

**Photofission Cross Sections of U-233 and Pu-239 Near Threshold
Induced by Gamma Rays From Thermal Neutron Capture**

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The photofission cross sections of U-233 and Pu-239 have been studied using monochromatic photons produced by thermal neutron capture in several materials placed in a radial beam hole of the IEA-R1, 2 MW pool type research reactor, in the energy interval from 5.43 MeV to 9.72 MeV. The gamma flux incident on the samples were measured using a (3x3) inch. NaI (Tl) crystal.

The photofission fragments were detected in MAKROFOL-KG (solid state nuclear track detector) revealed during 30 min. in a KOH (35%/w) solution at 60°C. The efficiency of the detector was obtained using a Californium-252 calibrated source and his value was (0.4323±3%).

The tracks were counted by means a automatic spark counting.

Analysing the photofission data we have observed similarities between the cross sections obtained for the two samples in comparison with other authors. A structure was also observed in the U-233 cross section near the energy of 7.25 MeV. According to the liquid drop model the height of the simple fission barrier were determined: (5.6 ± 0.1) MeV and (5.7 ± 0.1) MeV for U-233 and Pu-239 respectively. The relative fissionability of the samples to U-238 were also determined in each excitation energy and showed to be energy independent: (2.12 ± 0.25) for U-233, and (3.26 ± 0.44) for Pu-239.