



# Program of Special Sessions

## 2<sup>nd</sup> Joint Meeting Brazil-Italy in Mathematics

September 7-11, 2026  
Messina

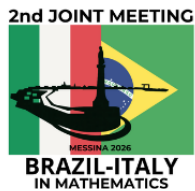


## Special Session SS1 - "Sharp Energy Decay and Stabilization in Dissipative Evolution Equations: From Waves to Fluids"

Building: Economia, 2<sup>nd</sup> floor

Room: Aula 3

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

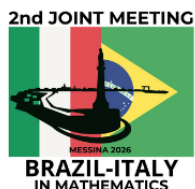


## Special Session SS2 - "Continuous Optimization and Related Areas"

Building: Economia

Room: Aula Magna 1

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



### Special Session 3 – “New challenges on Numerical methods for differential problems”

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



## Special Session 5 - “Applied Functional Analysis, Integration Theories, and Related Topics”

Building: Economia

Room: Aula Magna 2

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



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



## Special Session 5 - “Applied Functional Analysis, Integration Theories, and Related Topics”

Building: Economia

Room: Aula Magna 2

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

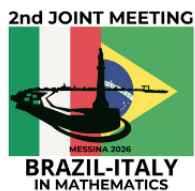


## Special Session SS7 - "Recent Developments in Nonlinear Partial Differential Equations"

Building: Economia, 3<sup>rd</sup> floor

Room: Aula 7

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

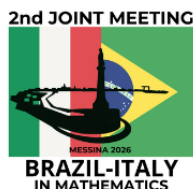


## Special Session 08 - "Advances in Inverse Problems: Theory, Algorithms, and Applications"

Building: Economia, 3<sup>rd</sup> floor

Room: Aula 7

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



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



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

Building: Economia, 2<sup>nd</sup> floor

Room: Aula 3

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



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



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

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



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

Building: Economia, 2<sup>nd</sup> floor

Room: Aula 3

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



## Special Session 15 - “Logic and Foundations of Mathematics”

Building: Economia, 3<sup>rd</sup> floor

Room: Aula 7

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



## Special Session 16 – “Algebras with Polynomial Identities”

Building: Economia, 3<sup>rd</sup> floor

Room: Aula 8

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

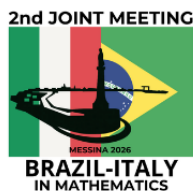


## Special Session 17 – “Category theory and Applications”

Building: Giurisprudenza

Room: Aula Ex-Chimica

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

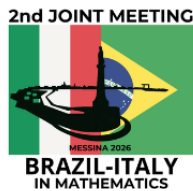


## Special Session 18 – “Optimal Control, Optimal Transport and Related Fields”

Building: Economia, 2<sup>nd</sup> floor

Room: Aula 3

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

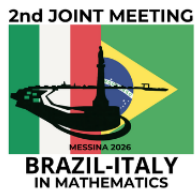


## Special Session 19 - “Improvements in climate models for attribution, extreme phenomena and climate change impacts”

Building: Rettorato

Room: Accademia Peloritana dei Pericolanti

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

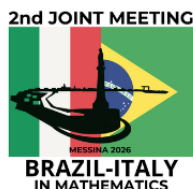


## Special Session 20 - "Global Analysis and Geometry of semi-Riemannian Manifolds"

Building: Economia

Room: Aula Magna 1

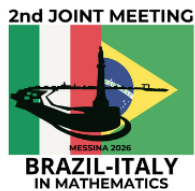
| Tuesday, 8 September |                                                                                                      |
|----------------------|------------------------------------------------------------------------------------------------------|
| 11:00 – 11:20        | Keti Tenenblat<br><i>On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



## Special Session SS21 - "Probability and Statistical Mechanics"

Building: Economia, 2<sup>nd</sup> floor Room: Aula 3

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



## Special Session 22 - "Singularities in Algebra and Geometry"

Building: Rettorato

Room: Aula Cannizzaro

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

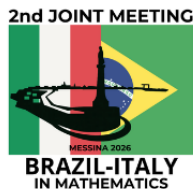


**Special Session 23 - “Mathematical connections between Italy and Brazil. The circulation of Italian scholars in Latin America and the foundation of the first Brazilian universities”**

**Building: Rettorato**

**Room: Accademia Peloritana dei Pericolanti**

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



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

Building: Giurisprudenza

Room: Aula Ex Chimica

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

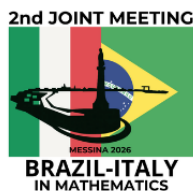


## Special Session 25 - "Geometric Analysis"

Building: Economia, 2<sup>nd</sup> floor

Room: Aula 2

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

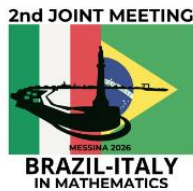


## Special Session 26 - "Group Theory and Applications"

Building: Giurisprudenza

Room: Aula Ex Chimica

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

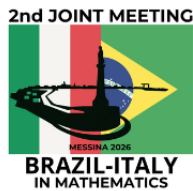


## Special Session SS27 - “Machine Learning for Numerical Methods in PDEs”

Building: Economia, 3<sup>rd</sup> floor

Room: Aula 6

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



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

Building: Giurisprudenza

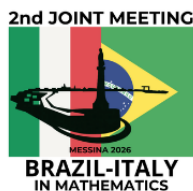
Room: Aula 2 A. Falzea

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



## Special Session SS29- “Finite Geometry, Galois Fields and Their Impact on Contemporary Coding Theory”

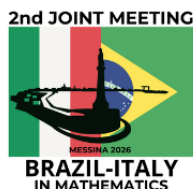
|                                                                            |                                                                                                              |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------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



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

Building: Economia, 3<sup>rd</sup> floor Room: Aula 2

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

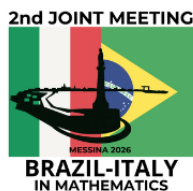


## Special Session 31 - "Recent Trends in Nonlinear Elliptic and Parabolic PDEs"

Building: Economia

Room: Aula Magna 1

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

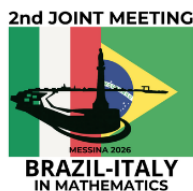


## Special Session 32 - "Recent trends in biomathematics: modelling patterns and collective dynamics from micro to macro"

Building: Rettorato

Room: Accademia Peloritana dei Pericolanti

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

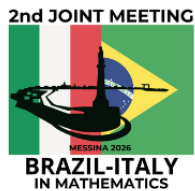


## Special Session 33 - "Spectral Graph Theory"

Building: Economia, 3<sup>rd</sup> floor

Room: Aula 6

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

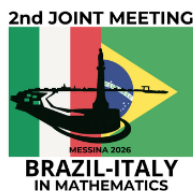


## Special Session 34 - "Recent progresses in stochastic fluid dynamics and turbulence"

Building: Economia, 3<sup>rd</sup> floor

Room: Aula 7

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



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

Building: Economia

Room: Aula Magna 2

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



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

Building: Economia, ground floor

Room: Aula 1

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



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



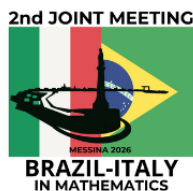
## Special Session 38 - Mathematics Education

### “Bridging Perspectives in Mathematics Education Research between Italy and Brazil”

Building: Economia, 3<sup>rd</sup> floor

Room: Aula 6

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



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

Building: Giurisprudenza

Room: Aula Ex Chimica

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



## Special Session 40 - "New Trends in Cryptography"

Building: Economia, 2<sup>nd</sup> floor

Room: Aula 2

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