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Fission of U-238 and Pu-239 production in subcritical assembly

The project touches the issue of fission of Uranium 238 reaction and Plutonium 239 production reaction in subcritical assembly. The author presents the results of calculations run by MCNPx code (Monte Carlo methodology) and the experimental data (Experiment was run with using a PHASOTRON in Dzhelepov Laboratory of Nuclear Problems in JINR, Dubna). The experiment was a part of experimental collaboration „Energy and Transmutation of Radioactive Wastes".
The considered assembly is a "quinta"made of natural uranium treated with high energy proton beam (1 GeV). There are axial and radial distribution of both reactions considered as well those resulted by models as experimental results. The author has made the comparison of models and reality (an experiment).
The research connected with fission of Uranium 238 reaction and Plutonium 239 production reaction is important because of the fact that when the knowledge of U-238 fission reaction will be exploring there is bigger possibility of using it to produce energy. The second reaction –Pu-239 production reaction –also should be explored to control its amount in the world and to have the biggest opportunity to act against nuclear weapon production.

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