Sažetak predavanja: “Metallic clusters as building blocks for optical and catalytic materials”

We focus on the functionality of small nanoparticles for development of optical and catalytic materials. First, the role of noble metal cluster-chromophores with their unique optical absorption and photoemission properties interacting with biomolecules, surfaces, diamondoids and graphene as models for biosensors and photonics will be presented. Second, the role of metal oxide clusters for designing catalytic materials will be addressed. The importance of structure-reactivity relation, of charge state and isoelectronic concepts will be elucidated and illustrated on industrially important oxidation reactions. The results of our theoretical work stimulated numerous experiments leading to cooperations which provide new concepts for design of novel optical and catalytic materials.