Contribution ID: **168** Type: **Oral talk (15 min + 5 min questions)**

Fission modes in 238Np populated by 6Li+232Th

Tuesday, 12 July 2022 11:00 (20 minutes)

The mass-total kinetic energy(M-TKED) of fission fragments of the reaction 6Li+232Th were measured at two laboratory energies Elab = 28.5 and 40 MeV [1] using the CORSET set up at the Flerov Laboratory of Nuclear Reaction. The transfer induced fission and/or the breakup of 6Li mainly into α and d clusters contributes to the incomplete fusion in this reaction. The binary events within the gate of 180±3.5 degree in the fission fragment folding angle distribution have only been considered discarding the incomplete fusion events, for multi-modal analysis.

Two dimensional M-TKEDs of the binary fragments of 6Li+232Th, have been described by the multi-modal random neck rupture (MM-RNR) model [3]. Three modes were necessary to fit the data properly. Channel probabilities and the characteristics of different fission modes are obtained and discussed. The average kinetic energy <TKE> release in fission obtained from Viola systematic [4] matches well with that of the Standard 2 mode, but not with that of broad liquid drop like Superlong mode. This is associated with the decrease of the total kinetic energy associated with asymmetric fission with increasing excitation [5, 6] due to fading out of shell effects at high excitation energies. The slope of asymmetric to symmetric fission yields (when plotted against the excitation energy) of 6Li+232Th is found to be similar to that of previously reported 18O+208Pb.

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The speaker is a student or young scientist

No

Section

1. Experimental and theoretical studies of nuclear reactions

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