

Quantum Confinement Effects in Nano-electronic Materials

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Size-dependent properties and confinement effects are two emerging quantum signatures of nano-systems. They are interrelated and in these lectures we will examine how they can be described in terms of simple quantum models. In particular we will examine how the electronic, optical and magnetic properties of nano-systems and clusters are strongly influenced by the spatial dimensions of the system. As an specific example we will consider the case of Surface Enhanced Raman Spectroscopy both in plasmonic and non-plasmonic materials.