CONFRONTATION OF EXPERIMENTAL DATA FOR ASYMMETRIC REACTIONS IN THE PERSPECTIVES OF DYNAMICAL MODELS

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The multiplicity of intermediate mass fragments (IMFs) is one of the most important quantities to understand the multifragmentation phenomenon. The multiplicity of IMFs is also a crucial test for the capability of the model to provide the realistic picture of the dynamics of the heavy-ion collisions. The experiments carried out to study multifragmentation are broadly classified into symmetric and asymmetric reactions. In the former case, the incident energy is stored in the composite system in form of compression energy whereas, in later case, large portion of incident energy is stored as excitation energy. Dynamical models have undergone a tremendous success describing the physics of fragment emission in symmetric reactions, whereas, in case of asymmetric reactions it fails drastically. In the present work, we plan to inspect that the failure of dynamical models is linked with the initial parameters/assumptions used in the primary models or with the clusterization algorithm one is employing to identify fragments. In particular, we used quantum molecular dynamics model and its modified isospin dependent version. In the category of secondary algorithms, we employed minimum spanning tree (MST) method and its various variants like MSTP, MSTB (1.1), MSTB (2.1), MSTBT(1.1), MSTBT(2.1), and simulated annealing clusterization algorithm (SACA). In our study, we also presented the comparison between our calculated results and experimental data over a wide range of incident energy and asymmetry of reaction.