Contribution ID: **96** Type: **Oral**

Competition between deep-inelastic transfer and fragmentation reactions in heavy-ion collisions at Fermi energy region

Tuesday 2 July 2024 18:50 (15 minutes)

Experimental data in the reaction 40Ar+9Be at projectile energy 36 MeV per nucleon obtained at the wide-aperture magnetic mass separator COMBAS were analyzed to investigate the competition between different collision reaction mechanisms in the Fermi energy region. As was shown in our previous papers velocity distributions of the forward-emitted fragments in the reactions at this energy range exhibit a very asymmetric shape, revealing the presence of at least two main components in the reaction mechanism. The right one with the peak at projectile energy is assumed to rise from direct (fragmentation) processes and is described by the Goldhaber distribution, the contribution of the left-hand side of the velocity distribution is connected with dissipative processes, it is naturally to assume that the main contribution to the dissipative processes responsible for the decrease in the velocity is made by deep-inelastic transfer reactions. Taking the ratio of these two contributions, we conclude that both mechanisms play approximately equal role in the reaction mechanism at projectile energies at the Fermi energy region. The results of modeling isotope distributions in different transport approaches and EPAX, AA and HIPSE models are presented and discussed.

Section

Experimental and theoretical studies of nuclear reactions

Primary author: БАТЧУЛЇУН, Эрдэмчимэг (JINR, FLNR)

Co-authors: VORONTSOV, Andrey (JINR); KONONENKO, Gennady (JINR); KLYGIN, Sergey (JINR); MIKHAILOVA, Tatyana (JINR); SEREDA, Yury (JINR)

Presenter: БАТЧУЛЇУН, Эрдэмчимэг (JINR, FLNR)

Session Classification: Experimental and theoretical studies of nuclear reactions