



Nuclear Theory

Correlation between balance energy and transition energy for symmetric colliding nuclei

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We study the correlation between balance energy and transition energy of fragment in heavy-ion collisions for different systems at incident energies between 40 and 1200 MeV/nucleon using an isospin-dependent quantum molecular dynamics model. With increasing incident energy, the elliptic flow shows a transition from positive (in-plane) to negative (out-of-plane) flow. This transition energy is found to depend on the size of fragments, composite mass of reacting system, and the impact parameter of reaction. It has been observed that reduced cross-section can explain the experimental data. There is a correlation between transition energy and balance energy as their difference decreases with increase in the total mass of colliding nuclei.

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