

## **SPECIFIC TOPIC (WITHIN MATERIALS PHYSICS): NANOSTRUCTURES AND BIOMATERIALS**

- Quantum nature of the nanoworld. Intermolecular forces. Self-organization. Nanofluidics. Nanomechanics.
- Synthesis and characterization of nanomaterials.
- Nanostructured soft matter (molecular motors, active systems, ion channels).
- Electronic structure of nucleic acid bases and related molecules. Charge transfer in DNA.
- Low-dimensional systems (quantum wells, wires, dots: electronic states and transport).
- Quantum transport