TOR VERGATA
UNIVERSITÀ DEGLI STUDI DI ROMA

Department of Mathematics
University of Rome Tor Vergata

MATH@TOV
Excellence Project 2018-2022
NEWSLETTER
N°11 October – December 2020

Edited by: D. Bartolucci and M. Abundo, L. Arosio, L. Caramellino, T. D'Aprile, F. Flamini, E. Gandola, C. Garoni.

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

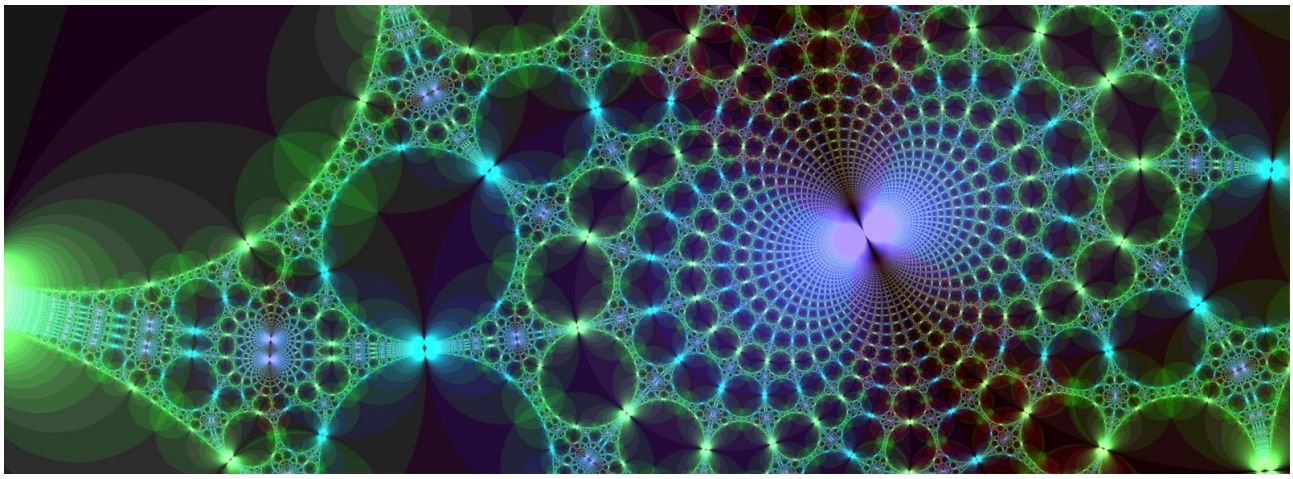
The Department aims to increase its leading role in research, math education and math culture. The recently awarded national Excellence Project 2018-2022, denoted by MATH@TOV, offers the opportunity to face new challenges, and its main objectives are:

- 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.
The Department would like to express his warmest thanks to Prof. A. Celletti for Her invaluable effort in the project planning and development.
She has been succeeded by the new P.I.
Prof. D. Marinucci.

Recruitment



The MIUR Excellence Grant (CUP E83C18000100006, 2018-2022), awarded by 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 procedure is in progress:

- 1 position in Algebra (Settore concorsuale 01/A2 - Settore Scientifico Disciplinare MAT/02)

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

Postdoc positions

The following Postdoc positions selection procedures are in progress:

• 1 (one-year) Postdoc position (Assegni di Ricerca - III Fascia) in Mathematical Physics (Settore concorsuale 01/A4 - Settore Scientifico Disciplinare MAT/07) – Title: "Metodi operatoriali per sistemi quantistici a un numero infinito di gradi di libertà"

• 1 (one-year) Postdoc position (Assegni di Ricerca - I Fascia) in Geometry (Settore concorsuale 01/A2 - Settore Scientifico Disciplinare MAT/03) – Title: "Dinamica Olomorfa e Analisi Complessa"

• 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 Teoria Quantistica dei Campi"

• 1 (one-year) Postdoc position (Assegni di Ricerca - III Fascia) in Mathematical Analysis (Settore concorsuale 01/A3 - Settore Scientifico Disciplinare MAT/05) – Title: "Omogeneizzazione di problemi variazionali non-locali"

• 1 (one-year) Postdoc position (Assegni di Ricerca - II Fascia) in Geometry (Settore concorsuale 01/A2 - Settore Scientifico Disciplinare MAT/03) – Title: "Geometria Algebrica"

• 1 (one-year) Postdoc position (Assegni di Ricerca - I Fascia) in Mathematical Physics (Settore concorsuale 01/A4 - Settore Scientifico Disciplinare MAT/07) – Title: "Teoria KAM sulla stabilità dei sistemi planetari

caratterizzati da ampie eccentricità”

• 1 (one-year) Postdoc position (Assegni di Ricerca - I Fascia) in Algebra-Geometry (Settore concorsuale 01/A2 - Settore Scientifico Disciplinare MAT/02-MAT/03) – Title: “Teoria di Lie, Teoria delle Rappresentazioni e loro aspetti geometrici ”

See http://concorsionline.uniroma2.it

We also congratulate:

• Dr. Jacopo Bassi, winner of the (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-esatezza e dinamica topologica”

Research

Thematic Semesters

During the period January 2020 - December 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 (CPT Luminy), A. Bach (Technische 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), M. Maggioni (Leiden, Netherlands), F. Pène (Université de Bretagne Occidentale), A.P. Bustamante (Georgia I.T.), S. Daneri (G.S.S.I.), B. Kumar (Georgia I.T.), E. Marchini (Politecnico di Milano), G. Benedetti (Ruprecht-Karls Universität), G. Pucacco (University of Rome "Tor Vergata").

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), C. Alvez (Universidade Federal de Campina Grande), V. Moroz (Swansea University).

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"), A. Okunkov (Columbia University).

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), E. DeVito (University of Genova), P.Pigato (University of Rome "Tor Vergata", Minicourse on "Fractional Brownian Motion"), E. Persichetti (Florida Atlantic University).

Conferences and Workshops

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

Seminars on machine learning and topological data analysis

This is a mini series of seminars given by young researchers who answered to the July call of interests.

October 8th : S. Vigogna (University of Genova)
October 9th : A. Troiani (University of Padova)
October 12th : N. Otter (University of California at Los Angeles)

Link: http://www.mat.uniroma2.it/Progetto/seminars.php

Colloquia

The seminars are online. We use the Teams platform.

November 5th : F. Catanese (University of Bayreuth)

Link: http://www.mat.uniroma2.it/Progetto/seminars.php

Complex Analysis Seminars

The seminars are online. We use the Teams platform.
Link: https://sites.google.com/view/complex-analysis-seminar/home-page

Organizers:
Filippo Bracci (University of Rome "Tor Vergata")

Marco Peloso (University “Statale di Milano”)
Nicola Arcozzi (University of Bologna)

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.

Mini-Workshop A.S.I. – DeCifris – Tor Vergata: Cybersecurity

Date: November 20, 2020
The talks will be held online. The links will be available on the Department of Mathematics web page and on the Linkedin channel of the DeCifris society.
Links: https://www.mat.uniroma2.it/,
https://www.linkedin.com/in/de-componendis-cifris-iniziativa-nazionale-8274501a5/

Organizers:
Domenico Marinucci (University of Rome “Tor Vergata”)
Giulio Codogni (University of Rome “Tor Vergata”)

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

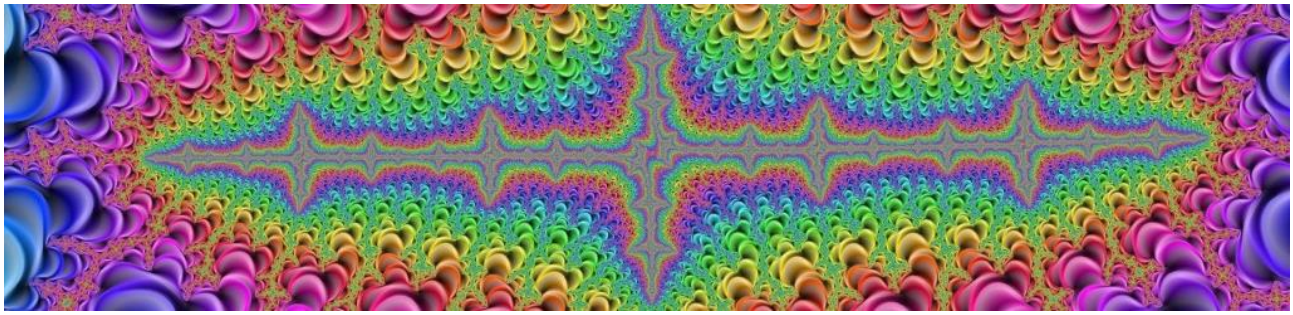
MATH@TOV funded 5 degree prizes, for an amount of 2,000.00 euros each, for master's graduates in Pure and Applied Mathematics at Tor Vergata from July 2019 to April 2020. The award was aimed at master's theses satisfying at least one of the following conditions: a significantly original result; an efficient implementation and/or a particularly significant numerical experimentation; a clear and in-depth presentation of highly significant results.
The competition is now over and the following master's graduates have been awarded:

- Francesco DEANGELIS: “A free boundary problem arising in the theory of binary fluids”
- Damiano D'ADDEZIO: “Gromov hyperbolicity in several complex variables”
- Irene DE BLASI: “Stability estimates for the satellites’ motion”
- Claudio FABRONI: “Abelian covering Champ”
- Alessio RANALLO: “On the dimension for non simple bimodules of Von Neumann Algebras”

PhD School in Mathematics - Courses

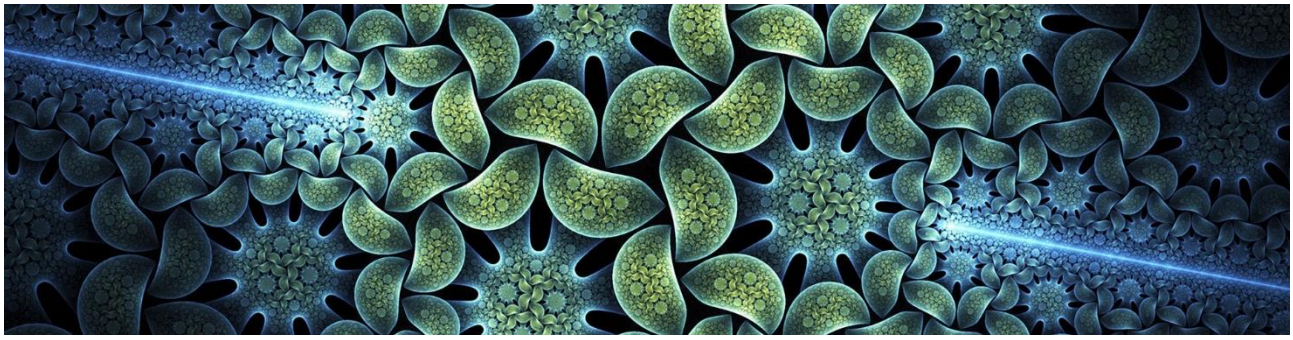
Due to the Covid-19 emergency, special courses for the Ph.D. School in Mathematics given by visiting scholars, to be held in the period September 2020 - March 2021 and organized within the excellence Department project MATH@TOV, will probably be delivered online or postponed.
More info at the Ph.D. web-page http://www.mat.uniroma2.it/%7Edott/corsi.html.

General Activities



Funds from MATH@TOV project have been used to renovate the department's classrooms with supplies suitable for dealing with the COVID emergency. In particular, the classrooms have been equipped with furniture appropriate to physical distancing (for example new seats) and with up-to-date computer equipments for the remote transmission of seminars and master's degree lectures.

Third mission



Meeting and training activities “Liceo Matematico” started again.
The Department collaborates with four schools, in coordination with other universities in Lazio and with the reference group of the Italian Mathematical Union. Six different projects dedicated to high school students called "Percorsi per le competenze trasversali" were started.