



# 539<sup>th</sup> ASRC Seminar

Date: 13:30 ~15:00, 21 January

Location: Meeting room 302, ASRC Building

Speaker: Dr. Fedir A. Ivanyuk  
(Institute for Nuclear Research, Kiev, Ukraine)

Title: The shell effects in the scission point  
configuration of fissioning nuclei

In present work the formal definition of the scission point - the maximal elongation at which the nucleus splits into two fragments - is given. The shape and the total deformation energy (liquid drop part plus the shell correction) at the scission point are calculated within the macroscopic-microscopic model. The importance of the freedom to vary independently the deformation of left and right parts of nucleus just before the scission is stressed. The three minima in the scission point energy are found corresponding to the "standard", "supershort" and "superlong" fission modes. The contribution of each fission mode to the mass distribution of the fission fragments and total kinetic energy is discussed and compared with the experimental results. On the example of fission of U-235 by thermal neutrons it is shown that the present approach reproduces correctly the basic quantities measured in the fission experiments: the position of the main and neighboring peaks of the yield, the absolute value and the fine details (position of minimum and maximum) of the total kinetic energy distribution.



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