

Energy dependence of nuclear shape evolution

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The recently developed treatment of Brownian shape evolution is further refined to take account of the gradual subsidence of shell effects as the excitation energy is raised. It is assumed that the Fermi-gas level-density parameter approaches its macroscopic form exponentially with excitation. The modulation of the level density parameter is equivalent to the introduction of an energy-dependent effective potential energy surface which is easier to depict. Illustrative calculations of fission fragment mass distributions are made and compared with experimental data.