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Comparison of Potential Energy Surfaces for Fission and Fusion in Hartree-Fock and Macroscopic-Microscopic Models LUDOVIC BONNEAU, PETER MOLLER, Theoretical Division, Los Alamos National Laboratory, Los Alamos, NM 87544 — In the macroscopic-microscopic model we calculate the nuclear potential energy versus five different shape coordinates for complete spaces, that is for all possible combinations of these shape coordinates, basically a 5-dimensional "cube." Its structure, in particular saddle points and ridges are determined by use of a water immersion technique. In HF calculations the energies are calculated subject to a number of constraints, for example quadrupole moment and reflection asymmetry, but others are possible. In this approach it is less straightforward to locate saddle points and ridges, than in the other model. However, valleys and minima are fairly easily obtained. We discuss some of these important issues and what we have learned by comparing results of the two approaches.

Peter Moller
Theoretical Division, Los Alamos National Laboratory, Los Alamos, NM 87544

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