

Who is game changer in heavy-ion fusion reaction dynamics?

Tuesday 5 February 2019 14:50 (25 minutes)

In heavy-ion fusion reactions, the energy of the projectile couples with the intrinsic degrees of freedom of the target during the collision process and this leads to a dissipative phenomenon. Consequently, the dissipation in the system causes the angular momentum hindrance during the fusion process. Here we have focused on the dissipative behavior of the fusing nuclei and its dependency on the incident energy. The dissipative evolution of the system depends not only on the entrance channel mass asymmetry but also on the incident energy, which was not mentioned in earlier studies. Moreover, the dissipative behavior of the fusing nuclei is also compared with respect to the entrance channel parameters like mass asymmetry α and the Coulomb interaction term $ZPZT$. The dissipation phenomenon decreases when the mass asymmetry increases and it increases when the Coulomb interaction term $ZPZT$ increases.

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Session Classification: Parallel Session Nuclear Physics