Title: Electronegativity by Electromagnetic and Quantum Fields
Lecturer: Mihai V. Putz

Abstract: In the context of conceptual density functional theory the chemical reactivity phenomenology of electronegativity is unfolded by refreshing conceptual density functional theory within the electromagnetic and quantum fields, respectively as: a) The Maxwell relation of total energy of a chemical N-electronic system is combined with Maxwell electromagnetic equations to provide fresh chemical reactivity framework in terms of electronegativity, chemical hardness and chemical action structural descriptors, while the present approach is providing a generalized equation of the density functional electronegativity; b) the concept of chemical action is presented as such to encompass the physical-chemical activation processes, including catalysis and molecular covalent and ionic bonding phenomenology, through employing the valence electronic density engaged in transition state driven by thermodynamic relationships considered at the molar reactivity level; c) finally new entanglement perspective on the nature of the chemical bond is reached by employment of the (sub)quantum Bohm potential with the chemical action at whatever level of chemical interaction, from atoms to molecules to macromolecules and biological activity; in this approach the classical influence appears as an omnipresent counterpart to quantum events in bonding. This review includes also some important information about electronic structure rules introduced within the framework of Conceptual Density Functional Theory.