using a beam of 453MeV of ^{86}Kr and ^{208}Pb targets. Two hundred targets of $350\mu g/cm^2$ of ^{208}Pb were made in São Paulo Pelletron Laboratory, IPN-Orsay and Catania. The target system consists of a rotating wheel of 1.20m diameter at 2000rpm. The reactions products were analysed by the Wien filter LISE which was tuned to the velocity of the super-heavy Z=118, N=294. Supression factor was of about 10^{10}. Reaction products were implanted in a strip X-Y silicon detector and the alphas emitted were detected by 8 silicon detectors located in the walls of a "tunnel" with 95% detection eficiency.

No Z=118 event was observed after a total dose of about 10^{18} incident ions of ^{86}Kr.

A second experiment was performed in november/2000 to produce de 260,261 Sg Z=106 in order to check the detection efficiency of the apparatus since the production cross-section (of the order of picobarns) for this element has been measured by the GSI group. A Cr beam and lead targets were used. About 10 events of Z=106 have been observed with a transmission efficiency of 75%.

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GAMMA TRANSITIONS FROM THE β^- DECAY OF ^{193}Os

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The nuclear structure of double even nuclei in the 190 mass region have been studied during the last years. In particular, the discussion involving the intrinsic equilibrium shape of these nuclei indicates changes from prolate (^{186,188}Os) to asymmetric (^{190,192}Os) and to oblate (^{192,196}Pt) which affect the character of the excited states, but experimental information about the odd mass osmium isotopes remained quite unexplored. As the nucleus ^{193}Os occupies a central position in the complex transitional region occurring between the deformed rare earth nuclei and the spherical nuclei near lead we decided to investigate the decay scheme using metallic samples of enriched ^{192}Os enriched to 99% and high resolution HPGe spectrometer, with high statistics an attempt to better understand the trends in its nuclear structure.

The radioactive sources were obtained by irradiation 5 mg of enriched osmium metal for a period of 10 minutes in the IEA - R1 reactor at IPEN-São Paulo, in a thermal neutron flux of 5x 10 ^{12}n.cm^2.s^{-1}. The direct gamma-ray spectrum from about 50 keV to 1.0 MeV were recorded during 300 hours of live counting. In order to identify the origin of γ-rays spectra were accumulated through two successive half-life.

Several ^{193}Os spectra were taken with standards (^{109}Cd, ^{133}Ba, ^{137}Cs and ^{152}Eu) for the purpose of the precise energy calibration of γ transitions. The sources of ^{133}Ba and ^{152}Eu were used for the relative efficiency calibration of the detectors. Areas of the gamma rays peaks were evaluated by using the IDF computer code [1]. The γ transition energy are present in table I. These results will give the opportunity to study the extent to which susceptibility to deformation affects the low-lying states of this transitional nucleus.

Table I . Results of energy (Eg) . the value from ref. [2] were included for comparison.

Gamma Transitions Energy (Eγ) keV					
Present	Ref [2]	Present	Ref [2]	Present	Ref [2]
	41.18 (7)		290	534.327 (2)	
61.7388 (7)		298.9446 (13)	298.83 (5)	554.817 (5)	
63.395 (1)		318.5 (3)	317	557.5556 (4)	557.36 (8)
65.077(1)	65.87(6)	321.724(2)	321.59(4)	559.4503(8)	559.26(8)
73.3718(1)	73.039(12)		333.33(3)		560
	80.22(2)	337.86(13)	337.7(5)	573.26(9)	573.33(10)
97.012(3)		345.54(4)		598.04(35)	598.1(3)
107.1370(5)	107.007(12)	350.76(13)	350.2(2)	619.43(1)	
112.93(2)		357.925(15)	357.7(2)		639.09(10)
135.985(1)	136	362(.0160(6)	361.81(5)	646.33(3)	
139.0091(1)	138.92(3)	337.492(3)	337.31(7)	659.95(9)	
142.269(3)	142.130(3)		378	698.695(17)	
144.24(3)		379.307(18)	379.04(15)	710.36(51)	709.93(15)
154.861(15)	154.74(3)	387.6429(2)	387.48(4)	712.331(11)	712.10(10)
163.441(55)		413.94(5)	413.8(2)		735.3(3)
180.20(1)	180.03(3)	417.92(1)	418	753.33(7)	
	181	418.657(3)	418.35(5)	755.556(4)	
181.925(2)	181.81(3)	420.496(1)	420.30(5)	762.7 (1)	
197.572(39)	197.4(2)	427.16(4)		776.788 (1)	775.9(3)
201.75(2)	201.5(3)	460.6942(1)	460.49(3)		778.48(15)
	218.8(2)	484.5007(12)	484.25(5)		784.2(2)
219.2649(7)	219.13(5)	486.7906(1)	486.11(15)		800.9(2)
234.796(2)		513.28(2)	512.3(3)	847.046(3)	848.85(15)
242.0832(31)			514,95(10)	860.779(1)	
251.7959(8)	251.62(4)		516.3(4)	874.518(9)	874.36(15)
280.6074(2)	280,441(23)	524.32(1)	524.98(8)	891.84(11)	891.26(15)
288.9118(11)	288.79(5)		532.02(5)	948.18(8)	

* observed for the first time

References:

[1] P Gouffon. Manual do programa Idefix, Instituto de Física da Universidade de São Paulo, laboratório do Acelerador Linear, 1982.

[2] R. B. Firestone, V. S. Shirley, Table of Isotopes, Vol. I, 8 a ed., Wiley, New York, 1996.

According to the last compilation of the population and the mode of decay of the excited levels of 193 Ir have been subjected to many investigations using Ge(Li) detectors. So, we decided to investigate the decay scheme using metallic samples of enriched 193Os enriched to 99% and high resolution HPGe spectrometer with high statistics.