



Instituto Superior Técnico



Center for Mathematical Analysis,
Geometry, and Dynamical Systems

Report 2014

February 2015

Contents

1	Research Projects and Special Grants	3
2	Visitors	10
3	Seminar Series & Working Seminars	15
3.1	Algebra	15
3.2	Analysis, Geometry, and Dynamical Systems	15
3.3	Geometria em Lisboa	16
3.4	Informal Geometry Seminar	17
3.5	LARSyS Lecture Series in Engineering and Mathematics	18
3.6	Operator Theory, Complex Analysis and Applications	18
3.7	Partial Differential Equations	18
3.8	String Theory	20
3.9	Topological Quantum Field Theory	21
4	Conferences and short courses	22
5	Seminars given by members of the Center	26
6	Postdoctoral program and research fellows	35
7	Doctoral supervision	38
8	Publications in 2014	39
8.1	Publications which appeared in 2014	39
8.2	Accepted publications (submitted or accepted in 2014)	48
8.3	Manuscripts submitted (but not yet accepted) in 2014	54
9	Partnership and outreach	57
10	Personal notes	58

1 Research Projects and Special Grants

The following research projects were coordinated by members of the Center in 2014:

Asymptotic study of reaction-diffusion systems with competition terms

(Started: 2/7/2014, duration 50 months)

Funding agency: Fundação para a Ciência e a Tecnologia

Reference: Exploratory research project associated to the "FCT Investigator" Program, Ref. IF/00584/2012

Researcher: Hugo Ricardo Nabais Tavares

Number of Participants: 1

The main aim of this project is to understand and characterize the solutions of a certain type of elliptic systems with competition terms. The questions addressed are the existence and multiplicity of solutions, its qualitative properties (symmetry, sign, regularity,...) and an asymptotic study when the competition becomes the prevailing phenomenon. Another aim is to show the connection between these systems and shape optimization problems.

Brazilian-European Partnership in dynamical systems

(Started 01/01/2013, duration 4 years)

Funding agency: EU - Marie Curie Action IRSES

Reference: PIRSES-GA-2012-318999

Coordinator: Jeroen S. W. Lamb (Imperial College)

Coordinator at IST: Miguel Abreu

Number of Participants: 21 european partners and 11 brazilian partners

CMU | Portugal: ICTI Program in Applied Mathematics

Funding agency: Fundação para a Ciência e a Tecnologia

The Center for Mathematical Analysis, Geometry, and Dynamical Systems is one of the participating research units in this cooperation program between portuguese institutions and the Carnegie Mellon University.

CoLab Program UT Austin | Portugal

Funding agency: Fundação para a Ciência e a Tecnologia

The Center for Mathematical Analysis, Geometry, and Dynamical Systems is one of the participating research units in this cooperation program between portuguese institutions and the University of Texas at Austin.

Contact and symplectic topology

(Started January 27, 2010, duration 60 months)

Funding agency: European Science Foundation (Research Networking Programme)

Reference: CAST

Member of Steering Committee in Portugal: Sílvia Anjos

Other Members in the Steering Committee: Frédéric Bourgeois – Programme Chair, Vincent Colin, Kai Cieliebak, András Stipsicz, Michael Entov, Paolo Lisca, Robert Vandervorst, Aleksy Tralle, Francisco Presas, Tobias Ekholm, Felix Schlenk, Ivan Smith

The goal of this network is to stimulate exchange between researchers from all branches of contact and symplectic topology, in order to create a comprehensive perspective on the field and make progress on some of the basic open questions. The European scale of the network reflects the global nature of these questions as well as the European strength in the subject. The planned activities include workshops, research collaborations, and the exchange of PhD students and postdocs.

The research themes of CAST include: Fukaya categories and mirror symmetry, Floer homology and Hamiltonian dynamics, Symplectic field theory, Contact Topology, Complex geometry and Stein manifolds, Topology of symplectic manifolds, Groups of symplectomorphisms and contactomorphisms.

Degenerate elliptic and parabolic equations and its applications to front propagation

(Started 10/8/2011, duration 36 months)

Funding agency: Fundação para a Ciência e a Tecnologia

Reference: UTA_CMU/MAT/0007/2009

Principal investigator: Diogo Gomes

Number of participants: 16

The main goals of the project are the study of pde's arising in front propagation, namely degenerate elliptic and parabolic equations, their application to concrete problems such as ocean fronts, and the development of numerical tools for the analysis of inverse problems in front propagation. We foresee that the developed techniques will be of interest for other problems also, such as mathematical finance, non-linear filtering, classical mechanics (Aubry-Mather theory and its extensions), mathematical biology, mean field games, homogenization and stochastic pde's.

Geometry and Mathematical Physics Project

(Started 01/05/2013, duration 3 years)

Funding agency: Fundação para a Ciência e a Tecnologia

Reference: EXCL/MAT-GEO/0222/2012

Principal investigator: Miguel Abreu

Number of participants: 30

This project aims at fostering the interaction of research in Geometry and Mathematical Physics within the Department of Mathematics of IST and throughout the country, through the stimuli for interaction among researchers, the reinforcement of international connections, the attraction of post-docs and doctoral students, and the organization of seminars, short courses and international meetings.

Geometry of quantization

(Started 1/1/2012, duration 36 months)

Funding agency: Fundação para a Ciência e a Tecnologia

Reference: PTDC/MAT/119689/2010

Principal investigator: José Mourão

Number of participants: 11

Study of the dependence of quantization on the choice of polarization, in the new formalism provided by the distributional approach to the prequantum bundle over families of complex structures. In this formalism, it is possible to include real and mixed nonnegative polarizations as points in the boundary of the space of complex structures.

Hamiltonian Actions and Integrability in Geometry and Topology

(Started 03/2012, duration 36 months)

Funding agency: Fundação para a Ciência e a Tecnologia

Reference: PTDC/MAT/117762/2010

Principal investigator: Miguel Abreu

Number of participants: 17

Devoted to certain global aspects of symplectic, contact and Poisson geometries, where Hamiltonian actions and integrability questions are relevant. These aspects include: Kaehler metrics invariant under Hamiltonian group actions; topology of certain Hamiltonian diffeomorphism groups; non-commutative integrable systems; polygon spaces and moduli spaces of bordered Riemann surfaces; Lagrangian intersection problems; Hamiltonian diffeomorphism groups of Poisson manifolds; complex hypersurfaces.

Higgs bundles and character varieties

(Started 3/2012, duration 36 months)

Funding agency: Fundação para a Ciência e a Tecnologia

Reference: PTDC/MAT/120411/2010

Principal investigator: Carlos Florentino

Number of participants: 6

This project deals with the geometry and topology of two classes of intimately related spaces: on one side, we have the moduli spaces of Higgs bundles or other holomorphic objects over a complex manifold, and on the other side we have character varieties, which are moduli spaces of representations of a finitely generated group into a Lie group.

In this project, we plan to address some of the facets of this profitable connection that are still undeveloped. Our approach will be a natural continuation of many important established results that were obtained in recent years by many mathematicians, including results from members of the project.

Phase Transitions and Free Boundary Problems

(Started 9/2014, duration 24 months)

Funding agency: FCT (through CoLab Program at UT Austin)

Coordinator at IST: Juha Videman.

Number of participants: 10

Phase transitions and free boundary problems cover a wide range of applications, from segregation dynamics to the evolution of fluid liquid interfaces, tumor growth, ground pollution invasion with obstacles, gas, water and oil flow in porous media and adsorption processes in subsurface environments. This project brings together a significant effort of applied non-linear analysts and numerical and scientific computing experts in the areas of non-linear and non-local Partial Differential Equations. A close synergy between analysts and numerical experts is crucial for its success, which requires the development of new and non-standard numerical techniques for modeling the phenomena under study

Portuguese Algebraic Geometry Community

(Started 25/1/2013, duration 24 months)

Funding agency: Fundação para a Ciência e a Tecnologia

Reference: PTDC/MAT-GEO/0675/2012

Principal investigator: Margarida Mendes Lopes

Number of participants: 15

This project aims to promote the interaction between algebraic geometers in Portugal and is focused on problems linked to moduli spaces and classification of objects of algebraic geometry.

Representations of Operator Algebras and Applications

(Started 25/5/2013, duration 24 months)

Funding agency: Fundação para a Ciência e a Tecnologia & CNRST-Morocco

Reference: P^o 441.00 CNRST - MOROCCO

Principal investigator: Paulo Pinto

Number of participants: 7

This project aims to promote the bilateral cooperation between researchers in Portugal and Morocco and is focused on problems linked to operator algebras and their relations with dynamical systems and mathematical physics.

Research Chair in String Theory

(started 01/10/2009, duration 60 months)

Funding agency: Fundação para a Ciência e a Tecnologia and IST

Researcher: Gabriel Lopes Cardoso

Gabriel Lopes Cardoso holds the Invited Research Chair on Mathematical Physics & String Theory. The main research goals are in the area of String Theory, with very strong links to Mathematical Physics, Geometry and Topology. This is a most promising venue for future research, lying at the interface between Mathematics and Theoretical Physics, and with proven major contributions to both fields.

Stability of nonautonomous dynamical systems

(Started 03/2012, duration 36 months)

Funding agency: Fundação para a Ciência e a Tecnologia

Reference: PTDC/MAT/117106/2010

Principal investigator: Claudia Valls

Number of participants: 3

The main objective of the project is to pursue several directions of research in dynamical systems and differential equations, with emphasis on the study of stability of nonautonomous dynamics, particularly in the presence of nonuniform hyperbolicity, and on the qualitative study of polynomial vector fields and equations of mathematical physics, including their integrability.

Toeplitz Operators and Riemann-Hilbert problems: at the crossroad of operator theory and complex analysis

(Started 1/2/2012, duration 36 months)

Funding agency: Fundação para a Ciência e a Tecnologia

Reference: PTDC/MAT/121837/2010

Principal investigator: Maria Cristina Câmara

Number of participants: 3

The central object of this project is the interplay between Toeplitz operators and Riemann-Hilbert problems. It aims to study various properties of Toeplitz operators and to develop new methods to solve Riemann-Hilbert problems that arise in many areas in mathematics, as well as in connection with a variety of problems in Physics and Engineering, showing that progress in one topic goes hand in hand with progress in the other.

2 Visitors

The following researchers visited the Center in 2014:

Sheila Sandon, Université de Nantes, January 1-31.

Mehmet Haluk Sengun, Warwick University, January 7-11 .

Nuno Freitas, University of Bayreuth, January 7-11.

Maria Amélia Salazar, Utrecht University, January 11-19.

Thomas Mohaupt, University of Liverpool, January 12-18.

Gianguido Dall'Agata, University of Padova, January 15-17.

K.R. Rajagopal, Texas A&M, January 22-27.

Leonardo Macarini, UFRJ, Rio de Janeiro, January 20 - February 4.

Matthew Strom Borman, Stanford University, January 25 - February 2.

Andras Stipsicz, Rényi Institute, Budapest, January 29 - February 1.

Paul Biran, ETH Zürich, January 29 - February 1.

Jonathan Evans, University College London, January 29 - February 1.

António de Nicola, Universidade de Coimbra, January 29 - February 1.

Guillem Cazassus, Université de Toulouse, January 29 - February 1.

Agata Chorowska, University of Wroclaw, January 29 - February 1.

Yang Huang, Max Planck Institute, Bonn, January 29 - February 1.

Fabian Kirchner, University of Hamburg, January 29 - February 1.

Thomas Baier, University of Porto, January 29 - February 1.

Ana Lecuona, ENS Lyon, January 29 - February 2.

Marco Mazzucchelli, University d'Aix Marseille, January 29 - February 2.

Emmy Murphy, MIT, January 29 - February 2.

Frédéric Bourgeois, Université Paris-Sud, January 29 - February 2.

Vincent Colin, Université de Nantes, January 29 - February 2.

Jaroslav Kedra, University of Aberdeen, January 29 - February 2.

Félix Schlenk, University de Neuchâtel, January 29 - February 2.

Aleksy Tralle, University of Warmia and Mazury, Poland, Jan 29 - Feb 2.

Alexandru Oancea, IMJ Paris, January 29 - February 2.

Dietmar Salamon, ETH Zurich, January 29 - February 2.

Claude Viterbo, ENS Paris, January 29 - February 2.

Frol Zapolsky, University of Haifa, January 29 - February 2.

Sylvain Courte, ENS Lyon, January 29 - February 2.
Hamou Mohammed Dida, University of Saida, Algeria, Jan 29 - Feb 2.
Fouzi Hathout, University of Saida, Algeria, January 29 - February 2.
Oldrich Spacil, University College London, January 30 - February 2.
Jacquiline Espina, University College London, January 29 - February 2.
Hélène Eynard-Bontems, Univ. Pierre et Marie Curie, Jan 29 - Feb 2.
David Frenkel, Université de Neuchâtel, January 29 - February 2.
Marco Gola, Renyi Institute, Budapest, January 29 - February 2.
Felix Hensel, ETH Zürich, January 29 - February 2.
Johannes Huster, University of Hamburg, January 29 - February 2.
Nassima Keddari, Université de Strasbourg, January 29 - February 2.
Clémance Labrousse, Université Paris-Dauphine, January 29 - February 2.
Maylis Limouzineau, Institut de Mathématiques de Jussieu, Jan 29 - Feb 2.
Kathrin Naef, ETH, Zurich, January 29 - February 2.
Simon Schatz, Université de Strasbourg, January 29 - February 2.
Dmitry Tonkonog, University of Cambridge, January 29 - February 2.
Igor Uljarevic,ETH Zürich, January 29 - February 2.
Raphael Wullschlegel, Université de Neuchâtel, January 29 - February 2.
Gabriele Benedetti, University of Cambridge, January 29 - February 2.
Akram Sheikh Alishshi, Max Planck Inst., Bonn, January 29 - February 2.
Naeem Alkoumi, University of Neuchatel, January 29 - February 2.
Hatice Coban, Middle East Technical University, Ankara, Jan 29 - Feb 2.
Wojciech Domitrz, Warsaw University of Technology, Jan 29 - Feb 2.
Jovana Djuretic, University of Belgrade, January 29 - February 2.
Thomas Hockenhull, Universidade do Porto, January 29 - February 2.
Jalena Katic, University of Belgrade, January 29 - February 2.
Guogang Liu, Université de Nantes, January 29 - February 2.
Maksim Maydanskiy, UPMC/Paris 6, January 29 - February 2.
António Rieser, Technion-Israel Institute of Technology, Jan 29 - Feb 2.
Gilberto Spano, Université de Nantes, January 29 - February 2.
Sonja Hohloch, EPFL, Lausanne, January 29 - February 8.
Rémi Leclercq, Université d'Orsay, January 29 - February 9.
John Pardon, Stanford University, January 30-31.

Mahendra Panthee, Universidade Estadual de Campinas, February 10-14.
Bernold Fiedler, Free University of Berlin, February 15-26.
Chris Mulvey, University of Sussex, February 19-28.
André Neves, Imperial College, February 20.
William Kirwin, Universität zu Köln, March 3 - April 2.
Agnès Gadbled, Universidade do Porto, March 5-7.
Joel Fine, Université Libre de Bruxelles, March 10-12.
David Krejcirik, Nuclear Physics Institute, Czech Republic, March 10-15.
Rui Loja Fernandes, U Illinois at Urbana-Champaign, March 16-21.
Stefan Theisen, Max-Planck Institute, Golm, March 17-19.
Jon Keating, University of Bristol, March 17-19.
Zoran Škoda, University of Zagreb, March 17 - April 16.
Constantin Bachas, École Normale Supérieure, Paris, March 18-19.
Rosa Maria Miro-Roig, Universitat de Barcelona, March 23-27.
Gurgen Hayrapetyan, Carnegie Mellon University, March 24-28.
C. Martin Edwards, Queen's College Oxford, March 26 - April 2.
Mahendra Panthee, Universidade Estadual de Campinas, March 27-29.
Alessandro Zilio, Università degli studi di Torino, March 29 - April 3.
Oscar Garcia Prada, ICMAT, Barcelona, March 30 - April 3.
Ignasi Mundet i Riera, Universitat de Barcelona, April 1-3.
Lloyd Demetrius, Harvard University and MPI Berlin, April 3-16.
Andrea Fanelli, Imperial College, April 8.
Saber Elaydi, Trinity University, San Antonio, April 10-17.
Eduardo Balreira Cabral, Trinity University, San Antonio, April 10-17.
Alexandre Almeida, Universidade de Aveiro, April 28.
Daniel de la Fuente, Universidad de Granada, April 29.
Karim Kellay, Université Bordeaux I, May 2-7.
Hildebrando Rodrigues, Universidade de São Paulo (São Carlos), May 6-9.
Marc Rousset, ENSTA, France, May 9 - July 31.
Sara Tavares, University of Nottingham, May 11-17.
Daniel Persson, Chalmers University of Technology, May 12-14.
Alexandar Mikovic, Universidade Lusófona, May 12-17.
Alessandro Tomasiello, University of Milano-Bicocca, May 18-20.

Jonathon Funk, University of West Indies, Barbados, May 19-30.
 Rui Soares Barbosa, University of Oxford, May 19 - June 1.
 Paolo Bertozzini, Thammasat University, Thailand, May 21-28.
 Andreas Döring, Oxford University, May 23 - June 1.
 Youcef Mammeri, Université de Picardie Jules Verne, Amiens, June 11.
 Travis Willse, Australian National University, June 12-18.
 Ralph Blumenhagen, Max-Planck-Institute, Munich, June 15-17.
 Lennard Bakker, Brigham Young University, June 16-20.
 Marek Kosiek, Jagiellonian University, Poland, June 18-22.
 Ezzedine Chafai, Université de Sfax, Tunisia, June 18-22.
 Marek Ptak, Jagiellonian University, Poland, June 18-22.
 Boris Mityagin, The Ohio State University, USA, June 18-22.
 Emmanuel Fricain, Université Lille 1, June 18-22.
 Laszlo Kerchy, University of Szeged, Hungary, June 18-22.
 Petr Siegi, University of Bern, June 18-22.
 Franciamek Szafraniec, Jagiellonian University, Poland, June 18-22.
 Andreas Hartmann, Université Bordeaux I, June 18-22.
 Martin Mathieu, Queen's University Belfast, June 18-22.
 Siye Wu, Hong Kong University, June 19 - July 1.
 Bertrand Toën, Université de Montpellier 2, June 22-25.
 William Kirwin, Universität zu Köln, June 23-28.
 Jair Koiller, Fundação Getulio Vargas, Rio de Janeiro, June 22-28.
 Gautam Iyer, Carnegie Mellon University, June 29 - July 6.
 Fiammetta Battaglia, Università di Firenze, June 29 - July 6.
 Sameer Murthy, King's College London, June 30 - July 2.
 Emílio Franco, Univ. Estadual de Campinas, Brazil, June 30 - July 4.
 Claude Bardos, Univ. Paris-Diderot, June 30 - July 5.
 Yann Brenier, Ecole Polytechnique, June 30 - July 5.
 Owen Vaughan, University of Hamburg, July 20-24.
 Elvira Zappale, Università di Salerno, July 25 - August 1.
 Massimiliano Morini, Università di Parma, July 27 - August 3.
 Riccardo Scala, SISSA, Trieste, July 29 - August 2.
 Andrey Piatnitski, Narvik University College, July 29 - August 2.

Guy Bouchitté, Université du Sud-Toulon-Var, July 29 - August 2.
Maria Stella Gelli, Università di Pisa, July 29 - August 2.
Thomas Hudson, University of Oxford, July 30 - August 1.
Flaviana Iurlano, Universität Bonn, July 30 - August 2.
Marco Bonacini, Universität Heidelberg, July 30 - August 2.
Giles Shaw, University of Cambridge, July 30 - August 2.
Giuliano Lazzaroni, SISSA, Trieste, July 31 - August 1.
Michael Goldman, Max-Planck Institute, Leipzig, July 31 - August 1.
Riccardo Cristoferi, SISSA, Trieste, July 31 - August 1.
Giovanni Pisante, Seconda Università di Napoli, July 31 - August 1.
Luca Deseri, Università di Trento, August 18-23.
David Owen, Carnegie Mellon University, August 18-28.
Mihalis Dafermos, Univ. Cambridge and Princeton Univ., September 6-9.
Bernold Fiedler, Free University of Berlin, September 6 - October 12.
Marshall Slemrod, University of Wisconsin, Madison, September 13-20.
Dafydd Gwion Evans, Aberystwyth University, October 5-11.
László Lempert, Purdue University, October 7.
João Gomes, Cambridge University, October 19-21.
Alessia Mandini, University of Pavia, October 21.
Sergey Naboko, University of Kent, October 21 - November 3.
Álvaro Véliz-Osorio, University of Witwatersrand, October 22-29.
Sergey Naboko, University of Kent, October 22-30.
Abdelhamid Boussejra, Univ. Ibn Tofail, Kenitra, Marrocos, Nov 1-10.
Piotr Budzynski, University of Agriculture in Krakow, November 10-14.
Lala Mediha, University Hassan I, Marrocos, November 14-23.
Rachid El Harti, University Hassan I, Marrocos, Nov 14 - Dec 2.
Alba Grassi, University of Geneva, November 15-18.
Claes Ugglá, Karlstad University, November 15-21.
Ronald Zúñiga, Universidade do Porto, December 9.
Marco Morandotti, SISSA, Trieste, December 15-19.
Iva Halacheva, University of Toronto, December 16.

3 Seminar Series & Working Seminars

3.1 Algebra

Dec 16

Iva Halacheva. *University of Toronto.* Shift of Argument Algebras and the Cactus Group.

3.2 Analysis, Geometry, and Dynamical Systems

Apr 08

Lloyd Demetrius. *Harvard University and Max Planck Institute of Molecular Biology, Berlin.* An entropic selection principle of evolutionary theory.

Apr 23

Diogo Oliveira e Silva. *Hausdorff Center for Mathematics da Universidade de Bona.* On extremizers for Fourier restriction inequalities.

May 07

Hildebrando Rodrigues. *Universidade de São Paulo (São Carlos).* Synchronization and Applications.

Jun 17

Lennard Bakker. *Brigham Young University.* Open sets of diffeomorphisms with trivial centralizer in the C^1 topology.

Jun 24

Jair Koiller. *INMETRO and Applied Mathematics School, Fundação Getulio Vargas, Brazil.* Dynamic Markov-Dubins problem.

Jul 01

João Baptista. *Ministério da Educação e Ciência.* Mathematics in Portugal — Science and Higher Education Statistics.

Oct 07

Bernold Fiedler. *Free University of Berlin.* Chemical and metabolic networks: sense and sensitivity.

Nov 18

Claes Ugla. *Karlstad University.* Scalar field cosmology and dynamical systems.

Nov 25

Rachid El Harti. *University Hassan I, Settat, Morocco.* The Choquet boundary of amenable nonselfadjoint operator algebras.

Dec 16

Marco Morandotti. *SISSA, Trieste.* Homogenization of functionals with linear growth in the context of \mathcal{A} -quasiconvexity.

3.3 Geometria em Lisboa

Jan 07

Sheila Sandon. *CNRS/Nantes.* An analogue in contact topology of the Arnold conjecture on fixed points of Hamiltonian diffeomorphisms.

Jan 14

Maria Amélia Salazar. *Utrecht University.* Contact isotropic realizations of Jacobi manifolds.

Feb 04

Rémi Leclercq. *Université d'Orsay.* C^0 -rigidity in symplectic topology.

Feb 05

Sonja Hohloch. *École Polytechnique Fédérale de Lausanne.* Hyperkähler Floer theory as explicit Hamiltonian system.

Feb 20

André Neves. *Imperial College.* Applications of Almgren-Pitts Morse Theory.

Mar 06

Hassan Alishah. *CAMGSD.* Hamiltonian Multi-Matrix games.

Mar 11

Joel Fine. *Université Libre de Bruxelles.* Circle invariant definite connections and symplectic Fano 6-manifolds.

Apr 08

Andrea Fanelli. *Imperial College.* On the fibres of Mori fibre spaces.

Apr 15

Juan J. Salamanca. *Universidade de Córdoba.* Uniqueness for new Moser-Bernstein problems associated to some nonlinear equations.

May 27

Steven Willison. *CENTRA.* Gravity as a theory of embedded surfaces.

Jul 01

Emilio Franco. *UniCamp, Brasil.* Higgs bundles over elliptic curves.

Oct 07

László Lempert. *Purdue.* Quantizing a Riemannian Manifold.

Oct 21

Alessia Mandini. *University of Pavia.* On the Gromov width of polygon spaces.

Dec 09

Ronald Zúñiga. *Faculdade Ciências, Universidade do Porto.* Stratifications on the Moduli Space of Higgs Bundles.

3.4 Informal Geometry Seminar

Feb 18

Alfonso Zamora. *Instituto Superior Tecnico.* GIT and symplectic stability(I).

Feb 25

Alfonso Zamora. *Instituto Superior Tecnico.* GIT and symplectic stability(II).

Mar 04

Alfonso Zamora. *Instituto Superior Tecnico.* GIT and symplectic stability(III).

Mar 11

Joel Fine. *Université Libre de Bruxelles.* Einstein's equations in 4-dimensional Riemannian geometry.

Sep 03

Aleksandra Perisic. *Instituto Superior Técnico.* On displaceability of pre-Lagrangian toric fibers in toric contact manifolds.

Oct 14

Milena Pabiniak. *Instituto Superior Tecnico.* Arnold Conjectures and introduction to the generating functions technique.

Oct 21

Milena Pabiniak. *Instituto Superior Tecnico.* Arnold Conjectures and introduction to the generating functions technique (II).

Nov 25

Aleksandra Perisic. *Instituto Superior Tecnico.* Symplectic fillability of toric contact manifolds in higher dimensions.

Dec 09

Ronald Zúñiga. *Universidade do Porto.* Topics on moduli space of Higgs bundles.

3.5 LARSyS Lecture Series in Engineering and Mathematics

Jan 23

K. R. Rajagopal. *Texas A&M University.* The mechanics and mathematics of bodies described by implicit constitutive equations.

3.6 Operator Theory, Complex Analysis and Applications

Feb 13

Cristina Câmara. *Instituto Superior Técnico.* Riemann-Hilbert problems, Toeplitz operators and Q -classes.

Mar 13

David Krejcirik. *Nuclear Physics Institute ASCR, Czech Republic.* Pseudospectra in non-Hermitian quantum mechanics.

Apr 28

Alexandre Almeida. *Universidade de Aveiro.* Integral operators and elliptic equations in variable exponent Lebesgue spaces.

May 06

Karim Kellay. *Université Bordeaux I, France.* Sampling, interpolation and Riesz bases in the small Fock spaces.

Oct 07

Gwion Evans. *Aberystwyth University.* Characterising Higher-Rank Graph C^* -Algebras.

Oct 28

Sergey Naboko. *The University of Kent.* Spectral analysis of Jacobi operators generated by Markov Birth and Death Processes.

Nov 07

Abdelhamid Boussejra. *University Ibn Tofail, Kenitra, Morocco.* Poisson integrals on Riemannian Symmetric Spaces.

Nov 11

Piotr Budzynski. *University of Agriculture in Krakow.* Invitation to weighted shifts on directed trees.

3.7 Partial Differential Equations

Jan 23

K. R. Rajagopal. *Texas A&M University.* The mechanics and mathematics of bodies described by implicit constitutive equations.

Jan 31

Nicolas van Goethem. *SISSA, Trieste.* Dislocations at the continuum scale: current formalism and constraint reaction.

Feb 13

Mahendra Panthee. *UNICAMP, Universidade Estadual de Campinas.* Higher-order Models for Unidirectional Water Waves.

Mar 26

Gurgen Hayrapetyan. *Carnegie Mellon University.* Stability of bilayer interfaces in amphiphilic systems.

Apr 02

Alessandro Zilio. *Università degli studi di Torino.* Entire solutions with exponential growth for an elliptic system arising in phase separation.

Apr 09

Juliana Fernandes. *Instituto Superior Técnico.* A permutation encoding the connecting orbit structure of slowly non-dissipative systems.

Apr 29

Daniel de la Fuente. *Universidad de Granada* Radially symmetric spacelike graphs with prescribed mean curvature function in certain Robertson-Walker spacetimes.

Jun 04

Hugo Tavares. *Instituto Superior Técnico.* Existence and regularity of solutions to optimal partition problems involving Laplacian eigenvalues.

Jun 11

Youcef Mammeri. *Université de Picardie Jules Verne.* Unique continuation property of solutions of the Kadomtsev-Petviashvili equations.

Aug 20

David Owen. *Carnegie Mellon University.* Elasticity with Disarrangements.

Aug 20

Luca Deseri. *Università di Trento.* Theoretical and Applied Mechanics: Receptor Binding and Triggered Mechanical Effects in the Cell Membrane.

Sep 08

Mihalis Dafermos. *Cambridge and Princeton Universities.* Mathematical Analysis of Black Hole Spacetimes in General Relativity.

Sep 16

Marshall Slemrod. *University of Wisconsin at Madison.* Hilbert's 6th Problem Revisited.

Oct 29

Joaquim M. C. Correia. *Universidade de Évora.* Vanishing viscosity-capillarity method.

3.8 String Theory

Jan 13

Thomas Mohaupt. *University of Liverpool.* (Para-)Quaternion Kähler geometry from Supergravity (Part 1).

Jan 15

Thomas Mohaupt. *University of Liverpool.* (Para-)Quaternion-Kähler geometry from Supergravity (Part 2).

Feb 17

Jorge Rocha. *Instituto Superior Técnico.* Holographic collisions in confining theories.

Mar 19

Stefan Theisen. *Max-Planck-Institut für Gravitationsphysik, Golm.* Conformal field theory - old and new.

Apr 07

Filipe Moura. *Universidade do Minho.* Extremal and non-extremal black hole scattering in string theory.

May 12

Daniel Persson. *Chalmers University of Technology.* Mathieu moonshine, Siegel modular forms and $N = 4$ dyons.

May 19

Alessandro Tomasiello. *Università degli Studi di Milano-Bicocca.* All AdS_7 solutions in type II supergravity, and their CFT duals.

Jun 16

Ralph Blumenhagen. *Max-Planck-Institut für Physik, München.* Non-associative Deformations of Geometry in Double Field Theory.

Jul 01

Sameer Murthy. *King's College London.* Exact quantum black hole entropy: a macroscopic window into quantum gravity.

Jul 21

Owen Vaughan. *University of Hamburg.* Special Kähler geometry of $N = 2$ supergravity, dimensional reduction and stationary solutions.

Oct 20

João Gomes. *University of Cambridge.* Quantum supergravity and exact holography.

Oct 27

Álvaro Véliz-Osorio. *University of Witwatersrand.* Attractive holographic c -functions.

Nov 17

Alba Grassi. *University of Geneva.* Topological strings and quantum mechanics.

Dec 01

Ricardo Couso Santamaría. *Instituto Superior Técnico.* Resurgence in topological string theory.

3.9 Topological Quantum Field Theory

Jan 22

Marko Vojinovic. *Universidade de Lisboa.* Introduction to renormalization in QFT (part II).

Feb 26

John Huerta. *Instituto Superior Técnico.* What can higher categories do for physics? Part II.

Mar 12

Marko Vojinovic. *Universidade de Lisboa.* Introduction to renormalization in QFT (part III).

Apr 01

Zoran Škoda. *University of Zagreb.* Coherent states for quantum groups.

Apr 02

Aleksandar Mikovic. *Universidade Lusófona and GFM.* 2-BF Theories.

May 14

Sara Tavares. *University of Nottingham.* Two-dimensional state sum models and spin structures.

May 26

Paolo Bertozzini. *Thammasat University, Bangkok, Thailand.* Higher Categories of Operator Algebras.

May 27

Andreas Döring. *Friedrich-Alexander-Universität Erlangen-Nürnberg.* The Spectral Presheaf as the Spectrum of a Noncommutative Operator Algebra.

May 27

Jonathon Funk. *University of the West Indies, Barbados.* Grothendieck topologies for C^* -algebras.

Jun 17

Travis Willse. *The Australian National University, Canberra.* Holography for parallel conformal data.

4 Conferences and short courses

The following Conferences and Short Courses were organized or co-organized by members of the Center in 2014:

Variational Methods in Elliptic Equations and Systems

Instituto para a Investigação Interdisciplinar, Universidade de Lisboa, Portugal, January 7 – 10, 2014

Organizing committee: Susanna Terracini (Università di Torino), Hugo Tavares (CAMGSD/IST), Luís Sanchez (CMAF/FCUL).

Topological Quantum Field Theory Mini Workshop 2014

Instituto Superior Técnico, Lisbon, Portugal, January 8 – 10, 2014

Organizing committee: Nuno Freitas (Universität Bayreuth), Roger Picken (CAMGSD/IST), Mehmet Haluk Sengun (Warwick University).

Lectures:

Mehmet Sengun. *University of Warwick* Mahler measures of A-polynomials of 3-manifolds and special values of L-functions - I (January 8).

Nuno Freitas. *University of Bayreuth.* L-functions and elliptic curves (January 8).

Mehmet Sengun. *University of Warwick* Mahler measures of A-polynomials of 3-manifolds and special values of L-functions - II (January 9).

Roger Picken. *CAMGSD/IST* Some remarks on the non-commutative A-polynomial (January 9).

Mehmet Sengun. *University of Warwick* Mahler measures of A-polynomials of 3-manifolds and special values of L-functions - III (January 10).

VIII Workshop on Symplectic Geometry, Contact Geometry, and Interactions

Instituto Superior Técnico, Portugal, January 30 – February 1, 2014

Organizing committee: Sílvia Anjos (CAMGSD/IST), Frédéric Bourgeois (Université Paris-Sud), Tobias Ekholm (Uppsala Universitet), Felix Schlenk (Université de Neuchâtel), Rosa Sena-Dias (CAMGSD/IST), Jean-Yves Welschinger (Université Lyon 1).

WOTCA 2014 - Workshop on Operator Theory, Complex Analysis, and Applications

Instituto Superior Técnico, Lisbon, Portugal, June 19-21, 2014

Organizing committee: Cristina Câmara (CAMGSD/IST), Cristina Diogo (ISCTE/IUL and CAMGSD/IST), Teresa Malheiro (CMAT/UMinho), Marta Reis (IST)

XV Lisbon Summer Lectures in Geometry

Instituto Superior Técnico, Lisbon, Portugal, June 23 – 25, 2014

Organizing committee: José Mourão (CAMGSD/IST), João Pimentel Nunes (CAMGSD/IST).

Lectures:

Bertrand Toën. *Université de Montpellier 2.* Quantization in the context of derived algebraic geometry - I (June 23).

Siye Wu. *University of Hong Kong.* Branes and quantization for mathematicians - I (June 23).

Siye Wu. *University of Hong Kong.* Branes and quantization for mathematicians - II (June 24).

Bertrand Toën. *Université de Montpellier 2.* Quantization in the context of derived algebraic geometry - II (June 24).

Bertrand Toën. *Université de Montpellier 2.* Quantization in the context of derived algebraic geometry - III (June 25).

Siye Wu. *University of Hong Kong.* Branes and quantization for mathematicians - III (June 25).

Geometric Analysis Conference

Instituto Superior Técnico, Portugal, July 7 – 11, 2014

Organizing committee: Miguel Abreu, José Mourão, João P. Nunes and Rosa Sena-Dias (CAMGSD/IST).

Summer School on String Theory and Holography

I Lisbon/Porto, Portugal, July 14 – 26, 2014

Organizing committee: Miguel Costa (CFP/Porto), João Penedones (CFP/Porto), Gabriel Lopes Cardoso (CAMGSD/IST), Michele Cirafici (CAMGSD/IST).

5th IST-IME Meeting

Instituto de Matemática e Estatística - Universidade de São Paulo, Brasil, July 28 – August 1, 2014

Organizing committee: André S. de Carvalho, Clodoaldo Grotta-Ragazzo, Sérgio M. Oliva, Paolo Piccione, Pedro A. S. Salomão (IME-USP).

Trends in Non-Linear Analysis 2014

Instituto Superior Técnico, Lisbon, Portugal, July 31 – August 1, 2014

Organizing committee: José Matias (CAMGSD/IST), Marco Morandotti (CAMGSD/IST).

Workshop on PDEs and Biomedical Applications

Lisbon, Portugal, December 4 – 6, 2014

Organizing committee: Adélia Sequeira (CEMAT/IST), Juha Videman (CAMGSD/IST), Alexandra Moura (CEMAT/IST), Jorge Tiago (CEMAT/IST), Marília Pires (Universidade de Évora)

X Avogadro Meeting on Strings, Supergravity and Gauge Theories

Scuola Normale Superiore, Pisa, Italy, December 17 – 19, 2014

Organizing committee: Erik Tonni (SISSA & INFN), Roberto Valandro (ICTP & INFN), Marco Caldarelli (Southampton University), Michele Cirafici (CAMGSD/IST), Valentina Forini (Humboldt Universität), Dario Francia (SNS & INFN)

5 Seminars given by members of the Center

The following seminar talks, invited lectures or short courses were given by members of the Center in 2014:

Miguel Abreu, Kaehler geometry of toric symplectic manifolds in action-angle coordinates (minicourse), Introductory Workshop, Program in Tropical Geometry in its Complex and Symplectic Aspects, Bernoulli Center, EPFL, January 20-24, 2014, and GESTA Workshop, ICMAT, Madrid, June 1-6.

Miguel Abreu, Dynamical Convexity and Elliptic Orbits for Reeb Flows, Symplectic & Poisson Geometry Seminar, University of Illinois at Urbana-Champaign, March 31.

Miguel Abreu, Toric constructions of monotone Lagrangian submanifolds in CP^2 and $CP^1 \times CP^1$, 5th IST-IME Meeting, University of São Paulo, July 28 - August 1, 2014, and Workshop on Lagrangian Submanifolds and Related Topics, University of Milan, December 4-5.

Artur Alho, The problem of a self-gravitating scalar field with positive cosmological constant, KMP Seminar, University of Gothenburg, Sweden, April 10.

Artur Alho, Global dynamics and inflationary center manifold and slow-roll approximants, SPC: Relativity day, Stockholm University, Sweden, June 5.

Artur Alho, Inflationary center manifold and slow-roll expansions, ERE 2014, Universidad de Valencia, Spain, September 2.

Artur Alho, Dynamics of Robertson-Walker spacetimes with diffusion, CENTRA Seminar, IST, Lisbon, Portugal, October 16.

Artur Alho, Dynamics of Robertson-Walker spacetimes with diffusion, Gr@v Seminar, Universidade de Aveiro, Portugal, December 3.

Inês Aniceto, Resurgent Analysis in Quantum Theories: Perturbative Theory and Beyond, Theoretical Physics Seminar, Wigner Institute, Budapest, Hungary, March 28.

Inês Aniceto, Resurgent Analysis in Quantum Theories: Perturbative Theory and Beyond, Theoretical Physics Seminar, Queen Mary University, UK, April 30.

Inês Aniceto, Resurgent Analysis in Quantum Theories: Perturbative Theory and Beyond, String Theory Seminar, DAMTP, University of Cambridge, Cambridge, UK, May 1.

- Inês Aniceto, Resurgent Analysis in Quantum Theories: Perturbative Theory and Beyond, Theoretical Physics Seminar, LAPTH, Annecy, France, May 27.
- Inês Aniceto, Resurgence in Localizable Supersymmetric Gauge Theories, Resurgence and Transseries in Quantum, Gauge and String Theories Workshop, CERN, Switzerland, July 4.
- Inês Aniceto, Resurgence of Localizable Observables in Supersymmetric Gauge Theories, Fields, Strings and Geometry Seminar, University of Surrey, UK, September 11.
- Farid Bozorgnia, Numerical approximation of multi phase quadrature domains, Workshop on Recent Advances in Nonlinear PDE and Calculus of Variations, University of Reading, Reading, UK, February 12-14.
- Farid Bozorgnia, Numerical investigation of the eigenfunctions of infinity Laplacian operator, Workshop on Free Boundaries and Moving Interfaces, Oxford, UK, February 20-22.
- Farid Bozorgnia, Numerical simulation of system of long range segregation, International Conference on Free Boundary Problems: Theory and Applications, Cambridge, UK, June 23-27.
- Farid Bozorgnia, On the long range segregation system, Workshop on PDE's and Biomedical Applications, Lisbon, Portugal, December 4-6.
- Filipe Cal, Trapped modes in a two-layer fluid bounded above by a rigid cover, International Conference on Applied Mathematics, The City Hong-Kong University, Hong-Kong, December 5.
- Cristina Câmara, A Riemann-Hilbert approach to Toeplitz operators and the corona theorem, Kent Spectral Meeting, University of Kent, UK, April 14-17.
- Cristina Câmara, On some properties of the kernels of Toeplitz operators, 5th Annual Workshop of the Functional Analysis and Applications Group, Universidade de Aveiro, Portugal, May 24.
- Cristina Câmara, One sided invertibility of matrices and Toeplitz operators, Matrices & Operators -Workshop with Abraham Berman, Coimbra, Portugal, June 3-4.
- Cristina Câmara, Maximal and minimal functions in model spaces, WIMCS-CIDMA Wiener-Hopf Workshop, Aveiro, Portugal, June 23-24.
- Cristina Câmara, Kernels of Toeplitz operators, maximal functions and model spaces, SWOT 2014, Krakow, Poland, July 8-12.

- Cristina Câmara, Asymmetric truncated Toeplitz operators, IWOTA 2014, Special Session on Operators, Matrices and Indefinite Inner Products, Amsterdam, Netherlands, July 14-18.
- Cristina Câmara, Toeplitz operators, one sided invertibility of matrices and corona problems IWOTA 2014, Special Session on Operators, Matrices and Indefinite Inner Products, Amsterdam, Netherlands, July 14-18.
- Michele Cirafici, Line defects in $N = 2QFT$: framed quivers and cluster algebras, The String Theory Universe - 2nd COST MP1210 Meeting and 20th European Workshop on String Theory, Mainz, Germany, September 22-26.
- Michele Cirafici, Line defects and framed quivers in $N = 2QFT$, University of Turin, Turin, Italy, April 29.
- Michele Cirafici, $N = 2QFT$, line defects and quivers, Centro de Física do Porto, Porto University, Porto, Portugal, February 14.
- Michele Cirafici, Line defects and cluster transformations, Iberian Strings 2014, Palencia, Spain, January 29-31.
- L. Filipe Costa, Dynamics of spinning test bodies in General Relativity — the problem of the representative worldline, Seminar at Centro Multidisciplinar de Astrofísica (CENTRA), IST, Lisbon, Portugal, February 13.
- L. Filipe Costa, Dynamics of extended test bodies in General Relativity — the problem of the representative worldline, Seminar at the Workshop "Current Topics in Exact Solutions", Department of Mathematical Analysis, Ghent University, Belgium, April 8-11.
- L. Filipe Costa, Inertial forces in General Relativity, Spanish Relativity Meeting 2014 (ERE2014), "Almost 100 years after Einstein Revolution", Valencia, Spain, September 1-5.
- João L. Costa, Cauchy horizon stability and mass inflation with a cosmological constant, ERE2014, Valencia.
- João L. Costa, On Mass Inflation with a Cosmological Constant, Hyp2014, Rio de Janeiro.
- João L. Costa, The interior of black holes with a cosmological constant, VII Black Holes Workshop, Aveiro.
- Radoslaw Czaja, Pullback Exponential Attractors with Admissible Exponential Growth in the Past, VII Jornada de EDP, Universidade Federal de São Carlos, Brazil, January 20-22.

- Radoslaw Czaja, Pullback Exponential Attractors with Admissible Exponential Growth in the Past, ICMC Summer Meeting on Differential Equations 2014 Chapter, Universidade de São Paulo, São Carlos, Brazil, February 3-7.
- Radoslaw Czaja, Pullback Exponential Attractors Growing Exponentially in the Past, International Conference on Nonlinear Phenomena in Biology, Physics and Mechanics, Helmholtz Center Munich, Neuherberg, Germany, March 3-7.
- Radoslaw Czaja, Pullback Exponential Attractors with Applications to Reaction-Diffusion Equations, 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Universidad Autónoma de Madrid, Spain, July 7-11.
- Fernando P. da Costa, Mathematical aspects of "cluster eating" equations, 5th IST-IME Meeting, in honor of professor Orlando Lopes, Instituto de Matemática e Estatística, USP, São Paulo, Brasil, July.
- Fernando P. da Costa, Some mathematical aspects of "cluster eating" equations, Special Session on Functional Analytic Techniques for Evolutionary Equations Arising in the Natural Sciences, AIMS' Tenth International Conference on Dynamical Systems, Differential Equations and Applications, Instituto de Ciencias Matemáticas, Madrid, Spain, July.
- Cristina Diogo, Set of operators with 0 in the closure of the numerical range, 16th Workshop on Applications and Generalizations of Complex Analysis, Aveiro, Portugal, March 21-22.
- Cristina Diogo, Sets of operators with a given part of the numerical range, Seminar on Functional Analysis and Applications, Aveiro, Portugal, May 8.
- Cristina Diogo, Algebraic properties of the set of operators with 0 in the closure of the numerical range, Operator Theory Seminar, Ljubljana, Slovenia, May 15.
- Cristina Diogo, Zero in the closure of the numerical range, Matrices & Operators, Coimbra, Portugal, June 3-4, 2014.
- Cristina Diogo, Properties of the set of operators with a given part of the numerical range, Analysis and Applications Seminar, Braga, Portugal, June 11.
- Cristina Diogo, Eliminating zero from the numerical range through multiplication by operators from a given set, Wiener-Hopf Workshop, Aveiro, Portugal, June 23-24.

- Cristina Diogo, Removing zero from the numerical range, 4th Small Workshop on Operator Theory, Krakow, Poland, July 8-12.
- Jorge Drumond Silva, Nonlinear Schrödinger Equation with Time Dependent Potential: Large Time Properties, KAUST, Saudi Arabia, March 13.
- Jorge Drumond Silva, Nonlinear Schrödinger Equation with Time Dependent Potential: Large Time Properties, Instituto de Matemática, Universidade Federal do Rio de Janeiro, UFRJ, Rio de Janeiro, Brazil, May 14.
- Jorge Drumond Silva, Nonlinear Schrödinger Equation with Time Dependent Potential: Large Time Properties, IMPA - Instituto de Matemática Pura e Aplicada, Rio de Janeiro, Brazil, May 21.
- Jorge Drumond Silva, Nonlinear Schrödinger Equation with Time Dependent Potential: Large Time Properties, IMEEC - UNICAMP Universidade Estadual de Campinas, Campinas, Brazil, July 15.
- Jorge Drumond Silva, Nonlinear Schrödinger Equation with Time Dependent Potential: Large Time Properties, 5th IST-IME meeting in honor of Prof. Orlando Lopes, USP, São Paulo, Brazil, July 31.
- Sinan Eden, Symplectomorphism groups of some 4-manifolds, Encontro Nacional da SPM 2014, FCUNL, Costa da Caparica, Portugal, Sessão para Alunos de Doutorado, July 16.
- Pedro M. Girão, On the global uniqueness for the Einstein-Maxwell-scalar field system with a cosmological constant, Centro de Matemática e Aplicações Fundamentais, Lisboa, May.
- Pedro M. Girão, On the global uniqueness for the Einstein-Maxwell-scalar field system with a cosmological constant, Geometric Analysis Conference, IST, Lisboa, July 7-11.
- Pedro M. Girão, On the global uniqueness for the Einstein-Maxwell-scalar field system with a cosmological constant, Fourth Minho Meeting on Mathematical Physics, Universidade do Minho, Braga, October 24.
- Leonor Godinho, Fermat and the number of fixed points of periodic flows, BKM Seminar, Univ. Cologne, Germany, October 10.
- Gabriel Lopes Cardoso, Quantum corrections to extremal black brane solutions, Iberian Strings 2014, Palencia, Spain, January 29-31.
- Gabriel Lopes Cardoso, Deformations of Special Geometry and the Holomorphic Anomaly Equation, CCTP Seminar, University of Crete, Greece, May 22.

- Gabriel Lopes Cardoso, Deformations of Special Geometry and the Holomorphic Anomaly Equation, Spinoza Institute Seminar, University of Utrecht, Netherlands, June 12.
- Marco Mackaay, The $\mathfrak{sl}(3)$ web algebra and categorified Howe duality, IV Workshop in the Seminar of Representation theory and Related Areas, Universidade de Coimbra, Portugal, June 6.
- Marco Mackaay, Categorifications of the extended affine Hecke algebras $H(r)$ and the affine quantum Schur algebras $S(n, r)$, $for\ n > r > 2$, Journées d'algèbre Catégorifications et Invariants des noeuds, LMNO, Université de Caen, France, March 27-28.
- Marco Mackaay, Categorifications of the extended affine Hecke algebras $H(r)$ and the affine quantum Schur algebras $S(n, r)$, $for\ n > r > 2$, Séminaire de Topologie, Université Paris Diderot, Paris, France, January 30.
- Rachel Martins, Twisted products in mathematical physics, GFM seminar, FCUL, Lisbon, July.
- Rachel Martins, Involutive double categories, CAUL seminar, FCUL, Lisbon, October.
- Rachel Martins, Involutive double categories, CMUP seminar, Universidade de Coimbra, Portugal, October.
- Margarida Mendes Lopes, Hermitian matrices and Hodge numbers of irregular algebraic surfaces, Algebra and Combinatorics Seminar, Universidade de Coimbra, April 2.
- Margarida Mendes Lopes, Invariants of irregular surfaces, Seminario de Geometria e Topologia, Universidade do Porto, October 2.
- Margarida Mendes Lopes, Irregular surfaces with $K^2 = 2p_g$, Vth Iberian Meeting on Mathematics, Universidade de Aveiro, October 3.
- José Natário, Relativistic elasticity of rigid rods and strings, Gr@v Seminar, Universidade de Aveiro, Portugal, July.
- José Matias, Some problems in Calculus of Variations for functionals with linear growth in the context of A-quasiconvexity, 5th IST/IME meeting, USP, São Paulo, Brazil, July 28-August 1.
- José Matias, A dimension reduction result in the framework of structured deformations, SISSA, Italy, December 10.

- Léonard Monsaingeon, Existence of travelling waves and partial results for the free boundary regularity in a degenerate advection-diffusion model, Analysis Seminar, Aalto University, Finland, March 20.
- Léonard Monsaingeon, Systems of Partial Differential Equations in Porous Media, Analysis Seminar, UT Austin, USA, October 24.
- Léonard Monsaingeon, A Wasserstein gradient flow approach to Poisson-Nernst-Planck equations, PDEBA2014 Workshop, Lisbon, Portugal, December 4-6.
- Marco Morandotti, Dynamics for a system of screw dislocations. CNA Seminar, Carnegie Mellon University, Pittsburgh, USA, January 28.
- Marco Morandotti, Dynamics for a system of screw dislocations. 2014 Joint Mathematics Meeting, Baltimore, USA, January 2014.
- Marco Morandotti, Dynamics for a system of screw dislocations. University of Sussex, Brighton, UK, May 19.
- Marco Morandotti, Analysis and controllability of a one-dimensional swimmer. “The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications”, Madrid, Spain, July 8.
- José Mourão, Imaginary time flow in geometric quantization and in Kahler geometry, degeneration to real polarizations and tropicalization. University of Michigan, January 24.
- José Mourão, Imaginary time flow in geometric quantization and in Kahler geometry, degeneration to real polarizations and tropicalization. University of Notre Dame, January 30.
- José Mourão, Imaginary time flow in geometric quantization and in Kahler geometry, degeneration to real polarizations and tropicalization. University of Illinois at Urbana-Champaign, February 3.
- José Mourão, Harmonic analysis on compact groups and quantization. University of Macau, February 14.
- José Mourão, Holomorphic methods in the quantization of real polarized symplectic manifolds. University of Hong Kong, October 6.
- José Mourão, Quantum Mechanics and Kähler Geometry, Minicourse. Universität Erlangen-Nürnberg, October 29 - November 19.
- José Mourão, From the path integral to the Hamiltonian formalism in a diffeomorphism-invariant context. Mini-Workshop: Reflection Positivity in Representation Theory, Stochastics and Physics. Oberwolfach, December.

- José Natário, Fishing in black holes, VII Workshop on Black Holes, Universidade de Aveiro, December.
- José Natário, Gravito-electromagnetic analogies, Current Topics in Exact Solutions Workshop, Gent, April.
- Lina Oliveira, On the geometry of the unit ball in a JB^* -triple, International Conference on Jordan Geometric Analysis and Applications – JGAA 2014, Queen Mary, University of London, UK, September 3-5.
- Lina Oliveira, The Erdos density theorem revisited, 7th Linear Algebra Workshop 2014, Faculty of Mathematics and Physics, Ljubljana, Slovenia, June 4-12.
- Roger Picken, Moduli spaces in higher gauge theory, Encontro Nacional da Sociedade Portuguesa de Matemática, FCUNL, Costa da Caparica, Portugal, July 14-16.
- Roger Picken, Link invariants from finite categorical groups and a lifting of the Eisermann invariant, Mini-workshop: Knot Theory, Number Theory and Connections, University of Sheffield, UK, December 16-17.
- Carlos Rocha, Global attractors for reaction-diffusion equations, ICMC Summer Meeting on Differential Equations, 2014 Chapter, Universidade de São Paulo, São Carlos, Brazil, plenary talk, February 6.
- Carlos Rocha, Reaction-diffusion equations and global attractors, International Conference on Nonlinear Phenomena in Biology, Physics and Mechanics, Helmholtz Zentrum, München, invited lecture, March 6.
- Carlos Rocha, Unstable manifold decompositions of Sturm global attractors, 5th IST-IME Meeting, Universidade de São Paulo, Brazil, invited lecture, July 28.
- Hugo Tavares, Existence and orbital stability of the ground states with prescribed L^2 -norm for the NLS on bounded domains, Université Libre de Bruxelles, Brussels, Belgium, January 17.
- Hugo Tavares, Existence and orbital stability of the ground states with prescribed L^2 -norm for the NLS on bounded domains, ICMC Summer Meeting on Differential Equations - 2014 Chapter, Celebrating the 80th birthday of Djairo de Figueiredo, Special Session in Elliptic Problems, São Carlos, Brazil, February 3-7.
- Hugo Tavares, Existence and regularity of solutions to optimal partition problems involving Laplacian eigenvalues, Politecnico di Milano, Milan, Italy, May 7.

Hugo Tavares, Existence and regularity of solutions to optimal partition problems involving Laplacian eigenvalues, Progress in Nonlinear Partial Differential Equations - celebrating the 80th birthday of V. A. Solonnikov and N. N. Uraltseva, FCUL, Lisbon, Portugal, May 29-31.

Hugo Tavares, Existence and regularity of solutions to optimal partition problems involving Laplacian eigenvalues 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Special Session 38: Recent trends in nonlinear Schrödinger systems, Madrid, Spain July 7-11.

Juha Videman, Wave interaction with floating structures, Encontro Nacional da SPM 2014, FCUNL, Costa da Caparica, Portugal, July 14-16.

Juha Videman, Water-Wave Problem for a Floating Structure, International Conference on Advances in Mathematical Fluid Mechanics, Lisbon, Portugal, June 30-July 4.

Alfonso Zamora, GIT characterizations of Harder-Narasimhan filtrations, Geometry and Topology Seminar, CMUP, Porto, Portugal, February 28.

Alfonso Zamora, GIT characterizations of Harder-Narasimhan filtrations, Geometry Seminar, Dipartimento di Matematica, Università di Pavia, Italy, March 11.

Alfonso Zamora, GIT characterizations of Harder-Narasimhan filtrations, Program "The Geometry, Topology and Physics of Moduli Spaces of Higgs Bundles", National University of Singapore, July 17.

6 Postdoctoral program and research fellows

The Center started its own postdoctoral program in the academic year 1998/99. Positions are for one year, with the possibility for extension for another year upon mutual agreement. Applicants must have a PhD degree in mathematics, preferably earned within the two-year period immediately preceding the opening date of the position. To be selected an applicant must show very strong research promise in one of the main areas of activities of the Center. There are no teaching duties associated with these positions. They are announced internationally in different ways including the European Commission Euroaxess, the European Mathematical Society and the American Mathematical Society web sites, leading to about 200 applicants every year.

The Center also hosts research fellows and postdocs funded by other programs. The list of all our postdoctoral trainees since 1998 is available at:

<http://camgsd.ist.utl.pt/posdoc.php.en>

The following postdoctoral trainees or research fellows were hosted at the Center in 2014:

Artur Alho, PhD in Mathematics, Universidade do Minho, 2012. Research areas: General Relativity: future and past asymptotics of cosmological models, spherically symmetric collapse with positive cosmological constant. Supported by an FCT postdoctoral grant. 2.10 (Apr. 2013–Mar. 2016).

Hassan Alishah, PhD in Mathematics, Instituto Superior Técnico, 2012. Research Areas: KAM theory, geometric mechanics, Symplectic and related geometries including Presymplectic, Poisson and Dirac. Postdoctoral fellow financed by an FCT project grant (Oct. 2013–Oct. 2014)

Inês Aniceto, PhD in Physics, Brown Univ., USA, 2009. Research areas: string theory. Supported by CAMGSD (Sep. 1, 2009–Aug. 31, 2010) and by an FCT postdoctoral grant (Sep. 1, 2009–Sep. 30, 2014).

Farid Bozorgnia, PhD in Applied Mathematics, Royal Institute of Technology, Stockholm, Sweden, 2009. Research Areas: Partial Differential Equations (Numerical Analysis and Theory), Calculus of Variations, Spectral Theory. Supported by the UT Austin/Portugal Program (Aug. 2010–Nov. 2011) and by an FCT postdoctoral grant (June 2012–Mar. 2017).

- Michele Cirafici**, PhD in Physics, SISSA Trieste, 2004. Research areas: string theory, quantum field theory, geometry. Supported by the CIÊNCIA 2008 Program (Sep. 2009–Aug. 2014) and by a CAMGSD Grant (IST Bolsa de Cientista Convidado) (Oct. 2014–Dec. 2014).
- Filipe Costa**, PhD in Physics, Universidade do Porto, 2012. Research areas: General Relativity: gravitomagnetic effects, dynamics of extended test bodies, gravito-electromagnetic analogies. Supported by an FCT postdoctoral grant (May 2013–Apr. 2016).
- Yunhyung Cho**, PhD in Mathematics, Korea Advanced Institute of Science and Technology, 2010. Research areas: Equivariant symplectic geometry. Supported by an FCT project grant (Sep. 2014–Aug 2015).
- Ricardo Couso-Santamaria**, PhD in Physics, Universidad de Santiago de Compostela, 2014. Research areas: Topological string theory, resurgence theory, matrix models and supersymmetric gauge theories. Supported by an FCT project grant (Nov. 2014–Oct 2015).
- Radoslaw Czaja**, PhD in Mathematics, Univ. Silesia, Katowice, Poland, 2004. Research areas: continuous dynamical systems, partial differential equations. Supported by the CIÊNCIA 2008 Program (Sep. 2009–Aug. 2014).
- Gonçalo Aprá Dias**, PhD in Theoretical Physics, IST, 2008. Research areas: Fluid Mechanics, Water Waves, Analysis. Supported by an FCT postdoctoral grant (Oct. 2010–Sep. 2016).
- Óscar Dias**, PhD in Physics, IST, 2003. Research areas: General Relativity, Differential Geometry, Gravitational Aspects of String Theory. Supported by the FCT Investigator 2012 Program through a Development Grant (Sep. 2013–Dec. 2014)
- Rachel Dawe Martins**, PhD in Mathematical Physics, Nottingham University, 2006. Research areas: Noncommutative geometry, spectral triples, standard model of particle physics, K -theory. Supported by an FCT postdoctoral grant (Oct. 2006–Jul. 2014).
- João Esteves**, PhD in Physics, IST, 2011. Research area: Symplectic geometry, geometric quantization and mathematical physics. Supported by a CAMGSD postdoctoral grant (Nov. 2011–Jan. 2012) and by an FCT postdoctoral grant (Feb. 2012–Jan. 2015).
- Rita Ferreira**, PhD in Mathematics, Carnegie Mellon University and Universidade Nova de Lisboa, 2011. Research areas: calculus of variations, homogenization, continuum mechanics, partial differential equations. Supported by an FCT postdoctoral grant (Nov. 2012–Sept. 2014).

- John Huerta**, PhD in Mathematics, University of California, Riverside, 2011. Research areas: Foundations of supersymmetry, applying higher gauge theory to superstrings, supermembranes and supergravity. Supported by a CAMGSD postdoctoral grant (Jan. 2013–Jun. 2014) and by an FCT postdoctoral grant (Jul. 2014–Jun. 2017).
- Leonard Monsaingeon**, PhD in Mathematics, University of Toulouse 3, 2011. Research areas: Elliptic-parabolic PDE's, free boundaries and wave propagation, reaction-diffusion, mass transport methods. Supported by an FCT postdoctoral grant (Sep. 2013–Sep.2016).
- Marco Morandotti**, PhD in Mathematics, SISSA, 2011. Research areas: Fluid Mechanics, Partial Differential Equations, Mathematical Modeling, Engineering Mathematics. Supported by a CMU-Portugal project grant (Apr. 2013–Ago. 2014)
- Levon Nurbekyan**, PhD in Mathematics, Instituto Superior Técnico, 2012. Research areas: calculus of variations, optimal control, infinite dimensional weak KAM theory, optimal transportation, gradient flows in metric spaces. Supported by CMU-Portugal program (Jun. 2012–May 2014).
- Milena Pabiniak**, PhD in Mathematics, Cornell University, 2012. Research areas: Equivariant cohomology for Hamiltonian group actions. Gromov width of coadjoint orbits. Displaceable and non-displaceable Lagrangian subspaces. Supported by an FCT postdoctoral grant (Jan. 2013–Dec. 2016).
- Silvia Sabatini**, PhD in Mathematics, Massachusetts Institute of Technology, 2009. Research areas: Symplectic geometry, equivariant topological invariants of symplectic manifolds with symmetries, completely integrable Hamiltonian systems. Supported by an FCT postdoctoral grant (Sep. 2013–Aug. 2016).
- Hugo Tavares**, PhD in Mathematics, Universidade de Lisboa, 2010. Research areas: Partial Differential Equations, Variational Methods. Supported by the FCT Investigator 2012 Program through a Starting Grant (Sep. 2013–Aug. 2018)
- Gabriele Terrone**, PhD in Mathematics, Univ. Padova, 2008. Research areas: Viscosity solutions of Hamilton–Jacobi equations. Supported by UTAustin-Portugal program (Sep. 2008–Mar. 2014).
- Giorgio Trentinaglia**, PhD in Mathematics, Utrecht University, 2008. Research areas: complex analytic geometry, Hodge theory, Mumford–Tate groups; Lie groups and groupoids, orbifolds, foliations, differen-

tiabile stacks; representation theory, Tannaka duality, categorical algebra. Supported by an FCT postdoctoral grant (Oct. 2012–Oct. 2015).

Alfonso Zamora, PhD in Mathematics, Universidad Complutense de Madrid, 2013. Research areas: Algebraic geometry, Moduli spaces, GIT, Stability conditions. Supported by FCT project grants (Nov. 2013–Jun. 2015).

7 Doctoral supervision

The following doctoral degrees were concluded in 2014 under the supervision of members of the Center (the name of the student and of the CAMGSD supervisor are indicated in **bold** characters):

Alvaro Roberto Véliz-Osorio. PhD in Physics, Instituto Superior Técnico. January 2014. *Explorations in $N = 2$ Supergravity, Black Branes and Matrix Models*. Supervised by **Gabriel Lopes Cardoso**.

Juliana Fernandes da Silva Pimentel. PhD in Mathematics, Instituto Superior Técnico. May 2014. *Asymptotic Behavior of Slowly Non-Dissipative Systems*. Supervised by **Carlos Rocha**.

Filipe Santiago Cal. PhD in Mathematics, Instituto Superior Técnico. July 2014. *Wave Interaction with Fixed and Floating Structures in a Two-Layer Fluid*. Supervised by **Juha Videman**, co-supervised by Gonçalo Aprá Dias.

Bruno Miguel Almeida Martins Pereira. PhD in Mathematics, Instituto Superior Técnico. October 2014. *Analysis and Simulation of Stability and Wave Trapping Conditions in Stratified Fluids*. Supervised by **Juha Videman**, co-supervised by Aires José Pinto dos Santos.

8 Publications in 2014

8.1 Publications which appeared in 2014

Books & Monographs

- [1] P.M. Girão. *Introdução à Análise Complexa, Séries de Fourier e Equações Diferenciais*, volume 53 of *Coleção Ensino da Ciência e da Tecnologia*. IST Press, 2014.
- [2] L. Godinho and J. Natário. *An Introduction to Riemannian Geometry: With Applications to Mechanics and Relativity*. Universitext. Springer, 2014.

Articles in refereed international journals

- [1] C.A. Abad and F. Schätz. Reidemeister torsion for flat superconnections. *J. Homotopy Relat. Struct.*, 9(2):579–606, 2014.
- [2] M. Abreu, M.S. Borman, and D. McDuff. Displacing Lagrangian toric fibers by extended probe. *Algebr. Geom. Topol.*, 14(2):687–752, 2014. arXiv:1203.1074.
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- [4] H.N. Alishah and J. Lopes Dias. Realization of tangent perturbations in discrete and continuous time conservative systems. *Discrete Contin. Dyn. Syst.*, 34(12):5359–5374, 2014.
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- [11] L. Barreira, L.H. Popescu, and C. Valls. Exponential behavior in Banach spaces: robustness of trichotomies in discrete time. *Period. Math. Hungar.*, 68(2):207–221, 2014.
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Communications in refereed proceedings

- [1] G. L. Cardoso. BPS black holes in string theory. In A. García Parrado, F.C. Mena, F. Moura, and E. Vaz, editors, *Progress in Mathematical Relativity, Gravitation and Cosmology*, volume 60 of *Springer Proceedings in Mathematics & Statistics*, chapter 4, pages 55–65. Springer, 2014. Proceedings of the Spanish Relativity Meeting ERE2012.
- [2] D. Dragicevic, G. Preto, P.A. Santos, and M.Szamotołski. On a question by Markus Seidel. In M.A. Bastos and A. Lebre and S. Samko and I.M. Spitkovsky, editors, *Operator Theory, Operator Algebras and Applications*, volume 242 of *Operator Theory: Advances and Applications*, chapter 8, pages 159–172. Springer-Verlag, 2014.
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- [6] C. Rocha and B. Fiedler. Sturm global attractors of Hamiltonian type for semilinear parabolic equations. In Masaharu Taniguchi, editor, *Non-linear Partial Differential Equations, Dynamical Systems and Their Applications*, volume 1881 of *RIMS Kôkyûroku*, chapter 14, pages 139–157. RIMS, 2014.

8.2 Accepted publications (submitted or accepted in 2014)

Articles in refereed international journals

- [1] R. Albuquerque and R. Picken. On invariants of almost symplectic connections. *Math. Phys. Anal. Geom.* To appear. arXiv:1107.1860
- [2] A. Alho, S. Calogero, A.J. Soares, and M.P. Ramos. Dynamics of Robertson-Walker spacetimes with diffusion. *Ann. Physics.* To appear. arXiv:1409.4400.
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- [4] J.F. Alves and L. Silva. Nonautonomous graphs and topological entropy of nonautonomous Lorenz systems. *Internat. J. Bifur. Chaos Appl. Sci. Engrg.* To appear.
- [5] I. Aniceto and R. Schiappa. Nonperturbative ambiguities and the reality of resurgent transseries. *Comm. Math. Phys.* To appear. arXiv:1308.1115.
- [6] P. Antonelli, R. Carles, and J. Drumond Silva. Scattering for nonlinear Schrödinger equation under partial harmonic confinement. *Comm. Math. Phys.* To appear. arXiv:1310.1352.
- [7] L. Barreira, D. Dragicevic, and C. Valls. From one-sided dichotomies to two-sided dichotomies. *Discrete Contin. Dyn. Syst.* To appear.
- [8] L. Barreira, D. Dragicevic, and C. Valls. Positive top Lyapunov exponent via invariant cones: Single trajectories. *J. Math. Anal. Appl.* To appear.
- [9] L. Barreira, D. Dragicevic, and C. Valls. Admissibility for exponential dichotomies in average. *Stoch. Dyn.* To appear.
- [10] L. Barreira, D. Dragicevic, and C. Valls. Admissibility and nonuniform exponential trichotomies. *Regul. Chaotic Dyn.* To appear.
- [11] L. Barreira, D. Dragicevic, and C. Valls. Characterization of strong exponential dichotomies. *Bull. Braz Math. Soc. (N.S.)* To appear.
- [12] L. Barreira, D. Dragicevic, and C. Valls. Admissibility on the half line for evolution families. *J. Anal. Math.* To appear.
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- [14] L. Barreira and C. Valls. A Perron-type theorem for nonautonomous differential equations. *J. Differential Equations*. To appear.
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- [18] T. Blass, I. Fonseca, G. Leoni, and M. Morandotti. Dynamics for systems of screw dislocations. *SIAM J. Appl. Math.* To appear. arXiv:1410.6306.
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- [20] Y. Bolaños, J. Llibre, and C. Valls. Liouvillian first integrals for quadratic systems with an integrable saddle. *Rocky Mountain J. Math.* To appear.
- [21] G. Borot and B. Eynard and N. Orantin Abstract loop equations, topological recursion, and applications. *Commun. Number Theory Phys.* To appear. arXiv:1303.5808.
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Communications in refereed proceedings

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- [2] F.S. Cal, G.A.S. Dias, and J.H. Videman. Wave trapping above freely-floating obstacles. *Bol. Soc. Port. Mat.* Actas de Encontro Nacional da SPM, July 2014. To appear.
- [3] L.F. Costa and J. Natário. Center of mass, spin supplementary conditions, and the momentum of spinning particles. In D. Puetzfeld,

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Other publications

- [1] J. Buescu and L. Canto de Loura and F.P. da Costa and A.A. Teixeira. José Sebastião e Silva (1914-1972). *Eur. Math. Soc. Newsl.* To appear.

8.3 Manuscripts submitted (but not yet accepted) in 2014

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- [5] H.N. Alishah, P. Duarte, and T. Peixe. Asymptotic Poincaré maps along the edges of polytopes. arXiv:1411.6227.
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- [9] D. Bonheure, E. Moreira dos Santos, M. Ramos, and H. Tavares. Existence and symmetry of least energy nodal solutions for Hamiltonian elliptic systems. arXiv:1409.5693.
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- [11] J. Bracic and L. Oliveira. A characterization of reflexive spaces of operators. Submitted.
- [12] M.C. Câmara, C. Diogo, and I. Spitkovsky. Toeplitz operators of finite interval type and the table method. Submitted.
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- [15] M.C. Câmara and J.R. Partington. Finite-dimensional Toeplitz kernels and nearly-invariant subspaces. Submitted.

- [16] J.L. Costa, P.M. Girão, J. Natário, and J.D. Silva. On the global uniqueness for the Einstein-Maxwell-scalar field system with a cosmological constant. Part 2: Structure of the solutions and stability of the Cauchy horizon. arXiv:1406.7253.
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- [37] B. Pereira, A. Santos, L. Quaresma, and J.H. Videman. Analysis of baroclinic instabilities and internal tides in the Nazaré canyon using a three-layer model. Submitted.
- [38] J. Pimentel and C. Rocha. Noncompact global attractors for scalar reaction-diffusion equations. Submitted.
- [39] M. Ramos, H. Tavares, and S. Terracini. Existence and regularity of solutions to optimal partition problems involving Laplacian eigenvalues. arXiv:1403.6313.
- [40] R. Saramago. Generalized Young-Baxter operators for Dieudonné modules. Submitted.
- [41] N. Soave and H. Tavares. New existence and symmetry results for least energy positive solutions of Schrödinger systems with mixed competition and cooperation terms. arXiv:1412.4336.
- [42] R. Stenberg and J.H. Videman. On the error analysis of stabilized finite element methods for the Stokes problem. arXiv:1412.2893.
- [43] G. Trentinaglia. A fast convergence theorem for nearly multiplicative connections on proper Lie groupoids. arXiv:1403.2071.
- [44] G. Trentinaglia. Reduced smooth stacks? arXiv:1412.3778.

9 Partnership and outreach

Participation in the the Gulbenkian Foundation Programme Novos Talentos da Matemática

<http://www.math.ist.utl.pt/talentos/>

Participation in the IST Winter School for Undergraduates

Escola de Inverno de Matemática (EIM14), IST, February 3–5, 2014.

<http://math.tecnico.ulisboa.pt/teaching/eim/2014>

Participation in the IST Summer School Mathematics, Statistics and Computing

Escola de Verão de Matemática, Estatística e Computação (EVMEC2014), IST, July 14–16, 2014.

<http://math.tecnico.ulisboa.pt/teaching/evm/2014>

Outreach activities by individual members

Miguel Abreu "Enfrentar a Matemática", Escola Secundária José Gomes Ferreira, February 27, 2014.

Miguel Abreu "Introdução às Geometrias Não-Euclidianas", Externato Marista de Lisboa, March 20 and Colégio Militar, November 3, 2014.

Fernando P. da Costa "A Matemática na Escola", 50th anniversary of the Escola Secundária Júlio Dinis, Ovar, October 21, 2014.

Fernando P. da Costa "Em torno de temas de Matemática do Ensino Básico: divisão inteira, algoritmo de Euclides, (in)comensurabilidade, e o que mais aí vier. . .", Escola Secundária Rainha Dona Leonor, Lisbon, January 11, 2014.

Fernando P. da Costa collaborated with *CTT – Correios de Portugal, SA*, in the design of the philatelic emission celebrating the International Year of Crystallography 2014.

Jorge Drumond Silva "A Matemática da Física", XVII Semana da Física, Instituto Superior Técnico, February 20, 2014.

Leonor Godinho "A Matemática da Simetria", Lição Prof. António St. Aubyn, Jornadas da MAEG, ISEG, Lisboa, 2014.

José Natário "O GPS e a teoria da relatividade", Escola Secundária Maria Amália Vaz de Carvalho, March 2014.

José Natário "A relatividade do tempo", XVII Semana da Física, IST, February 2014.

Hugo Tavares was (together with P. J. Freitas - FCUL) scientific reviewer of the 10th grade high school Mathematics manual for the Publisher Santillana.

10 Personal notes

Cristina Câmara was a member of the Scientific Committee of the WIMCS-CIDMA Wiener-Hopf Workshop, Aveiro, Portugal, Junho 23-24, 2014.

Fernando P. da Costa was elected president of the Portuguese Mathematical Society.

Gabriel Lopes Cardoso holder of the Invited Research Chair in String Theory and Mathematical Physics, was appointed to full professor in May 2014.

Lina Oliveira was an invited researcher at the Queen's College, Oxford, August 4-10, 2014.

Roger Picken was a member of the Scientific Committee of the XXIII International Fall Workshop on Geometry and Physics, Granada, Spain, September 2-5, 2014.

Carlos Rocha was a member of the scientific committee of the International Conference on Nonlinear Phenomena in Biology, Physics and Mechanics, in commemoration of the 60th birthday of Messoud Efeendiev, Helmholtz Zentrum München, Germany, March 3-7, 2014.

João Teixeira Pinto co-organized the Commemoration of the Centenary of José Sebastião e Silva.

Hugo Tavares presented the seminar "O difícil não é ser bom contador de histórias, mas ter boas histórias para contar", in the homage session to the late Miguel Ramos: "Miguel Ramos, professor e cientista", Faculdade de Ciências da Universidade de Lisboa, January 6, 2014.

Juha Videman held a guest professorship at the Aalto University, Finland in February-June, 2014.

Juha Videman was a member of the External Evaluation Committee of the Agency for the Evaluation and Accreditation of Higher Education in Portugal.