



GEOMETRY, DYNAMICS
AND FIELD THEORY NETWORK

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Geometry, Dynamics and Field Theory Network Infosheet

Network's activities

19th International Young Researchers Workshop on Geometry, Dynamics, and Field Theory.
20–22 January 2025, Verona, Italy.

Other conferences

Symplectic and Contact Geometry.
4–6 October 2024, Minnesota, USA.

Integrability, Geometry and QFT.
7–11 October 2024, Madrid, Spain.

Workshop: Analysis and Geometry on Discrete Spaces.
7–11 October 2024, Bonn, Germany.

Mathematical Billiards: at the Crossroads of Dynamics, Geometry, Analysis, and Mathematical Physics.
9 October–15 December 2024, New York, USA.

Quantum Groups and Representation Theory .
12–15 October 2024, Raleigh, USA.

Poisson Geometry and Artin-Schelter Regular Algebras.
13–18 October 2024, Hangzhou, China.

Random paths to QFT: New probabilistic approaches to field theory.
14 October–22 November 2024, New York, United States.

Recent progress on geometric analysis and Riemannian geometry.
21–25 October 2024, Berkeley, USA.

New trends in Geometry, Combinatorics, and Mathematical Physics.
21–25 October 2024, Vieille Perrotine, France.

Deep learning for PDE-based inverse problems.
27–31 October 2024, Oberwolfach, Germany.

2nd International Conference on Differential Geometry.

28–31 October 2024, Fez, Morocco.

Geometry and Topology Conference.

8–10 November 2024, Texas, USA.

Mathematics of fluids in motion: Recent results and trends.

11–15 November 2024, Luminy, France.

Geometry and analysis of special structures on manifolds.

18–22 November 2024, Berkeley, USA.

Control and Machine Learning.

24–29 November 2024, Oberwolfach, Germany.

Frontiers in Sub-Riemannian Geometry.

25–29 November 2024, Luminy, France.

24th Australasian Fluid Mechanics Conference.

1–5 December 2024, Canberra, Australia.

Quantum information dynamics and non-equilibrium quantum matter.

2–6 December 2024, New York, USA.

13th International Conference on Computational Mechanics.

6–8 December 2024, Sanya, China.

Data-driven Modeling, Analysis, and Control of Dynamical Systems.

8–13 December 2024, Oberwolfach, Germany.

High-Dimensional Control Problems and Mean-Field Equations with Applications in Machine Learning.

8–13 December 2024, Oberwolfach, Germany.

Foliations and Diffeomorphism Groups.

9–13 December 2024, Luminy, France.

The AIMS Conference Series on Dynamical Systems and Differential Equations.

16–20 December 2024, Abu Dhabi, United Arab Emirates.

Energy Operators in Particle Physics, Quantum Field Theory and Gravity.

16–20 December 2024, New York, USA.

Winter School: Boundary and Singularity in Fluid Mechanics.

6–10 January 2025, New York, USA.

Representation Theory and Noncommutative Geometry.

6 January–4 April 2025, Paris, France.

Infinite-dimensional Geometry: Theory and Applications.

13 January–14 February 2025, Vienna, Austria.

Algebra and Quantum Geometry of BPS Quivers.

19–24 January 2025, Les Diablerets, Switzerland.

Arithmetic, Algebraic and Analytic Dynamics.

20–24 January 2025, Luminy, France.

Patterns, Dynamics, and Data in Complex Systems.

21 January–28 February 2025, Luminy, France.

Singularities, differential equations, transcendence.

27 January– February 2025, Providence, USA.

Statistical mechanics, Algebra, and Geometry.

2–7 February 2025, Les Diablerets, Switzerland.

Geometric Structures in Group Theory.

9–14 February 2025, Oberwolfach, Germany.

Stochastic Equations and Stochastic Dynamics.

9–14 February 2025, Les Diablerets, Switzerland.

Mathematical Challenges in Quantum Mechanics.

9–14 February 2025, L'Aquila, Italy.

Geometric partial differential equations from unified string theories.

10–14 February 2025, Pasadena, USA.

Circle Packings, Minimal Surfaces, and Discrete Differential Geometry.

10–14 February 2025, Providence, USA.

MATRIX-MFO Tandem Workshop: Non-linear Geometric Diffusion Equations.

23–28 February 2025, Oberwolfach, Germany.

Conformal Field Theory, Integrability, and Geometry.

11–15 March 2025, New York, USA.

Geometric Mechanics Formulations for Continuum Mechanics.

16–21 March 2025, Banff, Canada.

Supersymmetric Quantum Field Theories, Vertex Operator Algebras, and Geometry.

17 March–18 April 2025, New York, USA.

Kinetic theory and fluid mechanics: couplings, scalings and asymptotics.

24–28 March 2025, Luminy, France.

New directions in G2 geometry.
31 March–4 April 2025, Pasadena, USA.

Virtual seminars

Seminar of the Geometry, Dynamics, and Field Theory Thematic Network.

Instituto de Ciencias Matemáticas' seminars on these topics.

Geometry and Applications: Modern Mathematical Approaches (GAMMA) Seminar.

University of Warsaw, the Universitat Rovira i Virgili, and the Polytechnic University of Catalonia.

Advanced Lectures on Theoretical Physics and Mathematics.

ICTP-PWF Latin America-Physics Latam New Seminar Series.

Trans-Carpathian Seminar on Geometry and Physics.

A merger of Bucharest Geometry and Physics Seminar and Warsaw Seminar on Geometric Methods in Physics.

One World IAMP Mathematical Physics Seminar.

Seminar of International Association of Mathematical Physics.

Seminar on Geometry with Symmetries.

On Lie group actions in Riemannian geometry.

Control and Optimization Seminar.

Louisiana State University.

Differential Geometry Seminar Torino.

Organised by the Differential Geometry groups of Università di Torino and Politecnico di Torino.

Symplectic Zoominar.

Online Seminar organized by CRM-Montréal, Princeton/IAS, Tel Aviv, and Paris.

ICTP Virtual Seminars.

Online Seminar organized by International Centre for Theoretical Physics.

Theory of Duality Seminar.

Department of Mathematical Methods in Physics, University of Warsaw.

Geometry and Topology Online.

Warwick Mathematics Institute.

Instituto Balseiro Seminar.

Instituto Balseiro' public seminars live on Youtube.

Job offers, fellowships and supports

Ph.D. offers

PhD position in Mechanical design.

University of Southampton, Southampton, United Kingdom

Closing date: 2 October 2024.

PhD position in Inverse Magnetisation.

INRIA University of Cote d'Azur, Sophia Antipolis, France

Closing date: 3 October 2024.

PhD position in Machine Learning.

The Arctic University of Norway, Tromsø, Norway

Closing date: 15 October 2024.

PhD position in Control of Multi-Drone.

INRIA Université de Rennes, Rennes, France

Closing date: 31 October 2024.

PhD position in Optimal Transport and Machine Learning.

The Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany

Closing date: 31 October 2024.

PhD position in Mathematics.

University of Agder, Kristiansand, Norway

Closing date: 1 November 2024.

PhD positions in Gravitational Physics.

Max Planck Institute, Potsdam, Germany

Closing date: 6 December 2024.

15 PhD positions in Tensor Modelling, Geometry and Optimisation.

University of Cote d'Azur, Antibes, France

Closing date: 31 December 2024.

PhD positions in Mathematics.

Institute of Science and Technology Austria,
Klosterneuburg, Austria

Closing date: 7 January 2025.

PhD scholarship in Geometry of 4-manifolds.

University of Adelaide, Adelaide, Australia

Closing date: Open until filled.

PhD on geometric numerical integration of differential equations.

University of Valencia, Valencia, Spain

Closing date: Open until filled.

Postdoctoral fellowships

20 Postdoctoral Fellowships in STEM.

Severo Ochoa and María de Maeztu Reserach Institutes, Spain

Closing date: 3 October 2024.

Postdoctoral position in Real and Complex Geometry.

University of Parma, Parma, Italy

Closing date: 8 October 2024.

Postdoctoral position in geometric hydrodynamics.

Chalmers University of Technology and University of Gothenburg, Sweden

Closing date: 13 October 2024.

Postdoctoral position in Quantum Variational Calculus.

The University of Manchester, Manchester, United Kingdom

Closing date: 21 October 2024.

Postdoctoral position in Mathematics.

Baylor University, Waco (TX), United States of America

Closing date: 8 November 2024.

Postdoctoral Positions in Mathematics.

University of Copenhagen, Copenhagen, Denmark

Closing date: 15 November 2024.

2 Postdoctoral positions in Geometry and Physics.

Stony Brook University, Stony Brook(NY), United States of America

Closing date: 15 November 2024.

Postdoctoral position in Geometric Variational Problems.

Bocconi University, Milan, Italy

Closing date: 30 November 2024.

Postdoctoral position in Geometry.

Trinity College, Dublin, Ireland

Closing date: 1 December 2024.

Postdoctoral position in Optimal Control.

INRIA, Montpellier, France

Closing date: 31 December 2024.

Postdoctoral position in Mirror Symmetry.

University of Texas, Austin(TX), United States of America

Closing date: 1 December 2024.

Postdoctoral position in applied mathematics and theoretical mechanics.

School of Mathematics, Jilin University, China, and Laboratory of Engineering Sciences for Environment, La Rochelle University, France

Closing date: Open until filled.

Postdoctoral position in Geometry and Physics.

University of Science and Technology of China, Hefei, China

Closing date: Open until filled.

Humboldt research fellowship for postdoctoral researchers.

Alexander von Humboldt Foundation

Closing date: Open.

Offers for researchers

Tenure-track position in Mathematics.

New York City College of Technology, New York, United States of America

Closing date: 5 October 2024.

Tenure-track position in Mathematics.

University of Copenhagen, Copenhagen, Denmark

Closing date: 6 October 2024.

Open rank Faculty position in Applied Ma-

thematics.

Duke Kunshan University, Jiangsu, China

Closing date: 10 October 2024.

Tenure-track position in Mathematics.

Institute of Science and Technology Austria,
Klosterneuburg, Austria

Closing date: 23 October 2024.

2 Tenure track positions in Applied Mathematics.

Utah State University, Logan(UT), United States
of America

Closing date: 28 October 2024.

Tenure-track position in Mathematical Analysis.

Bocconi University, Milan, Italy

Closing date: 1 November 2024.

Tenure-Track position in Geometric Topology.

The University of Alabama, Tuscaloosa(AL),
United States of America

Closing date: 1 November 2024.

Senior researcher in Geometry and Physics.

IBS Center for Geometry and Physics, Pohang,
South Korea

Closing date: 29 November 2024.

Tenured/Tenure-track position in Differential Geometry.

ShanghaiTech University, Shanghai, China

Closing date: 10 January 2025.

Offers for visiting researchers

Abel Visiting Scholar Program.

International Mathematical Union.

Postdoctoral mathematician to visit a research col-
laborator for a month.

Closing date: 31 December, 30 April and 31 Au-
gust.

Visiting Scholars or Consultants to Institutes in Developing Countries.

International Centre of Theoretical Physics
(ICTP).

To expert advice to enhance existing activities or
to initiate a new research programme..

Closing date: 31 May.

Simons Visiting Professors at Mathematisches Forschungsinstitut Oberwolfach.

Oberwolfach, Germany.

Junior or senior scientists from outside Europe.

Closing date: Open.

Focused research groups in Banff, Canada.

Banff International Research Station, Canada.

Up to 8 researchers for periods of 1 to 2 weeks.

Closing date: Minimum 4 months before the event.

Research in Teams in Banff, Canada.

Banff International Research Station, Canada.

Teams of 2 to 4 researchers for 1 to 2 weeks.

Closing date: Minimum 4 months before the event.

International Research in Groups at CIRM.

Centre International de Rencontres Mathéma-
tiques (CIRM), France.

Small groups of researchers for 2 to 4 weeks.

Closing date: Open at any time.

Research in Residence at CIRM.

Centre International de Rencontres Mathéma-
tiques (CIRM), France.

2 to 4 researchers.

Closing date: Open at any time.

Visiting scholar opportunity in Cambridge.

University of Cambridge, United Kingdom.

Scholars and fellows for development of research,
teaching and collaboration.

Closing date: Open.

Small team visiting the CRM.

Centre de Recerca Matemàtica, Catalonia, Spain.

Postdoctoral positions and research in pairs.

Closing date: Any time between 6 and 12 months
before the start of the desired stay.

**Visiting research fellow in Kent State Uni-
versity.**

Mathematics Department-KSU, Ohio, USA.

Visiting for scholar researchers.

Closing date: Open.

Financial support

Thematic programs at MSRI.

Mathematical Sciences Research Institute, Berkeley, United States.

Deadline: 1 October, 1 December and 1 March every year. Three years ahead.

Hot topics Workshop at MSRI.

Mathematical Sciences Research Institute, Berkeley, United States.

Deadline: 1 October, 1 December and 1 March every year.

Summer graduate schools at MSRI.

Mathematical Sciences Research Institute, Berkeley, United States.

Deadline: 1 October, 1 December and 1 March every year.

Full- or half-year scientific programs.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.

Deadline: 1 October, 1 December and 1 March every year.

Hot topic workshops.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.

Deadline: 1 October, 1 December and 1 March every year.

Revisiting Fundamental Problems Workshop.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.

Deadline: 1 October, 1 December and 1 March every year.

Simons Fellows in Mathematics.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.

Deadline: 2 October 2024.

Targeted Grants to Institutes.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.

Deadline: 3 October 2024.

CIMPA School Projects.

Financial support for research schools in developing countries.

Deadline: 12 October 2024.

Thematic program “Higher rank geometric structures”.

Financial support for the program coordinated by the Centre Emile Borel (CEB) at IHP (Paris).

Deadline: 15 October 2024.

Simons Collaborations in Mathematics and the Physical Sciences.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.

Deadline: 31 October 2024.

Call for membership: “Geometry and Dynamics for Discrete Subgroups of Higher Rank Lie Groups”.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.

Deadline: 15 November 2024.

Call for membership: “Topological and Geometric Structures in Low Dimensions”.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.

Deadline: 15 November 2024.

IMU Volunteer Lecturer Program.

Financial assistance to universities in developing countries to host a 3-4-week intensive course.

Deadline: 1 December 2024, 1 March 2025, and 1 September.

ICTP Mathematics Visiting Fellowships.

Grants for visits for a maximum period of 3 months.

Deadline: 31 December 2024.

Individual & Small Group Application in SLMath (MSRI).

On-Site Workshop in Berkeley, California. Dates: June 30 - July 11, 2025.

Deadline: 4 February 2025.

Workshop at CIRM.

Centre International de Rencontres Mathématiques, France.

Deadline: Open at any time.

CIMPA Online courses program.

Geographic areas of activities of CIMPA (Africa, Central or South America, Asia).

Deadline: Open all year.

Support for workshop organization at Banff.

Banff International Research Station.

Deadline: No precise deadline.

Proposal of a workshop in the Mathematisches Forschungsinstitut Oberwolfach.

Oberwolfach, Germany.

Deadline: Open.

Targeted Grants in Mathematical and Physical Sciences.

Simons Laufer Mathematical Sciences Institute,

Berkeley, United States.

Deadline: At any time.

Hosting a workshop at AIMS South Africa.

Contributions for workshops about AIMS's research focus areas.

Deadline: No precise deadline.

News and publications

Thesis

The geometry of dissipation. PhD Thesis.

Author: Asier López Gordón.

Advisor: Manuel de León.

Place: ICMAT, Madrid, Spain.

Date: 18 September 2024.

Journals

Journal "Geometric Mechanics".

Published by World Scientific about applications of geometric methods in mechanics, dynamics, control, transport, stochastic processes, data science, and learning.

Deadline: No precise deadline.

"Recent Mathematical and Theoretical Progress in Quantum Mechanics".

A special issue of "Frontiers in Physics" aims to promote research on open problems in quantum mechanics and foster idea exchange between

related fields of theoretical and mathematical physics.

Deadline: 30 April 2025.

"Geometric methods in mechanics and physics".

Open-access sponsored by the International Research Center for Mathematics & Mechanics of Complex Systems Journal (Italy). On topics such as variational methods, numerical methods, and optimization techniques.

Deadline: No precise deadline.

Preprints

Network's members

Alejandro Cabrera, David Martín de Diego and Miguel Vaquero: *Approximating Symplectic Realizations: A General Framework for the Construction of Poisson Integrators.*

2409.04342

[math.NA, cs.NA, math.DG]

Paula Balseiro and Danilo Machado Tereza: *Nonholonomic momentum map reduction and a Chaplygin-type foliation.*

2409.05970

[math-ph, math.DG, math.MP]

Hari K. Kunduri, Juan Margalef-Bentabol and Sarah Muth: *The Penrose inequality in spherical symmetry with charge and in Gauss-Bonnet gravity.*

2409.07639

[gr-qc, math-ph, math.MP]

M. Costa Villegas and L. C. García-Naranjo: *Affine generalizations of the nonholonomic problem of a convex body rolling without slipping on the plane.*

2409.08072

[math-ph, math.DS, math.MP]

Manuel de León, Jordi Gaset Rifà, Miguel C. Muñoz-Lecanda, Xavier Rivas and Narciso Román-Roy: *Practical Introduction to Action-Dependent Field Theories.*

2409.08340

[hep-th, math-ph, math.MP]

Javier de Lucas, Xavier Rivas and Tomasz Sobczak: *Foundations on k-contact geometry.*

2409.11001
 [math.DG, math-ph, math.AP, math.MP]
 Asier López-Gordón: *The geometry of dissipation*.
 2409.11947
 [math-ph, math.DS, math.MP, math.SG]
 Xu Shang, Jorge Cortés and Yang Zheng: *Willems' Fundamental Lemma for Nonlinear Systems with Koopman Linear Embedding*.
 2409.16389
 [math.OC, cs.SY, eess.SY]
 O. Carballal, R. Campoamor-Stursberg and F. J. Herranz: *Lie-Hamilton systems associated with the*

symplectic Lie algebra $\mathfrak{sp}(6, \mathbb{R})$.
 2409.18489
 [math-ph, math.DS, math.MP, nlin.SI]
 Alexandre Anahory Simões, Juan Carlos Marrero and David Martín de Diego: *Mechanical Hamiltonization of unreduced φ -simple Chaplygin systems*.
 2409.18648
 [math.DG, math-ph, math.MP]
 M. Jotz: *On the flows of linear fields*.
 2409.18723
 [math.DG]

Network's collaborators

Ge Chen, Wei Su, Wenjun Mei and Francesco Bullo: *Convergence of the Heterogeneous Deffuant-Weisbuch Model: A Complete Proof and Some Extensions*.
 2409.01593
 [math.OC, math.PR]
 María Ángeles García-Ferrero, David Gómez-Ullate and Robert Milson: *Classification of exceptional Jacobi polynomials*.
 2409.02656
 [math.CA, math-ph, math.MP]
 Arash Bahari Kordabad, Eleftherios E. Vlahakis, Lars Lindemann, Dimos V. Dimarogonas and Sadegh Soudjani: *Distributionally Robust Control for Chance-Constrained Signal Temporal Logic Specifications*.
 2409.03855
 [eess.SY, cs.SY, math.OC]
 Şengül Kuru, Javier Negro and Sergio Salamanca: *Demkov-Fradkin tensor for curved harmonic oscillators*.
 2409.03900 (version 2)
 [math-ph, math.MP, quant-ph]
 Tomoki Ohsawa: *Relative Dynamics of Vortices in Confined Bose-Einstein Condensates*.
 2409.07657
 [math-ph, cond-mat.quant-gas, math.MP, nlin.PS]
 N. Aizawa and J. Segar: *Affine extensions of \mathbb{Z}_2^2 -graded $osp(1|2)$ and Virasoro algebra*.
 2409.07938
 [math-ph, math.MP]

Anand Gokhale, Alexander Davydov and Francesco Bullo: *Proximal Gradient Dynamics: Monotonicity, Exponential Convergence, and Applications*.
 2409.10664
 [math.OC, cs.SY, eess.SP, eess.SY]
 José M. Gracia-Bondía, Karl-Henning Rehren and Joseph C. Várilly: *The full electroweak interaction: an autonomous account*.
 2409.10668
 [hep-th, math-ph, math.MP]
 Marcelo Epstein: *Hypercubes, n -groupoids, and mixtures*.
 2409.10730
 [math.CT, math-ph, math.MP]
 Christopher Eldred, François Gay-Balmaz and Meng Wu: *Geometric, Variational, and Bracket Descriptions of Fluid Motion with Open Boundaries*.
 2409.13800
 [math.DS, physics.flu-dyn]
 Fabio Di Cosmo, Katarzyna Grabowska and Janusz Grabowski: *Jacobi algebroids and Jacobi sigma models*.
 2409.14568
 [math-ph, math.DG, math.MP, math.SG]
 Toshiaki Fujiwara, Ernesto Pérez-Chavela and Shuqiang Zhu: *Equivalence of Rigid Motions and Relative Equilibria in the N -Body Problem on the Two-Sphere*.
 2409.16545
 [math.D]

Links of interest

Geometry, Dynamics and Field Theory Network

Journal “Geometric Mechanics”

International Mathematical Union (IMU) Newsletter - July 2024

Instituto de Ciencias Matemáticas (ICMAT) Newsletter - July 2024

International Association of Mathematical Physics Bulletin - July 2024

European Mathematical Society

Royal Spanish Mathematical Society (RSME)

International Association of Mathematical Physics

International Centre for Theoretical Physics (ICTP)

European Research Council

European Commission - Research and Innovation

International Center of Pure and Applied Mathematics (CIMPA)

Mathematical and physical sciences funding, National Science Foundation, USA

Open Access Mathematics Journals

Open Access American Institute of Mathematical Sciences (AIMS) Journal

Open Access Physics Journals

Societat Catalana de Matemàtiques (SCM) journal on Mathematics

SIAM Activity Groups award various prizes

International Mathematical Union Awards and Prizes

Other Prizes of International Mathematical Union

American Mathematical Society Prizes and Awards

Association for Women in Mathematics Awards

IEEE Control Systems Society Awards

Royal Society of London Premier Medals and Awards

London Mathematical Society Prizes

The Shaw Prize

The Henri Poincaré Prize

The British Royal Society Grants

The British Royal Society’s medals and award

NOTE: If you want to include information in this info-sheet, please send it to gmactivities@gmail.com