Abstract

The goals of the Nanomaterial Group lie in the preparation of nanometer-sized semiconductor, metallic, and magnetic particles, followed by the creation of periodically ordered nanostructures (1-D, 3-D) based on single nanoparticles. A small particle size implies high sensitivity and selectivity. These new effects and possibilities are mainly due to quantum effects that are a result of the increasing ratio of surface to volume atoms in low-dimensional systems. An important factor in this context so far has been the design and fabrication of nanocomponents with/displaying new functionalities and characteristics for the improvement of existing materials; including photonic materials, conductive materials, polymers and composites. In this speech I will provide an overview of our recent research concerning the development of innovative products and application options in electronics and biomedicine, based solely on nanoscale technology.

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