Ph.D course in Geometry and Mathematical Physics

Head of the Ph.D course: Prof. Ugo Bruzzo

Web site: [**Geometry and Mathematical Physics**](#)

Research lines:

- Integrable systems in relation with differential, algebraic and symplectic geometry, as well as with the theory of random matrices, special functions and nonlinear waves, Frobenius manifolds.
- Geometry of moduli spaces of sheaves and of curves, their deformation theory and virtual classes also in relation with supersymmetric gauge theories, strings, Gromov-Witten invariants, orbifolds and automorphisms.
- Quantum groups, noncommutative Riemannian and spin geometry, applications to models in mathematical physics.
- Mathematical methods of quantum mechanics.
- Mathematical aspects of quantum Field Theory and String Theory.
- Symplectic geometry, sub-riemannian geometry, stochastic geometry, real algebraic geometry.
- Geometry of quantum fields and strings.
- Complex differential geometry.
- Generalized complex geometry.

Fellowships available: 8

Admission: Academic and scientific qualifications + oral exam (remotely)

Beginning of the Courses: 1st October, 2024

Evaluation of academic and scientific qualifications: 30 points
Access to Oral Exam: minimum mark of 21/30 in the academic and scientific qualifications evaluation.
Evaluation of Oral Exam: 70 points

To be considered eligible, candidates must pass all the phases (academic qualifications, and interview) with a minimum mark of 7/10 or equivalent.

Single Session

Deadline for online submission of applications: 5th February, 2024

Oral Exam: 19th – 22nd February, 2024

Admission to the oral exam and results of all evaluations will be notified by email.