

Metodi sperimentali per la determinazione di struttura e proprietà elettroniche di sistemi aggregati di bassa dimensionalità

Experimental Methods for the Determination of the Structure and the Electronic Properties of Low-Dimensional Solid Systems

(January/February-May 2021)

Basic Modules, ~ (20+20 hours) 40 hours:

**Interazione radiazione-materia, spettroscopie di fotoemissione e assorbimento /
Interaction of Electromagnetic Radiation with Matter, Photoelectron Spectroscopy
and Absorption**

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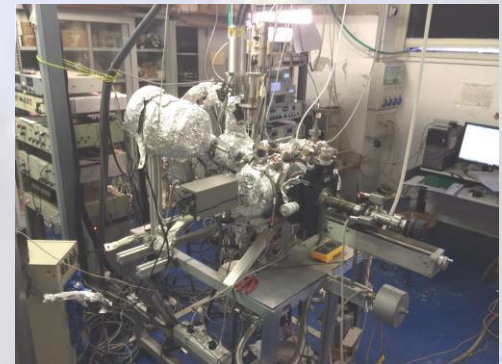
Basic Theory and Experimental-Instrumental methods - Electron-matter and Electromagn.-matter interaction – **Photoelectron Spectroscopy**, angular-resolved photoemission, band structures – Auger electron spectroscopy – core level and chemical bondings - **Low-D Systems and Nanostructures** – Multiple-Scattering - **X-Ray Absorption**, EXAFS and XANES - Introduction to **Synchrotron Radiation** and to the new Free-Electron Laser (FEL) sources

course info's will appear at:

<https://elearning.uniroma1.it/course/view.php?id=5814>

Specialistic Module/s at Roma Tre (~20 hours):

- **G. Capellini** (Roma Tre): Microscopy techniques
- other modules available

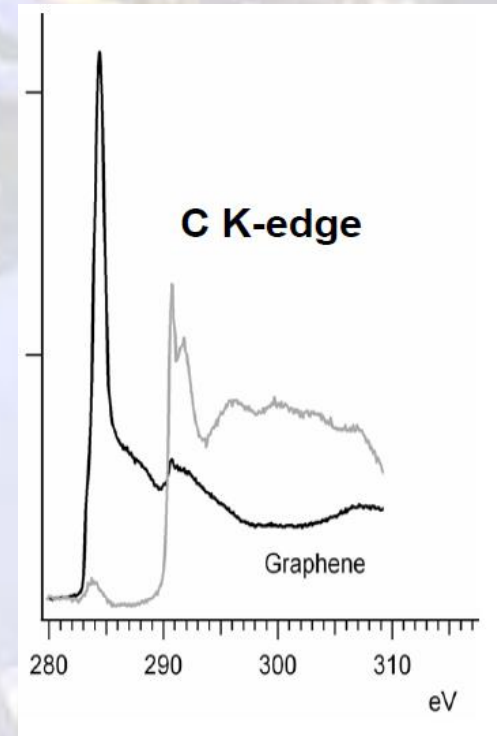
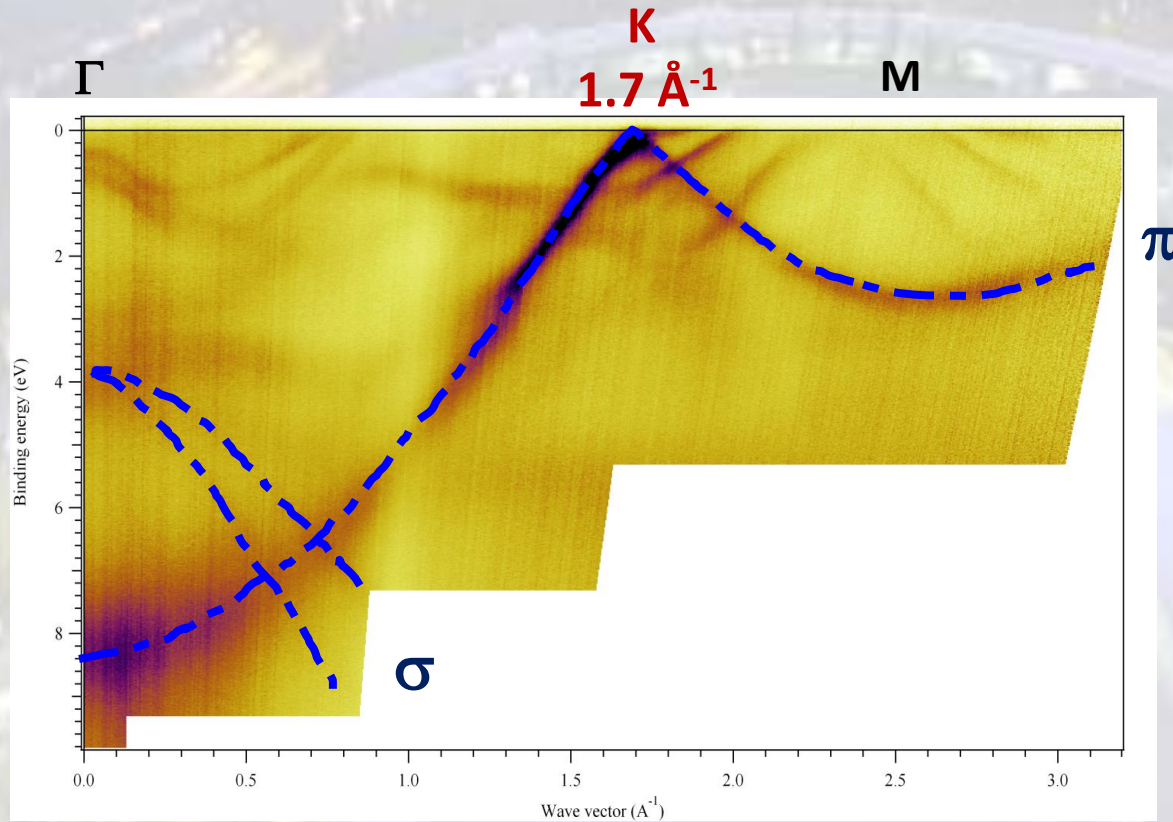


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ARPES: experimental band structure of graphene (real 2D system)



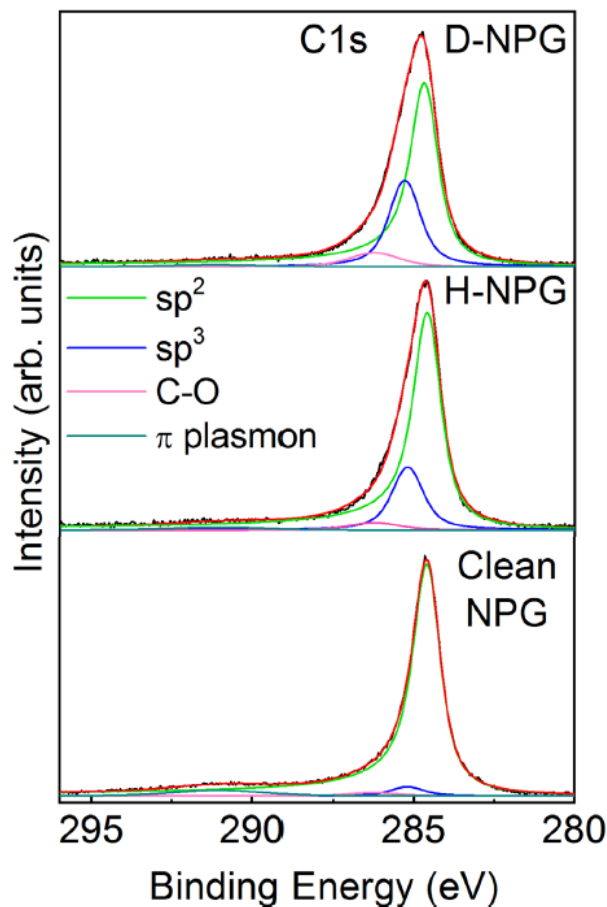
$$E(\mathbf{k}) = \pm t \sqrt{1 + 4 \cos(\sqrt{3}ak_y/2) \cos(ak_x/2) + 4 \cos^2(ak_x/2)}$$

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Core-level photoemission: free-standing graphene (H-NPG)



~36% of atomic deuterium

~25% of atomic hydrogen

