



UNIVERSITA' DEGLI STUDI DI PAVIA

*DOTTORATO DI RICERCA IN FISICA*

## **COLLOQUIA 2015-2016**

**Giovedì 7 Aprile 2016**

**Aula 102 "L. Giulotto", ore 16.00**

*Dipartimento di Fisica, via Bassi 6, Pavia*

### **Three-dimensional nanostructures for bio-photonics and neuro-plasmonics**

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**Abstract:** In the last years we introduced different 3D nanostructures and devices for managing the electromagnetic field at the nanoscales. Firstly, we will briefly revise our past achievements concerning the combination of 3D plasmonic nanodevices, Raman Spectroscopy, and superhydrophobic surfaces. Secondly, we will present a novel fabrication approach for the realization of 3D hollow plasmonic nanostructures which can be integrated with microfluidic chips and CMOS arrays. The combination with microfluidic chips enables to inject arbitrary molecules to in-vitro cultured cells with single cell selectivity. Furthermore, the use of CMOS devices refined with 3D features allows the investigation of intracellular action potential of cultured neuronal network.

