VISCOSITY EFFECTS AT THE NUCLEAR DESCENT FROM THE FISSION BARRIER

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We evaluate the temperature $T_{\rm scis}$ at the scission point and the descent time τ_{sc} from the saddle to the scission of heated nuclei within the liquid-drop model. We use the classical Lagrange-like equations of motion. The nuclear surface is parametrized by the two-parametric family of the Lawrence shapes. Conservative forces are defined through the free energy of the nucleus. We use the friction tensor derived from the boundary conditions on the nuclear surface and from exact solution of the continuity equation for incompressible and irrotational flow. The scission line is determined from the instability condition of the nuclear shape with respect to the variations of the neck radius. The numerical solution of the dynamical equations is carried out for the nucleus ^{236}U. We have defined the viscosity coefficient μ from the comparison of the experimental data for the kinetic energy of the fission fragments with computed one. We found a significant deviation of μ obtained within our approach from the value of μ obtained within the standard hydrodynamical model.