

## 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: 7

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

Beginning of the Courses: 2 October, 2023

**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

**Total Evaluation:** 100 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:** 1 February, 2023

**Oral Exam:** 13 - 17 February, 2023

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