



Seminario

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Titolo:

“Bioorganic Nanodots“

**Aula Seminari “Paoluzi”
Dipartimento di Fisica
Università degli Studi di Roma “Tor Vergata”
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(proponente: Prof. Mariano Venanzi, venanzi@uniroma2.it)

Bioorganic Nanodots

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The emerging "bottom-up" nanotechnology reveals a new field of bioinspired nanomaterials composed from chemically synthesized biomolecules. They are formed from elementary constituents into supramolecular structures by the use of developed by nature self assembly mechanism. We report on quantum confinement phenomena and direct observation of quantum wells and quantum dots self assembled structures at various bioinspired and biological nanostructural materials. The observed exceptional optical absorption properties and strong exciton photoluminescence at room temperature originate from nanoscale size of elementary building blocks of these supramolecular structures. We show that supramolecular origin of these bioinspired nanomaterials provide unique chance to be dissembled into elementary building blocks peptide nanodots of 1-2 nm size possessing unique electron and optical properties. These multifunctional nanounits are the basis for a new future step in nanotechnology and nanoscale advanced nanophotonics devices bio-LEDs, bio-Lasers, Displays and new technique of early diagnosis of neurodegenerative diseases.