Program of Special Sessions

2nd Joint Meeting Brazil-Italy in Mathematics

September 7-11, 2026

Messina

Special Session SS1 - "Sharp Energy Decay and Stabilization in Dissipative Evolution Equations: From Waves to Fluids"

Building: Economia, 2nd floor **Room: Aula 3**

Monday, 7 September	
14:30 – 14:50	Juan Bautista Limaco Ferrel *Insensitizing controls with N− 1 components for the N−dimensional Ladyzhenskaya–Smagorinsky system*
14:50 – 15:10	Florinda Capone *Viscoelastic Effects on Thermal Convection in Jeffreys Fluids*
15:10 – 15:30	Marcelo Moreira Cavalcanti *Critical wave equation with nonlinear $E(t)u_t$ damping*
15:30 – 15:50	Maria Carmela Lombardo *Resonant Secondary Instabilities and Oscillatory Dynamics in Nonlinear Diffusion Systems*
15:50 – 16:10	Wladimir Neves *An analysis of the 2-D isentropic Euler Equations for a generalized polytropic gas law*
16:10 – 16:30	Ivana Bochicchio *Recent results on thermo-elasticity for beams*
Thursday, 10 September	
14:30 – 14:50	José R. Fernandez García *A porous thermoelastic problem with microtemperatures and fading memory*
14:50 – 15:10	Genni Fragnelli *A mixed peridynamic theory for beams*
15:10 – 15:30	Maria Astudillo *On the Stability of Coupled Wave Equations with Local Kelvin-Voigt Damping and Non-Smooth Coefficients*

Special Session SS2 - "Continuous Optimization and Related Areas"

Building: Economia **Room: Aula Magna 1**

Thursday, 10 September	
11:00 – 11:20	Marco Locatelli *Hidden convexity in speed planning problems along a given path*
11:20 – 11:40	Laura Palagi *Selecting features in nonlinear SVM: MINLP formulation, convex MIQP relaxations and training algorithms*
11:40 – 12:00	Luis Felipe Bueno *A Jacobi-type Newton method for Nash equilibrium problems with descent guarantees*
12:00 – 12:20	Benedetta Morini *An Objective Function Free Trust-Region Framework for Decentralized Optimization*
12:20 – 12:40	Valentina De Simone *Low-Dimensional Acceleration Strategies for Gradient Methods*
14:30 – 14:50	Francisco Facchinei *Ghost penalties and stochastic programmin*
14:50 – 15:10	Silvia Villa *The zeroth order proximal algorithm*
15:10 – 15:30	Majela Pentón Machado *Inertial proximal point methods with degenerate preconditioning*
15:30 – 15:50	Alfredo Iusem *On circumcentered direct methods for monotone variational inequality problems*
15:50 – 16:10	Di Liu *A Finitely Convergent Circumcenter Method for the Convex Feasibility Problem*
16:10 – 16:30	Roger Behling *The Method of Ellipcenters for Strongly Convex Minimization*

Special Session 3 – "New challenges on Numerical methods for differential problems"

Monday, 7th of September **Building: Economia, 3rd floor** **Room: Aula 7**	
14:30 – 14:50	Ana Maria Alonso Rodriguez *An Evolve-Filter-Relax regularization model for the numerical simulation of incompressible MHD flows*
14:50 – 15:10	Joao Steinstrasser *Parallel-in-time numerical methods: challenges and applications*
15:10 – 15:30	Armando Coco *High-Order Boundary Treatment in Unfitted Methods for Partial Differential Equations*
15:30 – 15:50	José Alberto Cuminato *Numerical Simulation of Viscoelastic Fluid Flows*
15:50 - 16:10	Ilario Mazzieri *Space-time domain decomposition methods for wave-propagation problems*
16:10 - 16:30	Giuseppe Romanazzi *Numerical analysis of a supra-convergent method applied to a nonlinear pressure-cell density dynamics problem over non uniform meshes*
Monday, 7th of September **Building: Economia, 2nd floor** **Room: Aula 2**	
18:00 – 18:20	Alessandro Russo *Dealing with arbitrarily distorted 8-node bricks*
18:20 – 18:40	Gianluca Frasca-Caccia *Matrix-Oriented Solution of a Pitting Corrosion Model*
18:40 – 19:00	Eduardo Cardoso de Abreu *An Innovative Lagrangian-Eulerian Approach for Conservation Laws: Structure-Preserving Discretization and Emerging Challenges*

Special Session 5 - "Applied Functional Analysis, Integration Theories, and Related Topics"

Building: Economia **Room: Aula Magna 2**

Wednesday, 9 September	
11:00 – 11:20	Martin Grothaus *Characterization of the (fractional) Malliavin--Watanabe--Sobolev spaces $\mathfrak{D}^{\alpha,2}$ via the Bargmann- Segal norm*
11:20 – 11:40	Jaqueline Godoy Mesquita *A competitive chemostat model with time-dependent delays*
11:40 – 12:00	Francesco Carlo De Vecchi *Lie Symmetries of SDEs and Integration by Parts Formulas for Stochastic Processes*
12:00 – 12:20	Federico Stra *Maximal L^p concentration of the Wigner and Born-Jordan distributions*
14:30 – 14:50	Marcia Federson *States and Propagators in the Kuelbs–Steadman Hilbert Space*
14:50 – 15:10	Sonia Mazzucchi *Chernoff solutions of the heat and the Schrödinger equation in the Heisenberg group*
15:10 – 15:30	Marielle Silva *Oscillation theory for linear evolution processes*
15:30 – 15:50	Stefano Bonaccorsi *Limit Theorems for stochastic volterra processes via markovian lifts*

Special Session 4 – "Algebraic Geometry towards Commutative Algebra, Combinatorics and Applications"

Building: Rettorato **Room: Accademia Peloritana dei Pericolanti**

Monday, 7 September	
11:00 – 11:20	Giorgio Ottaviani *Persistent symmetric tensors and their Hessian*
11:20 – 11:40	Aron Simis *The Rose-Terao/Yuzvinsky theorem revisited and extended*
11:40 – 12:00	Francesco Russo *Twenty years of homaloidal and vanishing hessian (cubic) polynomials between Pernambuco and Sicily*
12:00 – 12:20	Giovanna Ilardi *Milnor Algebras, Higher Jacobians and Singular Hyperplane Sections*
12:20 – 12:40	Alan Muniz *Minimal-degree foliations on cominuscule Grassmannians*
12:40 – 13:00	Concettina Galati *On nodal deformations of ordinary isolated singularities of surfaces in P^3*
14:30 – 14:50	Philippe Thierry Gimenez *Betti diagrams of edge ideals with a special shape*
14:50 – 15:10	Roberta Di Gennaro *The Waldschmidt Constant for a Special Partial Intersection*
15:10 – 15:30	Paola Supino *Null Hessian Taylor Hypersurfaces*
15:30 – 15:50	Giuseppe Favacchio *When Is the General Projection of a Finite Set of Points a Complete Intersection?*
15:50 – 16:10	Thiago Holleben *Incidence toric ideals and three-point functions*
16:10 – 16:30	Maral Mostafazadehfard *Characterization of Gorenstein Special Fiber Rings of Ladder Determinantal Modules*

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Special Session SS7 - "Recent Developments in Nonlinear Partial Differential Equations"

Building: Economia, 3rd floor **Room: Aula 7**

Twesday, 8 September	
11:00 – 11:20	Carlo Mercuri *Solutions to nonlinear Shrödinger equations involving Coulombic interactions*
11:20 – 11:40	Sandra Imaculada Moreira *Quasilinear elliptic problems with exponential growth via the Nehari manifold method*
11:40 – 12:00	Luigi Muglia *Second order boundary regularity for degenerate elliptic problems*
12:00 – 12:20	Gustavo Ferron Madeira *A critical Neumann problem with anisotropic p-Laplacian*
14:30 – 14:50	Antonia Passarelli di Napoli *Fractional higher differentiability for solutions of stationary stokes systems with Orlicz growth*
14:50 – 15:10	Michaela Porzio *The influence of the data on the sign of the solutions to some elliptic and parabolic PDE's*
15:10 – 15:30	Mayra Soares *Advances in solving nonlinear Schrödinger equations with general potentials*

Special Session 08 - "Advances in Inverse Problems: Theory, Algorithms, and Applications"

Building: Economia, 3rd floor **Room: Aula 7**

Thursday, 10 September	
11:00 – 11:20	Eva Sincich *Lipschitz Stability for Polyhedral Elastic Inclusions from Partial Data*
11:20 – 11:40	Alexandre Kawano *Passive underwater hearing by measurements in vibrating beams*
11:40 – 12:00	Nelson Kuhl *An all-at-once formulation for the electrical resistivity problem*
12:00 – 12:20	Helcio Orlande *Thermal characterization of fungal colonies*
12:20 – 12:40	Luca Ratti *Integrating Machine Learning and Variational Regularization in Electrical Impedance Tomography*
12:40 – 13:00	*Antonino Morassi* *Unique identifcation of a rigid inclusion in an elastic nanoplate from a single measurement*

Special Session 9 - "Integration by parts vs fully-nonlinear approach: existence, regularity, qualitative properties"

Building: Giurisprudenza **Room: Aula 2 "A. Falzea"**

Wednesday, 9 September	
11:00 – 11:20	Pêdra Andrade *Calderón-Zygmund Estimates for Parabolic p-Laplacian Systems with Non-Divergence Data*
11:20 – 11:40	João Vítor Da Silva *Schauder estimates for flat solutions to a class of fully nonlinear elliptic PDEs with Dini continuous data*
11:40 – 12:00	Ayana Pinheiro de Castro Santana *On the Existence, Regularizing Effects, and Asymptotic Behavior of (p,q)-Laplacian Schrödinger–Maxwell Systems*
12:00 – 12:20	Francescantonio Oliva *1-Laplace Dirichlet problems with lower order terms*
14:30 – 14:50	Cintia Pacchiano Camacho *Unified A-priori Estimates for Minimizers under p,q-Growth and Exponential Growth*
14:50 – 15:10	Gloria Paoli *Hessian operators and overdetermined problems: symmetry and stability results*
15:10 – 15:30	Antonia Passarelli di Napoli *On the interplay between the anisotropy and the regularity of the coefficients in non autonomous problems*
15:30 – 15:50	Mayra Soares *Regularity Estimates for a Nonhomogeneous Free Boundary Interface Problem*

Special Session 10 - Fourier Analysis and PDEs on Manifolds and Lie Groups

Building: Economia, 2nd floor **Room: Aula 3**

Wednesday, 9 September	
11:00 – 11:20	Sandra Lucente *Semilinear Damped Wave Equations with Potential on Compact Lie Groups*
11:20 – 11:40	Paulo Leandro Dattori da Silva *Global Properties of Tube-Type Systems of Vector Fields on Compact Manifolds*
11:40 – 12:00	Marcello d'Abbicco *L^1 Estimates for a Dissipative System of Elastic Waves*
12:00 – 12:20	Sandro Coriasco *Involutive Systems on Non-Compact Manifolds*
12:20 – 12:40	Pedro Meyer Tokoro *Global Hypoellipticity of Involutive Systems on Non-Compact Manifolds*
14:30 – 14:50	Wagner de Moraes *Global Properties of Operators on Compact Lie Groups and Beyond*
14:50 – 15:10	Serena Federico *Smoothing Properties of Third Order Operators with Variable Coefficients*
15:10 – 15:30	Fernando de Ávila *Time-Periodic Evolution Equations*
15:30 – 15:50	Alessia Ascanelli *Degenerate 3-Evolution Equations in Gevrey Classes*
15:50 – 16:10	Marco Cappiello *Global Solvability in Time-Periodic Gelfand-Shilov Spaces for a Class of First Order Operators*
16:10 – 16:30	Alexandre Kirilov *Global Properties and Normal Forms in Mixed Fourier Spaces*

Special Session SS11 - "New Trends on Calculus of Variations and Partial Differential Equations"

Building: Giurisprudenza **Room: Aula 2 "A. Falzea"**

Monday, 7 September	
11:00 – 11:20	Veronica Felli *Magnetic Neumann problems with Aharonov-Bohm potentials*
11:20 – 11:40	Kaye Silva *Prescribed energy solutions to some scaled problems via a scaled Nehari manifold*
11:40 – 12:00	Mayra Soares *On the asymptotically linear problem for an elliptic equation with an indefinite nonlinearity*
12:00 – 12:20	Denilson Pereira *A new Minimax Theorem for C^1- Functionals with Nehari Set Homeomorphic to Submanifolds of the Sphere and Applications to Elliptic PDEs*
12:20 – 12:40	Leszek Gasinski *Quasilinear nonlocal problem via topological, variational and set-valued methods*
12:40 – 13:00	Liliane Maia *Advances in solving nonlinear Schrödinger Equations with general potentials*
Lunch	
14:30 – 14:50	Anna Mercaldo *Singular elliptic equations having a gradient term with natural growth*

Special Session 12 - "Topological methods for the qualitative analysis of differential equations"

Thursday, 10 September **Building: Economia, 3rd floor** **Room: Aula 6**	
11:00 – 11:20	Jaqueline Godoy Mesquita *A competitive chemostat model with time-dependent delays*
11:20 – 11:40	Márcia Federson *Non-Absolute Integration and Random Dynamics*
11:40 – 12:00	Luisa Malaguti *A topological degree for studying epidemic models with age-structured population*
12:00 – 12:20	Paola Rubbioni *Optimal Periodic Strategies for Integro-Differential Equations with Feedback Controls and Nonlocal Spatiotemporal Dispersal*
12:20 – 12:40	Serena Matucci *Global positive increasing solutions for equations with double-phase operator*
Friday, 11 September **Building: Economia, 3rd floor** **Room: Aula 7**	
8:30 – 8:50	João Marcos Bezerra do Ó *Functional Inequalities with Boundary Terms*
8:50 – 9:10	Guglielmo Feltrin *Continuation theorems for periodic systems and applications to problems with nonlinear time-dependent differential operators*
9:10 – 9:30	Giuseppe Antonio Veltri *An affine Birkhoff-Kellogg type result in product spaces and its application to differential systems*
9:30 – 9:50	Domenico Scopelliti *Exploring set-valued selection problems: from fixed points to differential inclusions*
9:50 – 10:10	Pierluigi Benevieri *Periodic solutions for second order time and state-dependent delay equations with a non-asymptotic condition*

Special Session 14 – "Control, Stability and Delay Effects in Real-Life Mathematical Models"

Building: Economia, 2nd floor **Room: Aula 3**

Thursday, 10th September	
11:00 – 11:20	Valéria Neves Domingos Cavalcanti *Stability for wave models with time-dependent memory*
11:20 – 11:40	Fabio Camilli *Preserving Information: Kolmogorov Entropy of Numerical Conservation Laws*
11:40 – 12:00	Sarah Ismail *Mixed-Order Damping Strategies for Hybrid Flexible Beams*
12:00 – 12:20	Carlos Manuel Guzman Jimenez *Recent Advances on the Scattering Conjecture for Nonlinear Schrödinger Equations*
12:20 – 12:40	Marcelo Moreira Cavalcanti *Polynomial Stability of the Wave Equation with Pure Boundary Memory: a Frequency-Domain Approach*
12:40 – 13:00	Monica Motta *Higher-Order No-Gap Conditions in optimal impulsive control via Compatible Clarke Tangent and QDQ Approximating Cones*
Friday, 11th September	
8:30 – 8:50	Elisa Continelli *Agent-based models and MFG with large discount*
8:50 – 9:10	Maria Rosario Astudillo Rojas *On the Asymptotic Behavior of Transmission Problems for the Wave Equation*
9:10 – 9:30	Ibtissam Issa *Time-delayed generalized Korteweg–de Vries–Burgers equation: well-posedness and exponential decay*
9:30 – 9:50	Wladimir Neves *Existence of Complementary and Variational Weak Solutions to Obstacle Problems for a Quasilinear Wave Equation*
9:50 – 10:10	Angela Monti *Z-Control for Exponential Consensus in High-Order Multi-Agent Systems*
10:10 – 10:30	Juan Bautista Limaco Ferrel *On Pareto and Nash equilibria for Boussinesq fluids with multiplicative controls*

Special Session 15 - "Logic and Foundations of Mathemtics"

Building: Economia, 3rd floor **Room: Aula 7**

Wednesday, 9 September	
11:00 – 11:20	Rodrigo Freire *The minimality of first-order logic*
11:20 – 11:40	Serafina Lapenta *Reasoning with vague events: Probabilistic Logics Grounded in Łukasiewicz Logic*
11:40 – 12:00	Santi Spadaro *The cellular-Lindelöf property and cardinal invariants of (and above) the continuum*
12:00 – 12:20	Luca San Mauro *Left and Right Effective Actions on Baire and Cantor Space*
14:30 – 14:50	Anna de Mase *When are valuations automatically definable?*
14:50 – 15:10	Hugo Mariano *Craig interpolation from Horn semantics*
15:10 – 15:30	José Siqueira *A double-categorical approach to coalgebraic modal logic*
15:30 – 15:50	Luca Spada *An equational axiomatisation for metrically complete l-groups*

Special Session 16 – "Algebras with Polynomial Identities"

Building: Economia, 3rd floor **Room: Aula 8**

Tuesday, 08 September	
11:00 – 11:20	Ivan Shestakov *Simple Jordan superalgebras*
11:20 – 11:40	Sebastiano Argenti *Algebras with Hopf action and almost polynomial growth*
11:40 – 12:00	Rafael dos Santos *Varieties of (C_p, ∗)-algebras of exponent 2*
12:00 – 12:20	Luisa Carini *New examples of fundamental algebras*
12:20 – 12:40	Wesley Cota *Asymptotic behavior of the codimension sequence in G-graded algebras with involution*
12:40 – 13:00	Daniela Correa *On polynomial identities of finite algebras*
14:30 – 14:50	Antonio Ioppolo *Recent developments in algebras with trace*
14:50 – 15:10	Daniela La Mattina *Growth of codimension sequences*
15:10 – 15:30	Fabrizio Martino *Color involution on upper triangular matrices and almost polynomial growth of ∗-varieties*
15:30 – 15:50	Elena Pascucci *PI-quivers via incidence algebras*
15:50 – 16:10	Elena Aladova *Outer automorphisms of the category of free non-associative algebras with unit*
16:10 – 16:30	Pedro Fagundes *Identities with superinvolution for 4 × 4 upper triangular matrices*

Special Session 17 – "Category theory and Applications"

Building: Giurisprudenza **Room: Aula Ex-Chimica**

Thursday, 10 September	
11:00 – 11:20	Sandra Mantovani *Propointed categories*
11:20 – 11:40	José Siqueira *Hyperdoctrines are double functors*
11:40 – 12:00	Elena Caviglia *Relational calculus in algebra and logic*
12:00 – 12:20	Luca Reggio *Beth companions of locally finitely presentable categories*
12:20 – 12:40	Pedro Henrique Azevedo de Amorim *2-Categorical Methods in Programming Language Theory*
12:40 – 13:00	*Alan Stefano Cigoli* *Cartesian and additive opindexed categories*
14:30 – 14:50	Fernando Lucatelli Nunes *Beyond Mac Lane Strictification*
14:50 – 15:10	Vincenzo Marra *Stone–Gelfand duality, arithmetic spaces, and lax comma categories*
15:10 – 15:30	Benjamin Merlin Bumpus *Categorical Algorithmics of Codecompositions*
15:30 – 15:50	Maria Emilia Maietti *Topos-like Completions*
15:50 – 16:10	Hugo Luiz Mariano *Grothendieck prelopologies: towards a closed monoidal sheaf category*

Special Session 18 – "Optimal Control, Optimal Transport and Related Fields"

Building: Economia, 2nd floor **Room: Aula 3**

Monday, 7th September	
11:00 – 11:20	Adriano Festa *A Mean Field Games Perspective on Evolutionary Clustering*
11:20 – 11:40	Marco Caponigro *Geometric control of optimal transport maps*
11:40 – 12:00	Valeriano A. De Oliveira *A new constraint qualification for continuous-time nonlinear programming based on asymptotic KKT conditions*
12:00 – 12:20	Lucas Machado Moschen *Feedback Control and Local Convexication of Wasserstein Gradient Flows*
12:20 – 12:40	Pedro Otavio de Souza Mussatto *An Asymptotic Maximum Principle for Impulsive Optimal Control Problems*
17:00 – 17:20	Daniela Tonon *Vanishing viscosity limit for Hamilton–Jacobi equations in the Wasserstein space*
17:20 – 17:40	Michele Palladino *Optimal Control and Reinforcemenl Learning*
17:40 – 18:00	Alfio Borzì *Optimal control of the viscous wave equation via the Pontryagin maximum principle*

Special Session 19 - "Improvements in climate models for attribution, extreme phenomena and climate change impacts"

Building: Rettorato **Room: Accademia Peloritana dei Pericolanti**

Thursday, September 10	
11:00 – 11:20	Masahiro Yamamoto *Time-fractional degenerate diffusion equations as possible model for climate changes*
11:20 – 11:40	Genni Fragnelli *Null-controllability for degenerate PDEs: A climatological application.*
11:40 – 12:00	Carlos Frederico Mendonça Raupp *A Possible Dynamical Mechanism for Global Warming Impact on Nature Climate Variability and Extreme Climate Events*
12:00 – 12:20	Giovanni Conti *Data as the Backbone of Climate Science: Novel Data Assimilation Pathways with Transfer Operators and Graph Attention Networks*
12:20 – 12:40	Pedro Leite da Silva Dias *Mathematical Representations of Earth System Dynamics: From Phase Space to Interacting Natural Modes*
12:40 – 13:00	Anna Vidotto *Testing for Non-Stationarity in Time-Dependent Spherical Random Fields*
Friday, September 11	
8:30 – 8:50	Gianmarco Del Sarto *A Multiplicative-Noise Mechanism for Variability Amplification under Radiative Forcing in an Arctic Energy-Balance Model*
8:50 – 9:10	Tobias Kuna *Reconstruction of wide spectrum forcing in transport-diffusion and Navier-Stokes equations*
9:10 – 9:30	Daria Ghilli *Optimal policies for environmental assets under spatial heterogeneity and global awareness*
9.30-9.50	Andrea Vito Vacca *Climate change reduces the subseasonal variability of the North Atlantic jet stream*
9:50 – 10:10	Giuseppe Floridia *Recent Advances in the Analysis of Energy Balance Climate Models*

Special Session 20 - "Global Analysis and Geometry of semi-Riemannian Manifolds"

Building: Economia **Room: Aula Magna 1**

Tuesday, 8 September	
11:00 – 11:20	Keti Tenenblat *On the inverse mean curvature flow by parallel hypersurfaces in space forms*
11:20 – 11:40	Maria Andrade *Rigidity for Serrin's Problem in Riemannian manifolds*
11:40 – 12:00	Ana Ferreira *Left-invariant G^*_2-structures of type III*
12:00 – 12:20	Federico Rossi *Einstein metrics and Killing spinors on pseudo-Riemannian solvmanifolds*
12:20 – 13:00	Open Discussions
14:30 – 14:50	Diego Conti *Into the indefinite*
14:50 – 15:10	Giulia Dileo *A new approach to the classification of almost contact metric manifolds*
15:10 – 15:30	Anna Maria Fino *A New Construction Related to Twistor Spaces*
15:30 – 16:30	Open Discussions

Special Session SS21 - "Probability and Statistical Mechanics"

Building: Economia, 2nd floor Room: Aula 3

Tuesday, 8 September	
11:00 – 11:20	Milton Jara *NESS for KPZ*
11:20 – 11:40	Chiara Franceschini *Degree-preserving conservative processes and a unified approach for their hydrodynamics*
11:40 – 12:00	Renato Santos *Weakly self-avoiding random walk in a random potential*
12:00 – 12:20	Vittoria Silvestri *Gaussian fluctuations for IDLA on cylinders*
12:20 – 12:40	Rangel Baldasso *Percolation on hierarchical lattices*
12:40 – 13:00	Luca Avena *Network multiple-node immunization via random rooted forests*
14:30 – 14:50	Alessandra Faggionato *Equilibrium Fluctuations of the SSEP on Random Graphs with Conductances*
14:50 – 15:10	Leandro Chiarini *Imry-Ma phenomenon for the hard-core model on* Z^2
15:10 – 15:30	Lu Xu *New results on the hydrodynamic limits for long-range exclusion processes*
15:30 – 15:50	Dirk Erhard *Quantitative Wright–Fisher limits for the noisy voter model on Erdős–Rényi graphs*
15:50 – 16:10	Federico Sau *The critical KPZ scale of the averaging process*
16:10 – 16:30	Daniel Valesin *The grass-bushes-trees process on a scale-free network*

Special Session 22 - "Singularities in Algebra and Geometry"

Building: Rettorato **Room: Aula Cannizzaro**

Monday, 7 September	
11:00 – 11:20	Francesco Bei *On the cohomology of L^2-harmonic forms of an incomplete Riemannian manifolds*
11:20 – 11:40	Dahisy Lima *Topological and Algebraic Structures of Singularity Collisions*
11:40 – 12:00	Zbigniew Jelonek *The proof of the metric corank Arnold problem*
12:00 – 12:20	Annalisa Baldi *Functional inequalities for differential forms on Carnot groups*
14:30 – 14:50	Luiz Hartmann *Torsion Invariants on Spaces with Isolated Singularities*
14:50 – 15:10	Maria Michalska *Lipschitz embeddings of algebraic curves*
15:10 – 15:30	Paolo Piazza *Witt pseudomanifolds, the signature operator and Gysin maps in K-homology*

Special Session 23 - "Mathematical connections between Italy and Brazil. The circulation of Italian scholars in Latin America and the foundation of the first Brazilian universities"

Building: Rettorato **Room: Accademia Peloritana dei Pericolanti**

Thursday, 10 September	
14:30 – 14:50	Luciana Vieira *Luigi Fantappiè, mathematics, and fascism in Brazil: when science diplomacy is not synonymous with cooperation (1934-1939)*
14:50 – 15:10	Maria Giulia Lugaresi *From INAC to Brazil, Luigi Sobrero and the teaching of Mathematical Physics in Rio de Janeiro*
15:10 – 15:30	Maria Anna Raspanti *Giacomo Albanese and the Italian Mission in Brazil*
15:30 – 15:50	Maria Alessandra Vaccaro *A review of Gabriele Mammana's teaching and research activities between Italy and Brazil*
15:50 – 16:10	Elena Scalambro *An Italian voice in Brazil: the trajectory of Achille Bassi (1907-1973)*
16:10 – 16:30	Marina Marchisio Conte *Shaping topology across borders: Gino Fano and Achille Bassi in dialogue (1926-1945)*

Special Session 24 - "Conservation Laws for Fuild and Transport Models: Analysis and Numerics"

Building: Giurisprudenza **Room: Aula Ex Chimica**

Monday, 7 September	
11:00 – 11:20	Mario Putti *Geometric intrinsic modeling of shallow water flows*
11:20 – 11:40	Eduardo Abreu *A geometric vector field approach for multidimensional conservation laws: from scalar entropy to Lax positivity system*
11:40 – 12:00	Laura Spinolo *Stability of dispersive boundary laters for scalar conservation laws in one space dimension*
12:00 – 12:20	Luca Talamini *A differential structure for general conservation laws*
12:20 – 12:40	Laura Caravenna *Local asymptotic patterns for viscous approximation of conservation laws*
12:40 – 13:00	Graziano Guerra *Conservation laws with coinciding smooth solutions and the isentropic approximation in gas dynamics*
14:30 – 14:50	Annalisa Cesaroni *A Lagrangian representation to the classical LWR model and application to the analysis of commuting times in a linear city*
14:50 – 15:10	Mauro Gravello *Structure of optimal solutions for traffic flows*
15:10 – 15:30	Massimiliano Rosini *Entropy solutions for Temple-class systems with discontinuous flux*
15:30 – 15:50	Wanderson Lambert *Theoretical aspects of a Lagrangian-Eulerian Method for Hyperbolic Conservation laws*
15:50 – 16:10	Elena Bachini *A geometric Lagrangian-Eulerian formulation for the intrinsic shallow water equations on general topography*

Special Session 25 - "Geometric Analysis"

Building: Economia, 2nd floor **Room: Aula 2**

Monday, 7 September	
11:00 – 11:20	Mattia Fogagnolo *3D scalar curvature bounds through the inverse mean curvature flow in low regularity*
11:20 – 11:40	Luciano Luzzi Jr. *Zoll families and Isosystolic Inequalities*
11:40 – 12:00	Virginia Agostiniani *p-Laplace Serrin problem on planar annuli*
12:00 – 12:20	Allan Freitas *On Rigidity of Sub-Static Systems*
12:20 – 12:40	Francesca Oronzio *X--ADM mass and X--Positive Mass Theorem*
12:40 – 13:00	Maria Andreade *Critical points of the total σ^2-curvature functional*
14:30 – 14:50	Claudia Pontuale *Some rigidity theorems for stable constant (anisotropic) mean curvature hypersurfaces*
14:50 – 15:10	Ilaria Mondello *Limits of manifolds and codimension 4 singularities*

Special Session 26 - "Group Theory and Applications"

Building: Giurisprudenza **Room: Aula Ex Chimica**

Wednesday, 9 September	
11:00 – 11:20	Cristina Acciarri *On profinite groups with restricted centralizers of nth powers*
11:20 – 11:40	Altair Santos de Oliveira Tosti *Conjugacy in Group of Piecewise Projective Homeomorphisms*
11:40 – 12:00	Antonio Tortora *The Learning With Errors Problem over Groups*
12:00 – 12:20	Marialaura Noce *Verbal subgroups of groups acting on regular rooted trees*
12:20 – 12:40	Claude Marion *On monomiality and prime graphs of finite groups with the Magnus property*
14:30 – 14:50	Luis Mendonça *Finiteness properties of subgroups of fixed points*
14:50 – 15:10	Chiara Nicotera *On twisted conjugacy in finite groups*
15:10 – 15:30	Alex Carrazedo Dantas *Self-similarity of permutational wreath product*
15:30 – 15:50	Marco Trombetti *On the Equational Noetherianity of Wreath Products*
15:50 – 16:10	Millena Andrade da Silva *On the commuting conjugacy class graph*
16:10 – 16:30	Marta Morigi *Commuting probability of Sylow subgroups in finite and profinite groups*

Special Session SS27 - "Machine Learning for Numerical Methods in PDEs"

Building: Economia, 3nd floor **Room: Aula 6**

Thursday, 10 September	
14:30 – 14:50	Gioana Teora *C^0-Conforming Neural Approximated Virtual Element Method on Polygonal Meshes*
14:50 – 15:10	Nunzio Dimola *Neural Preconditioning Strategies for Mixed-Dimensional PDEs: from Static to Dynamic Training*
15:10 – 15:30	Samira Iscaro *Efficient numerical treatment of multidimensional reaction-diffusion PDEs*
15:30 – 15:50	Angela Monti *Hierarchical Clustering and Model Reduction for Optimal Control of ABMs*
15:50 – 16:10	Lucas Moschen *A Feedback-Control Perspective on Sampling for Langevin and McKean–Vlasov Dynamics*
16:10 – 16:30	Mariateresa Bruni *Augmented predictor-corrector PINN for estimating root zone soil moisture from data at shallower depths*

Special Session SS28 - "Recent progress on mathematical fluid dynamics"

Building: Giurisprudenza **Room: Aula 2 A. Falzea**

Thursday, 10 September	
11:00 – 11:20	Anne Bronzi *On the self-similar blowup for the generalized SQG equations*
11:20 – 11:40	Gennaro Ciampa *Magnetic relaxation for the MHD equations via the stable manifold method*
11:40 – 12:00	Milton da Costa Lopes Fihlo *Incompressible 2D Euler with random initial data in the plane*
12:00 – 12:20	Nicola De Nitti *A Liouville theorem for the two-dimensional stationary hypodissipative Navier–Stokes system*
14:30 – 14:50	Lorenzo Pescatore *Long-time behaviour of the 1D stochastic Navier-Stokes-Korteweg equations*
14:50 – 15:10	Gabriella Planas *Global Behavior of Chemotaxis-Fluid Systems*
15:10 – 15:30	Stefano Spirito *Analysis of the theta method for the flow of nonsmooth velocity fields*
15:30 – 15:50	Ricardo Rosa *Energy cascade for cross-shear length scales in free-shear three-dimensional incompressible viscous flows*

Special Session SS29- "Finite Geometry, Galois Fields and Their Impact on Contemporary Coding Theory''

Wednesday, 9 September **Building: Rettorato** **Room: Accademia Peloritana dei Pericolanti**	
11:00 – 11:20	J. De Beule *Tight sets in finite classical polar spaces*
11:20 – 11:40	P. Santonastaso *On pseudo-arcs from normal rational curve and additive MDS codes*
11:40 – 12:00	F. Pavese $(r,s)-$ *sets from Desarguesian ovoids*
12:00 – 12:20	V. Astore *A q-analogue of the rational normal curve and linearized Reed–Solomon codes*
12:20 – 12:40	F. Silva *On some generalisations of checkerboard lattices through linear codes*
12:40 – 13:00	A. Giannoni *Thresholds for a geometric Tic-Tac-Toe over finite fields*
Wednesday, 9 September **Building: Giurisprudenza** **Room: Aula 5 Pugliatti**	
14:30 – 14:50	H. Borges *On some special curves of type $y^n = f(x)$*
14:50 – 15:10	M. Timpanella *Algebraic curves with large cyclic subgroups of automorphisms*
15:10 – 15:30	P. Speziali *Curves on Frobenius Nonclassical Loci of Hypersurfaces*
15:30 – 15:50	G. Schulte *A generalization of the Datta-Johnsen codes*
15:50 – 16:10	M. Bonini *On the Minimal Codewords and Weight Distribution of Norm-Trace Codes*

Special Session 30 - "Variational and topological methods for local and nonlocal problems"

Building: Economia, 3rd floor Room: Aula 2

Wednesday, 9 September	
11:00 – 11:20	Olimpio Hiroshi Miyagaki *On compact embedding into L^p and fractional spaces*
11:20 – 11:40	Marco Gallo *Making a Brunelleschi out of it: concavity in PDEs*
11:40 – 12:00	Suellen Arruda *On the existence of multiple solutions for singular integro-differential equations driven by the fractional Laplacian*
12:00 – 12:20	Sunra Mosconi *An overview of the regularity theory for the fractional p-Laplacian*
12:20 – 12:40	Alânnio Barbosa Nóbrega *A Critical Neumann problem with anisotropic p-Laplacian*
14:30 – 14:50	Francesca Prinari *Eigenvalues of the p-Laplacian on general open sets*
14:50 – 15:10	Eudes Mendes Barboza *Existence results for some elliptic problems in R^N including variable exponents above the critical growth*
15:10 – 15:30	Matteo Rizzi *Normalized solutions to a p-Laplacian supercritical equation*
15:30 – 15:50	Rúbia Gonçalves Nascimento *Existence and behavior of positive solutions for elliptic problems with discontinuous nonlinearities*
15:50 – 16:10	Umberto Guarnotta *Strong solutions to singular discontinuous p-Laplacian problems*

Special Session 31 - "Recent Trends in Nonlinear Elliptic and Parabolic PDEs"

Building: Economia **Room: Aula Magna 1**

Wednesday, 9 September	
11:00 – 11:20	Bernhard Ruf *Solutions Concentrating on Lower Dimensional Spheres for Singularly Perturbed Elliptic Equations*
11:20 – 11:40	Elisandra Gloss *Inhomogeneous nonlinear Schrödinger equations with competing singular nonlinearities*
11:40 – 12:00	Pedro Ubilla *A Supercritical Hamiltonian System*
12:00 – 12:20	Marta Calanchi *Nonlinearities and singularities in elliptic boundary value problems*
12:20 – 12:40	Carlos Alberto Santos *About degenerated Kirchhoff logistic problem*
12:40 – 13:00	Francesca Dalbono *A bifurcation phenomenon for quasilinear p-Laplace equations in the ball*
14:30 – 14:50	Federica Sani *Symmetry breaking for elliptic equations with exponential nonlinearities in higher dimensions*
14:50 – 15:10	Bruno Ribeiro *Fractional Schrödinger-Poisson-Slater equations in Coulomb-Sobolev spaces*
15:10 – 15:30	Elide Terraneo *Fokker-Planck equations and Poincarè inequalities*
15:30 – 15:50	Evelina Shamarova *FitzHugh-Nagumo-type systems with sign-changing coefficients*
15:50 – 16:10	Daniele Cassani *On the maximum principle for higher order operators and applications to nonlinear PDEs*

Special Session 32 - "Recent trends in biomathematics: modelling patterns and collective dynamics from micro to macro"

Building: Rettorato **Room: Accademia Peloritana dei Pericolanti**

Tuesday, 8 September	
11:00 – 11:20	Luigi Preziosi *Modelling Cell Reorientation under Stretch*
11:20 – 11:40	Fernanda Pinheiro *Growth and efficiency principles of bacterial metabolism*
11:40 – 12:00	Maria Carmela Lombardo *Exploring immune pathways and remyelination in Multiple Sclerosis*
12:00 – 12:20	Nathan Silvano *Flow spatial structure determines pattern instabilities in nonlocal models of population dynamics*
12:20 – 12:40	Florinda Capone *Turing Instability and Pattern Formation in a Spatial HIV Model*
14:30 – 14:50	Pablo de Castro *Statistical Physics of Active Particles: From Clustering to Survival in Toxic Landscapes*
14:50 – 15:10	Martina Conte *Multi-scale modeling of action potential dynamics in neural networks*
15:10 – 15:30	Rafael Menezes *Crowding indexes as a bridge between individual behaviour and population dynamics in spatially-structured populations*
15:30 – 15:50	Lucas Wardil *The stochastic origins of costly sexual signals*

Special Session 33 - "Spectral Graph Theory"

Building: Economia, 3rd floor **Room: Aula 6**

Wednesday, 9 September	
11:00 – 11:20	Alfredo Donno *A sequence of integral and distance integral Cayley graphs with few distance eigenvalues*
11:20 – 11:40	Carlos Hoppen *Recent advances on the inverse eigenvalue problem on trees*
11:40 – 12:00	Matteo Cavaleri *Partial transposition and the construction of cospectral graphs, signed graphs, and complex unit gain graphs*
12:00 – 12:20	Renata Del Vecchio *Maximum Nullity and Zero Forcing in Generalized Petersen Graphs*
12:20 – 12:40	Callum Huntington *Graphs and signed graphs with integer reciprocal eigenvalue properties*
12:40 – 13:00	Stefano Spessato *The NEPS of gain graphs over arbitrary groups and its spectra*
14:30 – 14:50	Cybele T.M. Vinagre *Characterizing graphs for which the second largest distance eigenvalue is less than −1/2*
14:50 – 15:10	Adriana Ciampella *Determined-by-Adjacency Spectrum problem of signed tadpoles*
15:10 – 15:30	Daniele D'Angeli *On totally synchronizing graphs*
15:30 – 15:50	Maurizio Brunetti *Graphs whose second-largest Seidel eigenvalue lies in [−1, 1]*
15:50 – 16:10	Vilmar Trevisan *Brouwer's Conjecture: Recent Developments*

Special Session 34 - "Recent progresses in stochastic fluid dynamics and turbulence"

Building: Economia, 3rd floor **Room: Aula 7**

Monday, 7 September	
11:00 – 11:20	Victor De Jesus Valadão *The "real" butterfly effect in multiscale models of turbulence*
11:20 – 11:40	Andrea Di Primio *Stochastic phase separation in complex fluids*
11:40 – 12:00	Júlia Domingues Lemos *A spatio-temporal random synthetic turbulent velocity field: Beyond Gaussianity, skewness, intermittency and vorticity alignments*
12:00 – 12:20	Lorenzo Marino *Stochastic transport by heavy-tailed jump processes: From classical to anomalous diffusion*
18:00 – 18:20	Claudia Lorena Duarte Espitia *On local well-posedness of the stochastic incompressible density-dependent Euler equations*
18:20 – 18:40	Gianmarco Del Sarto *Global well-posedness for small data in a 3D temperature-velocity model with Dirichlet boundary noise*
18:40 – 19:00	Ciro Campolina *Turbulence and invariant measures in the Hasegawa–Mima equation*

Special Session 35 - "CR geometry and Partial Differential Equations"

Building: Economia **Room: Aula Magna 2**

Thursday, 10 September	
11:00 – 11:20	Gustavo Hoepfner *Trace of ultradistributions and applications*
11:20 – 11:40	Giuseppe Della Sala *Parametrization of automorphisms via stationary discs*
11:40 – 12:00	Stefan Fürdös *Ultradifferentiable regularity of CR mappings*
12:00 – 12:20	Luis Fernando Ragognette *Relation between different types of hypoellipticity*
12:20 – 12:40	Marco Mughetti *Regularity of sums of squares in two variables and Treves' conjecture*
14:30 – 14:50	Andreea Nicoara *Behaviour of the q-type under Biholomorphic Mappings*
14:50 – 15:10	Vinícius Novelli da Silva *Top-degree local solvability for $\overline{\partial_b}$ on rigid hypersurfaces of complex space*
15:10 – 15:30	Nicholas Braun Rodrigues *Smooth and Gevrey Microlocal Hypoellipticity for a Class of Hypocomplex Tube Structures*
15:30 – 15:50	Gabriel Araujo *Solvability of nonsingular closed 1-forms on compact manifolds*
15:50 – 16:10	Loredana Lanzani *Herglotz for general domains*

Special Session 36 - "Advances in nonlinear elliptic PDEs and applications"

Building: Economia, ground floor **Room: Aula 1**

Tuesday, 8 September	
11:00 – 11:20	Francesca Faraci *On a critical Kirchhoff type problem in high dimension*
11:20 – 11:40	Kaye Silva *Ordered solutions for degenerate Kirchhoff problems*
11:40 – 12:00	Giovanni Anello *On the Dirichlet problem for a critical Kirchhoff equation in dimension four*
12:00 – 12:20	João Rodrigues Santos Jr *Characterizing the breakdown of the maximum principle in a class of nonlocal elliptic problems*
12:20 – 12:40	Antonio Vitolo *Invariant cones for cooperative systems of fully coupled elliptic equations*
14:30 – 14:50	Carlos Alberto Santos *Mixed effects of fast diffusion and refuge in the logistic equations*
14:50 – 15:10	João Vitor da Silva *Lipschitz regularity of vectorial almost-minimizers for Alt-Caffarelli functionals with non-standard growth*
15:10 – 15:30	Pedra Andrade *Local Regularity Estimates for Degenerate Fully Nonlinear*

Special Session 37 - "Automata, Dynamics and Topology on Cantor spaces"

Building: Economia **Room: Aula 2, Piano 2**

Tuesday, 8 September	
11:00 – 11:20	Daniele D'Angeli *Transition groups of context-free graphs and Lehnert's conjecture*
11:20 – 11:40	Luis Mendonça *Decompositions of groups of pure symmetric automorphisms of RAAGs*
11:40 – 12:00	Letizia Issini *Divergence in groups with micro-supported actions*
12:00 – 12:20	Matteo Tarocchi *Conjugacy in Röver-Nekrashevych groups*
12:20 – 12:40	Marialaura Noce *Equations in groups acting on regular rooted trees*
12:40 – 13:00	Alex Dantas *On wreath product occurring as subgroup of automata group*
14:30 – 14:50	Valeriano Aiello *On Jones's representations of Thompson groups: the subgroups and the knot construction*
14:50 – 15:10	Altair Tosti *Braided Version of Thompson's Group F: Reidemeister numbers and fixed points*
15:10 – 15:30	Bianca Marchionna *Geometry and finiteness properties of locally compact RAAGs*
15:30 – 15:50	Raimundo Bastos *Generalized torsion elements in infinite groups*
15:50 – 16:10	Ilaria Castellano *Generalised Bieri-Stallings groups*
16:10 – 16:30	Open problems discussion and session photo.

Special Session 38 - Mathematics Education

"Bridging Perspectives in Mathematics Education Research between Italy and Brazil"

Building: Economia, 3rd floor **Room: Aula 6**

7 September	
14:30 – 14:50	Marcelo C. Borba *Festival of Digital Videos and Mathematics Education*
14:50 – 15:10	Francesco Beccuti *Education, ideology, and the limits of mathematization*
15:10 – 15:30	Caterina Bassi *Shared drawings in a mathematical modelling activity: an exploratory study*
15:30 – 15:50	Marcia Maria Fusaro Pinto *Mathematics education in the teaching of mathematics at university*
15:50 – 16:10	Annalisa Cusi *Rethinking Instrumental Genesis in Human-GenAI Interaction: Noise and Drift factors in Mathematical Problem Solving*
16:10 – 16:30	Plenary discussion
18:00 – 18:20	Miguel Ribero *Interpretative Knowledge and Ethical Awareness in Mathematics Teacher Education: Insights from an International Research Collaboration*
18:20 – 18:40	Benedetto Di Paola *"Cultures Count": Cultural Contaminations in and for Mathematics Teacher Education*
18:40 – 19:00	Final discussion

Special Session 39 - "Hamiltonian Systems: Theory and Applications"

Building: Giurisprudenza **Room: Aula Ex Chimica**

Tuesday, 8 September	
11:00 – 11:20	Dario Bambusi *Almost global existence for Hamiltonian PDEs on boundaryless compact manifolds*
11:20 – 11:40	Vivina Barutello *On the Birkhoff conjecture for Kepler billiards - I*
11:40 – 12:00	Irene De Blasi *On the Birkhoff conjecture for Kepler billiards - II*
12:00 – 12:20	Gladston Duarte *Invariant Manifolds near L_1 and L_2 in the Planar Elliptic Restricted Three-Body Problem*
12:20 – 12:40	Guglielmo Feltrin *Bifurcation of periodic solutions for central force problems*
14:30 – 14:50	Rafael Ruggiero *On the set of asymptotic homologies of orbits on invariant Lagrangian graphs*
14:50 – 15:10	Nicola Sansonetto *Gauge momenta and Hamiltonization in (linear) nonholonomic systems with symmetry*

Special Session 40 - "New Trends in Cryptography"

Building: Economia, 2nd floor **Room: Aula 2**

Thursday, 10th September	
11:00 – 11:20	Antonio Tortora *Cryptographic techniques for secure data aggregation*
11:20 – 11:40	Carmine Mirra *A group-based Functional Encryption scheme*
11:40 – 12:00	Riccardo Aragona *Geometric Characterization of Maximal Unrefinable Partitions*
12:00 – 12:20	Maria Ferrara *A New Algebraic Diffie–Hellman Key-Exchange*
12:20 – 12:40	Asmaa Cherkaoui *Eidolon: A Post-Quantum Signature Scheme Based on k-Colorability in the Age of Graph Neural Networks*
12:40 – 13:00	Carmine Monetta *Graphs associated with groups and cryptographic applications*