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