3-D Unrestricted TDHF - Studies with full Skyrme interaction
SAIT UMAR, VOLKER OBERACKER, Vanderbilt University — We present time-dependent Hartree-Fock (TDHF) studies without any spatial symmetry restrictions as well as no time-reversal invariance for the Skyrme force. The code uses the basis-spline collocation method for lattice representation. We will discuss the general nature of these unrestricted calculations and in particular the effects of no time-reversal invariance. This introduces many additional terms into the Skyrme energy functional, including spin-currents and tensors. We study a number of systems to understand the effects of time-odd parts of the interaction on heavy-ion fusion using some of the more recent parameterizations of the Skyrme force. The results of applying this code to study heavy-ion fusion for deformed nuclei will be discussed in another talk. Ref: A.S. Umar and V.E. Oberacker, Eur. Phys. J. A **24** (2005).

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