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THIN ISOTOPIC TARGETS OF ACTINIDE ELEMENTS FOR NUCLEAR PHYSICS INVESTIGATIONS

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Our investigations were initiated by the present necessity of thin isotopic self supported targets for nuclear fission experiments. Only in this case it would be possible to detect both fission fragments in coincidence, to study their mass and angular distributions and to perform the investigation of the excitation mechanism preceding the nuclear fission.

Generally, the electrodeposition techniques have been developed for the preparation of solid state thick layers for nuclear spectroscopy purposes^{1,2}. It means that isotopic layers were prepared on a thick metal backing with a density about 1 g/cm².

The described method is devoted to the preparation of thin isotopic layers of actinide radio nuclides by molecular electrodeposition onto thin (100µg/cm²), uniform, pure aluminium cathode. Electrodeposition was made from an organic solution by supplying a high voltage (300 - 800 V) and a small current (0,3 - 1,0 mA) through an isopropyl alcohol medium^{3,4}. The electrodeposited material has the same molecular form of the anion initially presented in the electrolyte. Emphasis was placed on studying the radiochemical and electro-

analytical parameters that affect the experimental procedure and hence determine the optimum conditions for targets preparation. The quality of the targets was characterized by homogeneity and physical-chemical stability under the normal conditions.

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