

Density Functional Theory in Nuclear Physics

I will report on new efforts under way to find a density functional theory of nuclei that would achieve for nuclear physics what has been accomplished in condensed matter and quantum chemistry. There DFT has been enormously successful and has become a paradigm for predictive theory. For nuclear physics two challenges are the theory of nuclear binding energies, needed in astrophysics, and of low-energy reactions, needed for nuclear energy and security applications. I will discuss the present status of the DFT-based theory and the extensions needed for applications. See <http://www.scidac.gov/physics/unedf.html>.