

PhD School in Mathematics

List of activities

The PhD School in Mathematics offers a variety of activities for the education of its PhD Students. The core of these activities are a number of high-level courses given by invited lecturers and researchers of the Departments. The PhD students also come in touch with the main research topics in Mathematics through a number of workshops and Schools organized within the Department or in the roman area by scholars of the Department. Unfortunately, the covid-19 outbreak has disrupted many schools and workshops, which are usually organized in the late Spring or early Summer period.

Besides these activities, regular seminars are held by the research groups, such as Analysis, Operator Algebra, Algebra and Geometry, Mathematical Physics, as well as general Colloquia and Junior Seminars addressed especially to a wide audience. The students themselves present the progress of their thesis work during the group seminars, so as to train themselves to present their research (in English) to a specialized audience. A regular seminar is organized jointly by the PhD students of the three main Doctoral Schools in Mathematics in Rome, in which the students are invited to present their research in a more informal way and so as to be understandable to a wider audience. This type of activity nicely complements the more specialized presentations of the research groups.

The following courses have been offered to the PhD students in the period November 2019–May 2020. Part or all of some courses have been given online due to the Covid-19 emergency. Other courses scheduled in the period March-June 2020 have been canceled.

G. Orlando (TU Munich). Part I: An Introduction to the Theory of Currents Part II: Cartesian Currents and Applications

M. Bozejko (Polish Academy of Sciences). Introduction to non-commutative (quantum) probability with applications

G. Peccati (Université Luxembourg). Gaussian Analysis and Limit Theorems

S. Sandon (Université Strasbourg). Symplectic and contact geometry

K. Zaynullin (University of Ottawa). Introduction to Generalized Equivariant Cohomology and the Localization Techniques

R. Schwarz (Brown University). Euclidean and curved structures

A. Procacci (Belo Horizonte). Lovasz local lemma and combinatorics

R. Peirone (Tor Vergata). Analysis on fractals
 Y. Kawahigashi (U. Tokyo). Relative boundary-bulk duality and orbifold subfactors
 S. Gontard (Tor Vergata). Geometries of complex domains, an introduction
 G. Codogni (Tor Vergata). Fano varieties: Kahler-Einstein metrics, K-stability and moduli spaces
 M. Lanini (Tor Vergata). Perverse Sheaves and Localization Theorems
 B. McKay (University of Cork) Exterior differential systems (online course)
 P. Dlotko (University of Swansea) Topological Data Analysis (online course)
 P. Pigato (Tor Vergata) Fractional Brownian motion and non-Markovian modeling
 In the academic year 2019-2020 two workshops attended by students have been
 Operator algebras in quantum field theory and quantum probability
 Geometric Challenges in Isogeometric Analysis.

For the academic year 2020-2021 the activities will continue in the same line as in the past years, even though some of the activities will be performed remotely. In particular, for the next year the following courses are scheduled:

F. Ciolli (Tor Vergata) Operator Algebraic Models of Quantum Field Theory
 R. Farouki (U. California, Davis) Pythagorean-Hodograph curves
 U. Tillmann (Oxford) Topological data analysis
 M. Yamamoto (Tokyo) Carleman Estimates for Partial Differential Operators with Application to Inverse Problems for Hyperbolic Systems
 JM Ball (Heriot-Watt Hong Kong) Phase Transformations, Incompatibility and Microstructure

as well as the International School

Analysis and Applied Mathematics (courses by G. De Philippis (New York), M.G. Mora (Pavia) and D. Slepčev (CMU, Pittsburgh).

A more detailed list of the courses given by invited scholars will be available only when the current travel restrictions will be lifted.