



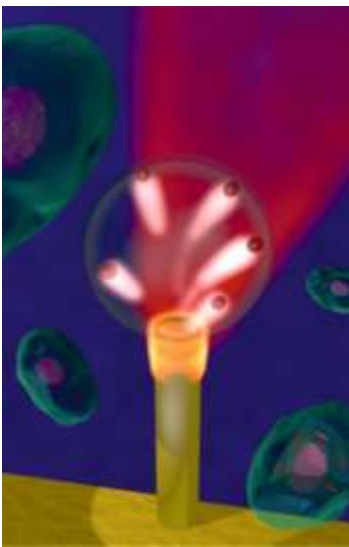
COLLOQUIUM DI FISICA

Giovedì 23 marzo 2017, ore 15.00
aula "A. Rostagni"

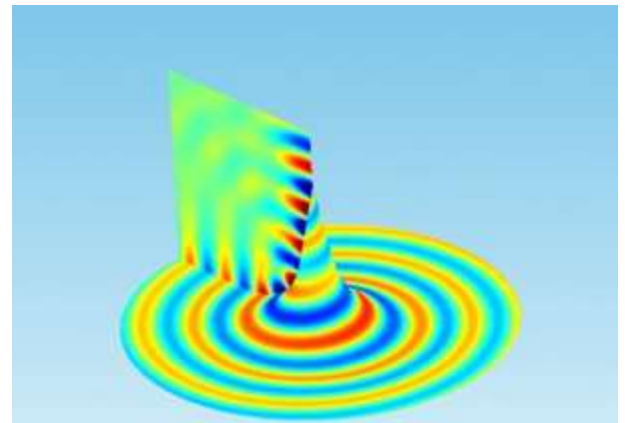
Dr. Francesco de Angelis

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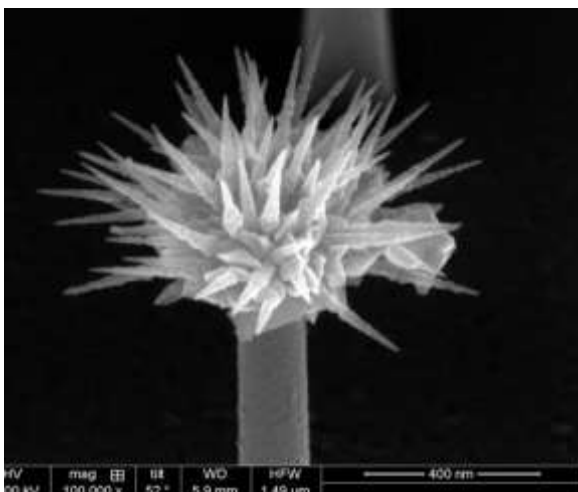
Three-dimensional nanostructures for bio-photonics



Bio-Photonics is mature but still fashionable cross disciplinary field in which Photonics is used to study biological molecules, cells and tissues. In the last years we introduced different 3D nanostructures capable of harvesting and concentrating visible light at the nanoscales. The so-generated hot spots of electromagnetic field can be used for triggering physical and chemical processes on



the molecular scale level. Among the possible



applications bio-sensing is one of the most appealing both for basic and applied research. First, we will show how 3D nanostructures can be combined with superhydrophobic surfaces for extreme bio-sensing. Second, we will present a novel nano-fabrication approach for the realization of 3D hollow nanostructures that can be used to create an effective interface between electronic devices and biological tissues such as neuronal networks. The latter may represent a step forward toward the development of next generation of brain-machine interfaces.