RADIOACTIVE ION BEAMS PRODUCTION WITH PHOTOFISSION OF URANIUM ISOTOPES.

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The use of a radioactive beam of ions with neutron excess higher than in the stable ^{48}Ca nucleus could solve the problem. Reactions of cold fusion between massive nuclei with masses and charges close to those of fission fragments may turn to be promising for these purposes.

To make the picture complete, note that it is possible to use extremely expensive, but very convenient photofissions on ^{238}U and ^{235}U.

The yield photofissions ^{238}U and ^{235}U fragments was determined experimentally at a beam of electrons produced by the compact accelerator of the microtron type MT-22S.

The facility MT-22S produces a beam of electrons with an energy E_e=13-22 Mev and intensity of 20 μA. A W plate 2 mm in thickness was used a convertor.

A standard "sandwich" consisting of then U_2O_3 layer deposited on an Al (20μm) backing and a plastic track detector (Mylar-50 μm) was used for the fission fragment registration. Pb plates of various thick nesses imitating the solid U-target were placed in between the "detector sandwiches".

It is shown that in the interaction between an electron beam (22 Mev and 20μA in intensity) and uranium target of about 40 g/cm^2 in thickness, an average of 1,3 10^{10} fission events/second is generated.

According to the calculations and test experiments, this corresponds to the yield of ^{132}Sn and ^{142}Xe isotopes of approximately-10^8/s.

The photofission reactions of a heavy nucleus are compared with other methods of radioactive beams production of medium mass nucleus.