Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Effects of fission fragments on the angular distribution of scission particles[1] TAKAHIRO WADA, TOMOMASA ASANO, Department of Pure and Applied Physics, Kansai University — The angular distribution of the scission neutron is a key to separate it from post-scission neutrons. We investigate the effects of the fission fragments on the angular distribution of scission particles, i.e., neutrons and protons. The time evolution of the wave function of the scission particle is obtained by integrating the time-dependent Schrodinger equation. The effects of the re-absorption and scattering by the fission fragments are taken into account by means of the optical potential. We investigate the fission of 236U that corresponds to the neutron induced fission of 235U as an example. The angular distribution of the scission neutron is found to be strongly modified by the presence of the fragments. The attractive nuclear potential enhances the yields around 0 and 180 degrees, while the absorptive potential diminishes them. We also investigate the angular distribution of scission protons, which are normally supposed to be focused around 90 degrees due to the Coulomb repulsion from the fragments. It has been found, contrary to the naive picture, that the strong attraction of the fragments enhances the yields around 0 and 180 degrees. Comparison of the results of the neutrons and protons will be given.

[1]Partly supported by JSPS Grant-in-Aid for Scientific Research (No. 24540289).

Takahiro Wada
Department of Pure and Applied Physics, Kansai University

Date submitted: 22 Jun 2014 Electronic form version 1.4