



Contribution ID: 73

Type: oral presentation

Investigation of the variance of fission product mass distribution in $^{20}\text{Ne} + ^{232}\text{Th}$ reaction

Monday 19 September 2011 10:15 (15 minutes)

Fission of heavier actinides and trans-actinides through heavy ion reactions is currently an active area of study to investigate contribution from non compound nucleus fission. In addition, there is a contribution from transfer induced fission. In the present work, mass distributions of the fission products produced in $^{20}\text{Ne} + ^{232}\text{Th}$ have been measured at $E_{\text{lab}}=115$ and 145 MeV. Self supporting targets of ^{232}Th (thickness ~ 3 mg/cm²) were bombarded with ^{20}Ne beam from variable energy cyclotron centre, Kolkata, India. The formation cross section of more than 30 fission products have been measured by recoil catcher technique followed by off-line γ -ray spectrometry. In order to determine the mass distributions, the cross section will be corrected for the charge distribution using appropriate charge distribution parameters for complete fusion fission and transfer induced fission. The variance of the experimental mass distribution resulting from complete fusion-fission of $^{20}\text{Ne} + ^{232}\text{Th}$ will be compared with the variance calculated using Random Neck Rupture Model (RNRM). Identification of fission products produced in transfer induced fission and complete fusion fission would also be helpful in the study of mass resolved angular distribution to investigate the contribution from non-compound nucleus fission.

Author: SODAYE, Suparna (Bhabha Atomic Research Centre)

Co-authors: GUIN, R. (Bhabha Atomic Research Centre); TRIPATHI, R. (Bhabha Atomic Research Centre); KATHI, Sudarshan (Bhabha Atomic Research Centre)

Presenter: SODAYE, Suparna (Bhabha Atomic Research Centre)

Session Classification: Session 1

Track Classification: Nuclear Chemistry and Radiochemistry