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Study of deep inelastic reactions within the multidimensional dynamical model of nucleus-nucleus collisions

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In the present work, the theoretical analysis of deep inelastic collisions (DIC) with heavy ions is performed based on the dynamical model of ion-ion collisions. Studying of this type of nuclear reactions allows one to extract the information about complex interaction of heavy ions with each other leading to the significant dissipation of the initial kinetic energy and the exchange of a large number of nucleons. In addition, DIC is a promising method of producing new isotopes of heavy and superheavy elements unavailable for obtaining in other reactions (fusion, fragmentation).
Developed in FLNR JINR the multidimensional dynamic model of nucleus-nucleus collisions allows one to calculate the energy, charge (mass) and angular distributions of products of reactions with heavy ions. This model was tested by well-measured DIC reactions: 136Xe + 209Bi and 136Xe + 208Pb. The calculated characteristics of DIC obtained within our model are in good agreement with the corresponding experimental values.

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