



# MATERIALS SCIENCE

UNIVERSITY OF ROME  
TOR VERGATA



## MATERIALS SCIENCE SEMINAR

14/6/2017 2.30 pm

Grassano room

Sogene Building



### **"Epitaxial growth of semiconductor heterostructures: engineering new materials"**

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In the last four decades, it has been largely proved that epitaxial technologies for material growth have unique advantages for the growth of advanced epitaxial structures. Molecular Beam Epitaxy is particularly well suited for the growth of structures with modulated composition or doping profiles in the growth direction. Such features have opened the way to the realization of new epitaxial structures, innovative devices and quantum structures. In this seminar I will report on case studies of both highly strained heterostructures and van der Waals systems: (i) InAs/GaAs system, a paradigmatic example of highly mismatched heterostructures exhibiting a 2D-3D transition with the formation of defect-free self-assembled Quantum Dots; (ii) layered chalcogenides based on the pseudobinary alloy GeTe-Sb<sub>2</sub>Te<sub>3</sub>, which is a phase-change material used in data storage applications, with the aim of understanding the rules governing vdW epitaxy between 2D and 3D materials.