

Breath Research Interactions and Development via Guidance and Exchanges



ULMNP group of IESL-FORTH is pleased to present the following courses in the framework of the [EU BRIDGE project](#). We welcome you to attend:

Day	Date	Time	FORTH's Room	Presenter	Course Title
Tuesday	18/6	09:30 – 11:30	Vassilios Dougalis - KEEK building	Prof Liberato Manna	Electronic Structure of Solids: Practical cases
Wednesday	19/6	09:30 – 11:30	Vassilios Dougalis - KEEK building	Prof Liberato Manna	Electronic Structure of Solids: Practical cases
		12:00 – 13:30	Costas Fotakis – FORTH building	Teresa Pellegrino	IESL Seminar
Thursday	20/6	09:30 – 11:30	Vassilios Dougalis - KEEK building	Prof Liberato Manna	Electronic Structure of Solids: Practical cases
		11:30 – 13:30	Vassilios Dougalis - KEEK building	Dr Teresa Pellegrino	Toxicity of Nanoparticles
Tuesday	25/6	09:30 – 11:30	Stelios Orphanoudakis – FORTH building	Dr Francesco Di Stasio	Optoelectronics of Nanomaterials
Wednesday	26/6	09:30 – 11:30	Stelios Orphanoudakis – FORTH building	Prof Liberato Manna	Electronic Structure of Solids: Practical cases
		12:00 – 13:30	Costas Fotakis – FORTH building	Dr Francesco Di Stasio	IESL Seminar: Colloidal quantum dots for near-infrared optoelectronics
Thursday	27/6	9:30 – 11:30	Stelios Orphanoudakis – FORTH building	Dr Francesco Di Stasio	Optoelectronics of Nanomaterials
Friday	28/6	09:30 – 11:30	Stelios Orphanoudakis – FORTH building	Prof Liberato Manna	Electronic Structure of Solids: Practical cases
		11:30 – 13:30	Vassilios Dougalis - KEEK building	Dr Teresa Pellegrino	Toxicity of Nanoparticles
Monday	1/7	09:30 – 11:30	Stelios Orphanoudakis – FORTH building	Dr Francesco Di Stasio	Optoelectronics of Nanomaterials



This research project has received funding from the EU's Horizon Europe framework programme for research and innovation under grant agreement BRIDGE (n. 101079421 from 01/10/2022 – 30/9/2025)

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Note:
The courses by Prof. Manna will start exactly at 9:30. All other courses will begin 10 minutes after the scheduled time.

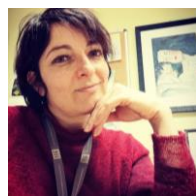
[Prof. Liberato Manna \(IIT\)](#) – Senior Scientist, Senior Researcher Tenured - Principal Investigator, Head of NanoChemistry Laboratory



Course: **Electronic Structure of Solids: Practical examples**

Description: Quick recap of the topics covered in the first part of the course; bands from p orbitals, bands from s and p orbitals; sp-bonding for some selected 1D and 2D systems (trans-polyacetylene, graphene, boron nitride, graphene-boron nitride heterostructures); sp-bonding for some selected 3D systems (silicon, II-VI and III-V semiconductors, metal halide perovskites); Bands from d orbitals, bands from s, p and d orbitals (with examples of transition metals and various compounds involving transition metals, magnetism in transition metals); bonding in ionic solids with examples (binary metal halides); the effect of electron repulsion in the band structure (with example of lanthanides and lanthanide based compounds, metal oxides).

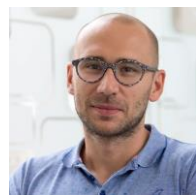
[Dr Teresa Pellegrino \(IIT\)](#) – Senior Researcher Tenured - Principal Investigator at IIT, Head of Nanomaterials for Biomedical Applications Laboratory



Course: **Toxicity of Nanoparticles**

Description: Quick recap of features and applications of inorganic nanoparticles and the parameters that affect their toxicity. A short excursion on the tools used to determine colloidal stability of nanoparticles, their surface properties and laboratory methods used to determine the cell toxicity in vitro. An overview of toxicity of quantum dots as an example of toxicity studies of semiconductors inorganic nanoparticles to prepare an interacting discussion with the audience on perovskite materials.

[Dr Francesco Di Stasio](#) – Researcher Tenure Track - Principal Investigator, Head of Photonic Nanomaterials Laboratory



Course: **Optoelectronics of Nanomaterials**

Description: The course focuses on the optical properties of nanomaterials and relevant experimental methods to study their photophysics (e.g., light-absorption, fluorescence, phosphorescence, time-resolved spectroscopy, etc.). Fundamental optical properties of colloidal nanomaterials will be discussed. In addition, the course will present how to exploit nanomaterials optical properties in various types of optoelectronic devices such as lasers and light-emitting diodes, with the working principles of these two classes of devices also discussed. In addition, standard device fabrication and characterization tools will be presented and the importance of metal-semiconductor junctions explained.

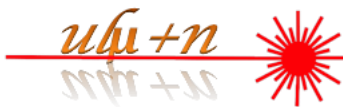


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Please check for any updates the webpage: <https://euproject-bridge.eu> and our social media: [Twitter](#), [Instagram](#), [Facebook](#), [LinkedIn](#). You may contact at bridge@iesl.forth.gr



Rooms of the courses:

"Vassilios Dougalis" Meeting Room/Auditorium
"KEEK" Building



"Costas Fotakis" Meeting Room
FORTH Main Building



"Stelios Orphanoudakis" Meeting Room
FORTH Main Building



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