Contribution ID: **72** Type: **not specified**

[P11] Energy dependence of total kinetic energy of fission fragments for the standard and superlong modes analyzed separately by 4D Langevin model

Thursday, 18 November 2021 16:00 (2h 30m)

TKE (Total Kinetic Energy) of fission fragments is the main source of energy (Q-value) released by fission. Therefore, it is important to understand deeply behavior of the TKE in the nuclear fission of uranium, plutonium, and so on from the viewpoint of nuclear power utilizationand to understand the fission process as a basic research. From the experimental results, it is known that the TKE decreases as the excitation energy increases. Traditionally, it has been understood that the reason for the decrease of the TKE is due to increase of the fraction of (symmetric) superlong mode, which has TKE smaller than that of the (asymmetric) standard mode. On the other hand, we have shown that decrease of the TKE was brought by change of the heavy fragments from nearly-spherical to prolate shape by washing-out of the shell effects as the excitation energy increases[1]. In this study, we have studied how the TKEs of the standard and superlong mode change separately as functions of the excitation energy by the four-dimensional (4D) Langevin model that can individually describe the deformation of each fragment. It was found that decrease of the TKE is caused primarily by the change of TKE of the standard mode, namely, change of the shape of the heavy fragments, rather than increase of the fraction of the superlong mode. Therefore, we could draw a new picture on the energy dependence of the TKE of the fission fragments. [1] K.Shimada, C.Ishizuka, F.A.Ivantyuk and S.Chiba, submitted to Phys. Rev. C.

Primary author: Mr SHIMADA, Kazuya (Tokyo Institute of Technology)

Co-authors: SHIMADA, Kazuya; ISHIZUKA, Chikako; CHIBA, Satoshi

Presenter: Mr SHIMADA, Kazuya (Tokyo Institute of Technology)

Session Classification: Poster　ポスター