

Formation of heavy elements in drift plus diffusion dynamics

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Within the Langevin framework, we investigate the dynamics of the fusion process for production of trans-fermium elements in reactions with ^{208}Pb target. After the reacting nuclei have made contact, the early dynamical stage is dominated by the dissipation of the initial radial kinetic energy, while the subsequent shape evolution is diffusive. The probability for surmounting the inner barrier and forming a compound system is obtained by simulating the evolution as a Metropolis random walk in a five-dimensional potential-energy landscape.

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