

PHD PROGRAMME IN PHYSICS, ASTROPHYSICS, AND APPLIED PHYSICS
UNIVERSITÀ DEGLI STUDI DI MILANO
PhD Cycle 41 (2025-2026)

All lectures will be given in English.

Course title	Nuclear structure studied with stable and radioactive beams.
Teacher in charge of the course	Leoni Silvia
List of the teachers of the course	Leoni Silvia, University of Milan, silvia.leoni@unimi.it
Training objectives	Students will be led to understand and master the techniques that are needed to carry out experimental research in the domain of nuclear structure.
Prerequisites	Knowledge at the introductory level of nuclear and subnuclear physics, as well as of matter-radiation interaction.
Detailed course program	Lectures will concern the study of modern aspects of the structure of nuclei in the ground state and excited states. Nuclear Structure properties will be discussed from a phenomenological/experimental point of view, mostly in connection with the present use of accelerated beams of stable and radioactive heavy ions. Content of the program: • Production techniques for exotic beams: ISOL and in-FLIGHT methods. Examples of facilities and dedicated setups. • High precision Mass measurements with traps and storage rings. • Beta decay studies. • Collective modes of vibration: Giant Resonances (optional).
Examination modalities	Oral exam
Preliminary schedule	January 2026 Course enrolment deadline: December 27, 2025.