



Department of Mathematics
University of Rome Tor Vergata



MATH@TOV
Excellence Project 2018-2022
NEWSLETTER
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Due to the Covid-19 emergency some scheduled activities have been suspended/postponed.
We will promptly report about these activities in the next newsletters.

Presentation

The Department of Mathematics of the University of Rome Tor Vergata is distinguished by first class research, often motivated by applications from theoretical physics, astronomy, aerospace, finance, technology and medical science, a high level educational system, and the organization of events in the context of the so-called third mission of the University. For details we refer to the Department's website, <http://www.mat.uniroma2.it>

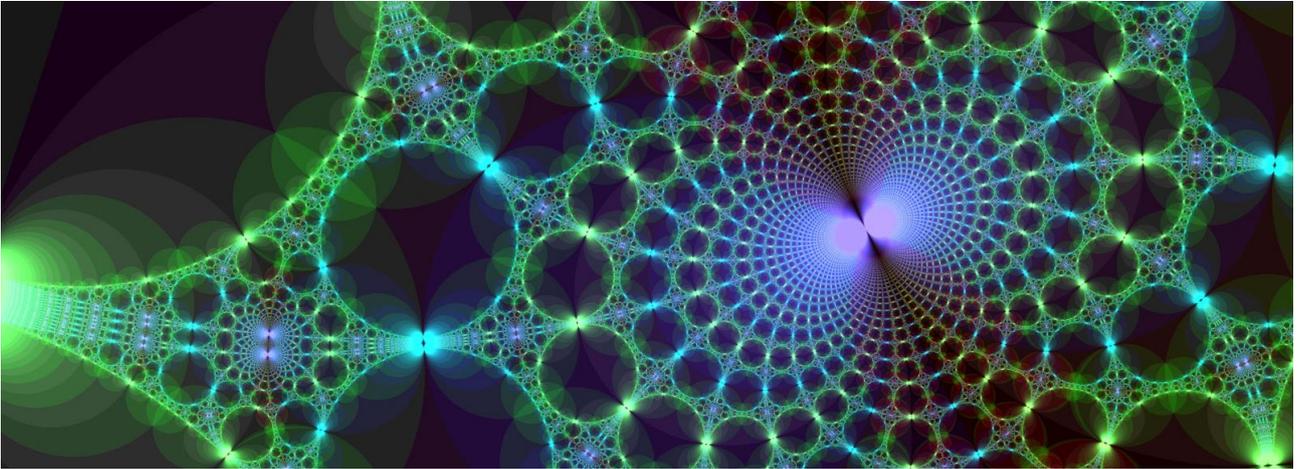
The Department aims to increase its leading role in research, math education and math culture. The recently awarded national Excellence Project 2018-2022, denoted by MATH@TOV, offers the opportunity to face new challenges, and its main objectives are:

- foster new collaborations between staff members on advanced research themes
- hire excellent staff members, able to participate in multiple research projects
- stimulate the interaction with excellent math groups, both in public research institutions and industry, and transform the Department into a strategic asset for the development of highly advanced mathematics and its application to specific problems
- increase the international visibility of the Department
 - improve the Master and PhD Programs in Mathematics
- intensify the spreading of Math Culture

See the web page of the project MATH@TOV: <http://www.mat.uniroma2.it/Progetto/>

Since April 2020 the former P.I. of the project
Prof. A. Celletti is member
of the ANVUR governing council.
She has been succeeded by the new P.I.
Prof. D. Marinucci.

Recruitment



The MIUR Excellence Grant (CUP E83C18000100006, 2018-2022), awarded to the Mathematics Department of the University of Rome Tor Vergata (project MATH@TOV), provides funds for Assistant and Associate Professorships as well as for Postdoc Positions.

Professorships

- The following “Tenure-Track” Assistant Professorships (RTD-B) selection procedures are in progress:
 - 1 position in Probability and Mathematical Statistics (Settore concorsuale 01/A3 - Settore Scientifico Disciplinare MAT/06)

http://web.uniroma2.it/module/name/Content/newlang/italiano/action/showpage/navpath/CON/content_id/79316/section_id/6206

The position is for three years and, after evaluation, can be converted in tenured Associate Professorships; it will be awarded through a public competition. Applicants must have at least three years of experience after PhD completion, and an already established research record. Selection procedures are in progress. More information will appear soon on <http://www.mat.uniroma2.it/Progetto/recruitment.php>

We also congratulate:

- Dr. Lhotka Christoph Heinrich, winner of the “Tenure-Track” Assistant Professor (RTD-B) position in Mathematical Physics (Settore concorsuale 01/A4 - Settore Scientifico Disciplinare MAT/07).

Call of interest

The Department of Mathematics at the University of Rome Tor Vergata invites expressions of interest for Senior (Tenure-Track) Assistant Professor ('RTD-B') and Tenured Associate Professor positions in the following area of Pure and Applied Mathematics:

- Data Analysis, Statistics and Machine Learning,
- Historical and pedagogical aspects of mathematics,

- Numerical optimization with special focus on big data and machine learning applications.

For more details please see http://www.mat.uniroma2.it/Docs_avvisi/call-of-interest.pdf

Postdoc positions

- The following Postdoc positions selection procedures are in progress:
 - 1 (one-year) Postdoc position (Assegni di Ricerca - III Fascia) in Mathematical Analysis (Settore concorsuale 01/A3 - Settore Scientifico Disciplinare MAT/05) – Title: “Controllo di equazioni a derivate parziali con applicazioni ai modelli climatologici”
 - 1 (one-year) Postdoc position (Assegni di Ricerca - III Fascia) in Mathematical Analysis (Settore concorsuale 01/A3 - Settore Scientifico Disciplinare MAT/05) – Title: “Algebre di operatori e applicazioni alla teoria dei campi sullo spaziotempo quantistico”
 - 1 (one-year) Postdoc position (Assegni di Ricerca - III Fascia) in Mathematical Analysis (Settore concorsuale 01/A3 - Settore Scientifico Disciplinare MAT/05) – Title: “ C^* algebre associate ai gruppi p -adici, Bi-esattezza e dinamica topologica”

For more details please see <http://concorsionline.uniroma2.it>.

We also congratulate:

- Dr. Roberto Fringuelli, winner of the (two-years) Postdoc position (Assegni di Ricerca - III Fascia) in Geometry (Settore concorsuale 01/A2 - Settore Scientifico Disciplinare MAT/03).

Research



Thematic Semesters

During the period January 2020 - June 2020, MATH@TOV organized a thematic semester with a series of seminar talks on the following main areas (cf. also <http://www.mat.uniroma2.it/Progetto/short-visit.php>):

Operator Algebras and Quantum Field Theory

- Among others, we mention the talks of Y. Navoi (University of Sydney, Australia), M. Mueger (Nijmegen, Holland), Y. Naqvi (University of Sydney, Australia), P. Grossman (University of Sydney, Australia), M. Reineke (RUHR Universität, Bochum), Y. Kawahigashi (University of Tokyo).

Holomorphic dynamics and geometry of complex manifolds and spaces, and their interplay

- Among others, we mention the talks of Y. Kozitsky (Lublin, Polonia), G. Bharali (Indian Institute of Science), F. Larusson (Adelaide).

Mathematical techniques for Earth and Space Science

- Among others, we mention the talks of G. Polenta (A.S.I. Italian Space Agency), A. Boscaggin (University of Turin), C.Q. Cheng (University of Nanjing, China), L. Valvo (C. P. T. Luminy), A. Bach (Technisches Universität, Munich), C. Gales (University A.I. Cuza, Iasi, Romania), C. Efthymiopoulos (Academy of Athens and University of Padova), A. Marigonda (University of Verona), T. Scarinci (University of Vienna), R. Ruggiero (P.U.C. - Rio de Janeiro), V. Barutello (University of Turin), A. Procacci (Belo Horizonte), B. Pelloni (Heriot-Watt University, UK), T.M. Seara (UPC Barcelona), J. Gimeno (CRM Barcelona), M. Viana (IMPA Rio de Janeiro), M. Ghil (ENS & PSLU Paris and UCLA Los Angeles).

PDE's of Liouville type in Physics and Geometry

- Among others, we mention the talks of C. Bandle (University of Basel), M. Del Pino (University of Bath), M. Mayer (University of Rome "Tor Vergata"), M.J. Esteban (Université de Paris-Dauphine).

Algebraic Geometry

- Among others, we mention the talks of M. A. de Cataldo (Stony Brook), R. Schwartz (Brown University), A. L. Knutsen (University of Bergen, Norway), P. Dlotko (Swansea University), L. Caporaso (University of Rome “Tre”).

Numerical analysis - aeronautic and aerospace design

- Among others, we mention the talks of J. Peters (University of Florida, USA), J. Zhang (Carnegie Mellon University, USA), T. Lyche (University of Oslo, Norway).

Probability theory and statistics - data analysis in cosmology

- Among others, we mention the talks of A. Lerario (SISSA, Trieste), D. Marinucci (University of Rome “Tor Vergata”), M. Gordina (University of Connecticut).

Conferences and Workshops

MATH@TOV is funding a wide activity of conferences/workshops/advanced lecture series/schools. Recent and next events are listed below.

- **Lecture – “Varieties of varieties after Mirzakhani”**

Link: <http://www.mat.uniroma2.it/may12.php>

Venue and Period: Dept. Math. University of Rome “Tor Vergata”, Italy 09/06/2020

Speaker: Lucia Caporaso (University of Rome “Tre”)

Organising Committee: Martina Lanini, Domenico Marinucci, Alfonso Sorrentino, Elisabetta Strickland.

Joint seminars series A.S.I. – Mathematics Department

The Department of Mathematics and the Italian Space Agency organize a joint seminar series in the frame of Excellence Project. The first scheduled seminars has been held on January 9, 2020. This activity has been suspended due to the Covid-19 crisis, but it will restart after the summer in a blended (remotely/ in presence) modality.

<http://www.mat.uniroma2.it/Progetto/seminars.php>

Publications

Publications realized, within the excellence Department project MATH@TOV, by members of the Department and their co-authors are listed in the web-page

<http://www.mat.uniroma2.it/Progetto/publications.php>

High level teaching activities



Some MATH@TOV funds have been employed to tackle the economic and social emergency caused by the COVID-19 pandemic. More precisely, the Department has financed the following loans and special prizes for enrolments during the AY 2020/2021:

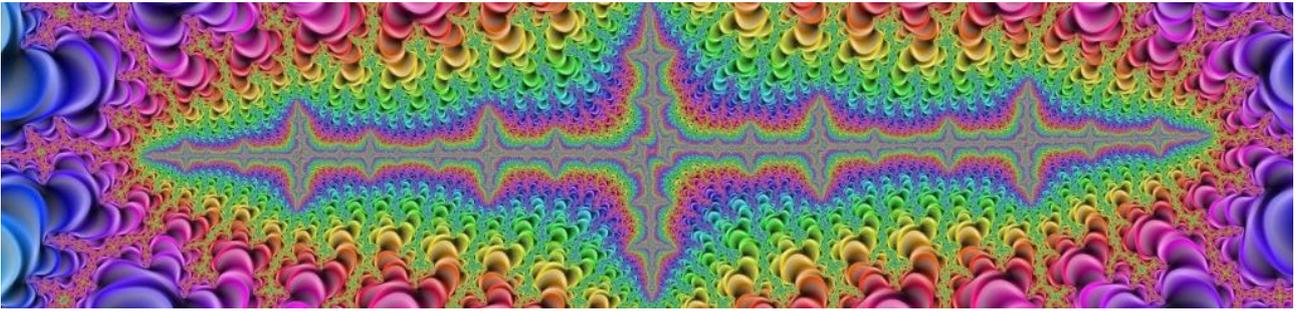
- Free loans of computers, webcams and internet connection devices, to be assigned to students who need it to take online courses and online exams. Those who need such support can request it, in a completely confidential way.
- Special prizes for a total of 22,500 euros for students enrolled in the AY 2020/21 of the Master's Degree Course in Pure and Applied Mathematics.
- All prizes have variable amounts starting from 1,000 euros and are in addition to those announced annually for deserving students of the Master's Degree.

PhD School in Mathematics - Courses

Special courses for the Ph.D. School in Mathematics, to be held in the period March 2020 - June 2020, organized within the excellence Department project MATH@TOV are the following:

- Prof. P. Dlotko (Swansea University)
 - "Topological data analysis"
- Prof. B. McKay (UCC Cork)
 - "Exterior differential systems" (**anceled**)
- Prof. R. Farouki (University of California, Davis)
 - "Pythagorean-Hodograph curves" (**anceled**)
- Prof. U. Tilman (University of Oxford)
 - " Topological data analysis " (**postponed**)
- Prof. M. Yamamoto (University of Tokyo)
 - "Carleman Estimates for Partial Differential Operators with Application to Inverse Problems for Hyperbolic systems" (**anceled**)
- Prof. J.M. Ball (Heriot-Watt University Hong Kong)
 - "Phase Transformations, Incompatibility and Microstructure" (**anceled**)
- Prof. D. Toshniwal (TU Delft)
 - " Structure Preserving Discretizations" (**postponed**)

General Activities



MATH@TOV is also meant to fund renovations of rooms/laboratories of the Department, acquisition of modern equipment, research books, etc. The list below covers some of the activities in the first two years of the project.

At the beginning of July we installed in our computer center two HP ProLiant servers and a HP MSA Shared storage system. After installing a virtual system that rests on the hardware platform made up of the mentioned objects, the HP ProLiant computers will replace the current axp server (web + mail) which has been operating since 2014; they will also be able to provide other useful services for advanced teaching.