Dietmar Dorninger and Maciej Mączyński:

A simple quantum mechanical model for deriving the energy function of n-component systems

Abstract. We consider general systems consisting of n components, like ensembles of atoms or molecules, together with forces centrally binding to components or due to interactions, whose quantities are known. From these quantities we derive an energy function that represents the energy of the whole ensemble without making use of the Hamiltonian operator. We show that in this way we can find the energy function within Hückel’s theory of molecular orbitals which is traditionally derived by employing the Hamiltonian operator. Moreover we introduce a concept of stability of our n-component system and discuss its consequences for the stability of chemical compounds.