In this talk I will present our recent developments in the field of density-functional theory (DFT). I will first address the problem of strong electron correlation and how in-principle-exact DFT-based embedding techniques such as site-occupation embedding theory (SOET) [1-5] can be developed for model Hamiltonians such as the Hubbard Hamiltonian. Generalizations to ab initio quantum chemical Hamiltonians [6] will be briefly mentioned. If time permits, I will also present a unified formulation of the so-called fundamental and optical gap problems in DFT [7-9]. The practical consequences of such a formulation will be discussed.

Bibliography: