3,1}$(Os)	374,4852 (8)	0,762 (6)	E2	0,0341 (10)	0,0113 (3)	0,00276 (8)	0,0490 (15)
$\gamma_{(-1,3)}$(Pt)	415,4 (5)						
$\gamma_{5,3}$(Pt)	416,4688 (7)	0,702 (21)	E2+11%M1	0,037 (4)	0,0099 (6)	0,00242 (13)	0,050 (4)
$\gamma_{5,2}$(Os)	420,52 (6)	0,071 (7)	[E2]	0,0258 (8)	0,00762 (23)	0,00186 (6)	0,0358 (11)
$\gamma_{3,1}$(Pt)	468,0688 (3)	49,22 (24)	E2	0,0213 (6)	0,00617 (19)	0,00151 (5)	0,0295 (9)
$\gamma_{4,1}$(Os)	484,5751 (4)	3,273 (24)	E2+2,8%M1	0,0198 (6)	0,00499 (14)	0,00120 (4)	0,0263 (8)
$\gamma_{2,0}$(Os)	489,06 (3)	0,449 (14)	E2	0,0182 (5)	0,00471 (14)	0,00114 (3)	0,0243 (7)
$\gamma_{5,2}$(Pt)	588,5820 (7)	4,594 (22)	E2	0,0129 (4)	0,00311 (9)	0,000751 (23)	0,0170 (5)
$\gamma_{6,3}$(Pt)	593,49 (13)	0,0424 (17)	E1+0,5%M2	0,0055 (4)	0,00087 (6)	0,000327 (14)	0,0067 (4)
$\gamma_{7,3}$(Pt)	599,41 (15)	0,0039 (17)	E1	0,00481 (14)	0,000752 (23)	0,000284 (9)	0,00590 (18)
$\gamma_{4,1}$(Pt)	604,41207 (25)	8,42 (4)	E2+31%M1	0,0213 (6)	0,00403 (12)	0,00095 (3)	0,0266 (8)
$\gamma_{2,0}$(Pt)	612,4631 (3)	5,42 (8)	E2	0,0119 (4)	0,00278 (8)	0,000669 (20)	0,0155 (5)
$\gamma_{(-1,4)}$(Pt)	739						
$\gamma_{6,2}$(Pt)	765,8 (3)	0,0013 (6)	E1+2,5%M2	0,0043 (11)	0,00070 (19)	0,00014 (4)	0,0052 (14)
$\gamma_{5,1}$(Pt)	884,5387 (7)	0,293 (7)	E2	0,00566 (17)	0,00108 (3)	0,000254 (8)	0,00707 (21)
$\gamma_{6,1}$(Pt)	1061,48 (4)	0,053 (1)	E1+0,2%M2	0,00166 (7)	0,000243 (11)	0,000058 (3)	0,00197 (9)
$\gamma_{8,1}$(Pt)	1089,9 (3)	0,0012 (2)	E2+26%M1	0,0052 (5)	0,00087 (8)	0,000201 (18)	0,0063 (6)
$\gamma_{6,0}$(Pt)	1378,20 (15)	0,0012 (3)	[E3]	0,00492 (15)	0,00098 (3)	0,000232 (7)	0,00620 (19)

3 Atomic Data

3.1 Os

ω_K	:	0,957	(4)
$\bar{\omega}_L$	:	0,308	(12)
n_{KL}	:	0,821	(4)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	61,4873		58,03
	$K\alpha_1$	63,0011		100
	$K\beta_3$	71,078	}	
	$K\beta_1$	71,414	}	
	$K\beta_5''$	71,824	}	33,4
	$K\beta_5'$	71,895	}	
	$K\beta_2$	73,387	}	
	$K\beta_4$	73,615	}	9,4
	$KO_{2,3}$	73,808	}	

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	47,710 – 51,892	100
KLX	57,759 – 62,955	54,2
KXY	67,77 – 73,78	7,34

3.2 Pt

ω_K	:	0,959	(4)
$\bar{\omega}_L$	:	0,331	(13)
n_{KL}	:	0,818	(4)

3.2.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	65,123		58,5
	$K\alpha_1$	66,833		100
	$K\beta_3$	75,369	}	
	$K\beta_1$	75,749	}	
	$K\beta_5''$	76,234	}	33,7
	$K\beta_2$	77,786	}	
	$K\beta_4$	78,07	}	9,6
	$KO_{2,3}$	78,341	}	

3.2.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	50,399 – 55,021	100
KLX	61,116 – 66,829	54,6
KXY	71,80 – 78,39	7,45

4 Photon Emissions

4.1 X-Ray Emissions

		Energy keV		Photons per 100 disint.	
XL	(Os)	7,822 — 12,92		1,525 (25)	
$XK\alpha_2$	(Os)	61,4873		1,211 (25)	} $K\alpha$
$XK\alpha_1$	(Os)	63,0011		2,09 (5)	}
$XK\beta_3$	(Os)	71,078	}		
$XK\beta_1$	(Os)	71,414	}	0,710 (21)	$K'\beta_1$
$XK\beta_5''$	(Os)	71,824	}		
$XK\beta_5'$	(Os)	71,895	}		
$XK\beta_2$	(Os)	73,387	}		
$XK\beta_4$	(Os)	73,615	}	0,180 (6)	$K'\beta_2$
$XKO_{2,3}$	(Os)	73,808	}		
XL	(Pt)	9,4 — 13,8		3,96 (6)	
$XK\alpha_2$	(Pt)	65,123		2,66 (5)	} $K\alpha$
$XK\alpha_1$	(Pt)	66,833		4,55 (8)	}
$XK\beta_3$	(Pt)	75,369	}		
$XK\beta_1$	(Pt)	75,749	}	1,58 (3)	$K'\beta_1$
$XK\beta_5''$	(Pt)	76,234	}		
$XK\beta_2$	(Pt)	77,786	}		
$XK\beta_4$	(Pt)	78,07	}	0,411 (10)	$K'\beta_2$
$XKO_{2,3}$	(Pt)	78,341	}		

4.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{4,3}$(Os)	110,4 (3)	0,0122 (11)
$\gamma_{4,3}$(Pt)	136,3426 (3)	0,199 (25)
$\gamma_{6,5}$(Pt)	176,98 (4)	0,0043 (12)
$\gamma_{4,2}$(Os)	201,3112 (7)	0,473 (8)
$\gamma_{1,0}$(Os)	205,79430 (9)	3,34 (4)
$\gamma_{5,4}$(Pt)	280,27 (24)	0,009 (5)
$\gamma_{2,1}$(Os)	283,2668 (8)	0,266 (3)
$\gamma_{2,1}$(Pt)	295,95650 (15)	28,72 (14)
$\gamma_{4,2}$(Pt)	308,45507 (17)	29,68 (15)
$\gamma_{1,0}$(Pt)	316,50618 (17)	82,75 (21)
$\gamma_{5,3}$(Os)	329,17 (15)	0,0174 (17)
$\gamma_{3,1}$(Os)	374,4852 (8)	0,726 (6)
$\gamma_{5,3}$(Pt)	416,4688 (7)	0,669 (21)
$\gamma_{5,2}$(Os)	420,52 (6)	0,069 (7)

	Energy keV	Photons per 100 disint.
$\gamma_{3,1}$(Pt)	468,0688 (3)	47,81 (24)
$\gamma_{4,1}$(Os)	484,5751 (4)	3,189 (24)
$\gamma_{2,0}$(Os)	489,06 (3)	0,438 (14)
$\gamma_{5,2}$(Pt)	588,5810 (7)	4,517 (22)
$\gamma_{6,3}$(Pt)	593,49 (13)	0,0421 (17)
$\gamma_{7,3}$(Pt)	599,41 (15)	0,0039 (17)
$\gamma_{4,1}$(Pt)	604,41105 (25)	8,20 (4)
$\gamma_{2,0}$(Pt)	612,4621 (3)	5,34 (8)
$\gamma_{6,2}$(Pt)	765,8 (3)	0,0013 (6)
$\gamma_{5,1}$(Pt)	884,5365 (7)	0,291 (7)
$\gamma_{6,1}$(Pt)	1061,48 (4)	0,053 (1)
$\gamma_{8,1}$(Pt)	1089,9 (3)	0,0012 (2)
$\gamma_{6,0}$(Pt)	1378,20 (15)	0,0012 (3)

5 Electron Emissions

		Energy keV		Electrons per 100 disint.
e_{AL}	(Os)	0,11 - 12,86		
e_{AK}	(Os)			0,196 (19)
	KLL	47,710 - 51,892	}	
	KLX	57,759 - 62,955	}	
	KXY	67,77 - 73,78	}	
e_{AL}	(Pt)	0,1 - 13,9		
e_{AK}	(Pt)			0,39 (4)
	KLL	50,399 - 55,021	}	
	KLX	61,116 - 66,829	}	
	KXY	71,80 - 78,39	}	
$ec_{1,0}$ K	(Os)	131,9235 (20)		0,524 (17)
$ec_{1,0}$ L	(Os)	192,83 - 194,92		0,370 (12)
$ec_{1,0}$ M	(Os)	202,75 - 203,83		0,094 (3)
$ec_{1,0}$ N	(Os)	205,14 - 205,75		0,0270 (9)
$ec_{2,1}$ K	(Pt)	222,5617 (20)		1,88 (6)
$ec_{4,2}$ K	(Pt)	235,0603 (20)		1,80 (5)
$ec_{1,0}$ K	(Pt)	243,1114 (20)		4,44 (14)
$ec_{2,1}$ L	(Pt)	282,08 - 284,39		0,88 (3)
$ec_{2,1}$ M	(Pt)	292,66 - 293,84		0,220 (7)
$ec_{4,2}$ L	(Pt)	294,57 - 296,89		0,777 (24)

		Energy keV		Electrons per 100 disint.
$ec_{2,1}$ N	(Pt)	295,23	- 295,95	0,065 (2)
$ec_{1,0}$ L	(Pt)	302,63	- 304,94	1,95 (6)
$ec_{4,2}$ M	(Pt)	305,16	- 306,33	0,195 (6)
$ec_{4,2}$ N	(Pt)	307,73	- 308,45	0,0579 (18)
$ec_{1,0}$ M	(Pt)	313,21	- 314,38	0,489 (15)
$ec_{1,0}$ N	(Pt)	315,78	- 316,50	0,145 (4)
$ec_{3,1}$ K	(Pt)	394,674	(2)	1,02 (3)
$ec_{4,1}$ K	(Os)	410,7043	(20)	0,063 (2)
$ec_{3,1}$ L	(Pt)	454,19	- 456,50	0,295 (9)
$ec_{3,1}$ M	(Pt)	464,77	- 465,95	0,0721 (22)
$ec_{3,1}$ N	(Pt)	467,34	- 468,07	0,0216 (7)
$ec_{4,1}$ L	(Os)	471,61	- 473,70	0,0159 (5)
$ec_{4,1}$ M	(Os)	481,53	- 482,62	0,00381 (13)
$ec_{4,1}$ N	(Os)	483,92	- 484,53	0,00113 (4)
$ec_{5,2}$ K	(Pt)	515,1862	(20)	0,0583 (18)
$ec_{4,1}$ K	(Pt)	531,0163	(20)	0,174 (5)
$ec_{2,0}$ K	(Pt)	539,0293	(20)	0,0600 (21)
$ec_{5,2}$ L	(Pt)	574,70	- 577,02	0,0140 (4)
$ec_{5,2}$ M	(Pt)	585,28	- 586,46	0,0034 (1)
$ec_{5,2}$ N	(Pt)	587,86	- 588,58	0,00102 (3)
$ec_{4,1}$ L	(Pt)	590,53	- 591,85	0,033 (1)
$ec_{2,0}$ L	(Pt)	598,54	- 600,86	0,0100 (5)
$ec_{4,1}$ M	(Pt)	601,11	- 602,29	0,0078 (3)
$ec_{4,1}$ N	(Pt)	603,69	- 604,41	0,00237 (8)
$ec_{2,0}$ M	(Pt)	609,13	- 610,30	0,00356 (11)
$ec_{2,0}$ N	(Pt)	611,70	- 612,42	0,00108 (4)
$\beta^-_{0,8}$	max:	53,5	(19)	0,0033 (5)
$\beta^-_{0,8}$	avg:	13,6	(5)	
$\beta^-_{0,7}$	max:	75,7	(19)	0,0039 (17)
$\beta^-_{0,7}$	avg:	19,5	(5)	
$\beta^-_{0,6}$	max:	81,7	(19)	0,1026 (23)
$\beta^-_{0,6}$	avg:	21,1	(5)	
$\beta^-_{0,5}$	max:	258,7	(19)	5,59 (3)
$\beta^-_{0,5}$	avg:	71,6	(6)	
$\beta^-_{0,4}$	max:	538,8	(19)	41,4 (3)
$\beta^-_{0,4}$	avg:	162,1	(7)	
$\beta^-_{0,3}$	max:	675,1	(19)	47,9 (3)
$\beta^-_{0,3}$	avg:	209,9	(7)	

6 Main Production Modes

Ir − 191(n,γ)Ir − 192
Os − 192(d,2n)Ir − 192

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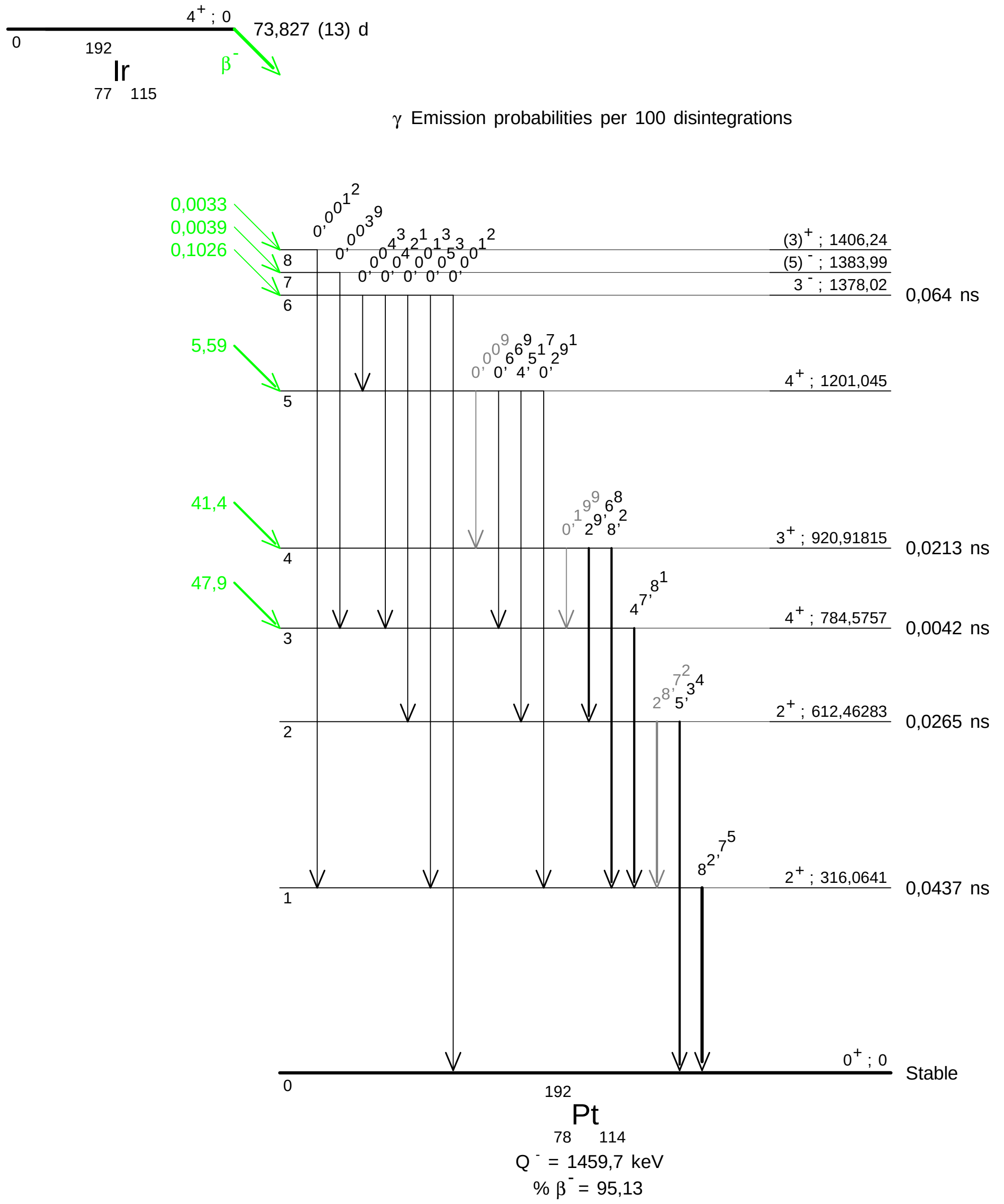
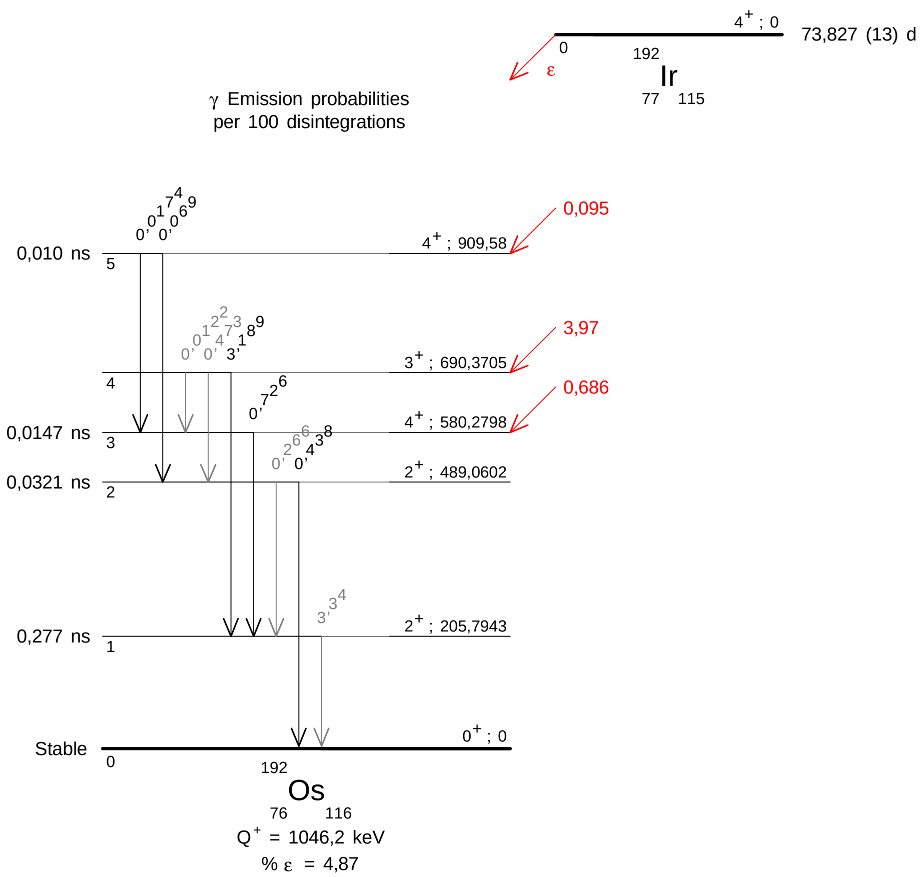

4+ ; 0
73,827 (13) d
192 Ir 77 115
β-
γ Emission probabilities per 100 disintegrations
0,0033
0,0039
0,1026
5,59
41,4
47,9
(3)+ ; 1406,24
(5)- ; 1383,99
3- ; 1378,02
0,064 ns
4+ ; 1201,045
3+ ; 920,91815
0,0213 ns
4+ ; 784,5757
0,0042 ns
2+ ; 612,46283
0,0265 ns
2+ ; 316,0641
0,0437 ns
0+ ; 0
Stable
192 Pt 78 114
Q- = 1459,7 keV
% β- = 95,13


4+ ; 0
73,827 (13) d
0
ε
192
Ir
77 115
γ Emission probabilities
per 100 disintegrations
0,095
3,97
0,686
0,010 ns
5
4+ ; 909,58
4
3+ ; 690,3705
0,0147 ns
3
4+ ; 580,2798
0,0321 ns
2
2+ ; 489,0602
0,277 ns
1
2+ ; 205,7943
Stable
0
0+ ; 0
192
Os
76 116
Q+ = 1046,2 keV
% ε = 4,87