



GEOMETRY, DYNAMICS  
AND FIELD THEORY NETWORK

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Editors: Miguel Berbel, Viviana  
Díaz, Rodrigo Sato

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# *Geometry, Dynamics and Field Theory Network Infosheet*

## Network's activities

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

## Other conferences

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**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.

**8th International Conference on Mechanics, Mathematics and Applied Physics.**  
22–24 November 2024, Dalian, China.

**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.

**7th International Conference on Soft Computing, Control and Mathematics (Virtual).**

14–15 December 2024.

**The AIMS Conference Series on Dynamical Systems, Differential Equations, and Applications.**

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 in Mathematical Physics.**

5–10 January 2025, Les Diablerets, Switzerland.

**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.

**Workshop on Resurgence, wall-crossing & geometry.**

12–17 January 2025, Les Diablerets, Switzerland.

**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.**

21–24 January 2025, Luminy, France.

**Singularities, differential equations, transcendence.**

27 January–28 February 2025, Luminy, France.

**Statistical mechanics, Algebra, and Geometry.**

2–7 February 2025, Les Diablerets, Switzerland.

**Lectures on Statistical Field Theories.**

3–14 February 2025, Firenze, Italy.

**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.

**Microlocal and Global Analysis, Interactions with Geometry.**

10–14 February 2025, Postdam, Germany.

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

23–28 February 2025, Oberwolfach, Germany.

**Evolving Design and Discrete Differential Geometry: towards Mathematics Aided Geometric Design.**

10–13 March 2025, Fukuoka, Japan.

**Workshop on Differential Geometry.**

10–14 March 2025, Maceio, Brazil.

**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.

**Representation Theory, Symplectic Geometry, and Cluster Algebras.**

30 March–4 April 2025, Banff, Canada.

**New directions in G2 geometry.**

31 March–4 April 2025, Pasadena, USA.

**Hyperbolic & Dispersive Equations on Curved Geometries: Connections to Physics and General Relativity.**

7–11 April 2025, New York, USA.

**Applications of NonCommutative Geometry to Gauge Theories, Field Theories, and Quantum Space-Time.**

7–11 April 2025, Luminy, France.

**Geometry of Materials.**

7–11 April 2025, Providence, USA.

**Integro-differential equations in many-particle interacting systems.**

14–18 April 2025, California, USA.

**Geometric structures and discrete group actions.**

14–18 April 2025, Luminy, France.

**Higher rank geometric structures.**

14 April–11 July 2025, Paris, France.

**11th International Conference on Control, Automation and Robotics.**

18–20 April 2025, Kyoto, Japan.

**3rd International Conference on Intelligent Control and Computing.**

25–2 April 2025, Changchun, China.

**Dynamics of Density Operators.**

28 April–2 May 2025, Los Angeles, USA.

**Dispersive Integrable Equations: Pathfinders in Infinite-Dimensional Hamiltonian Systems.**

28 April–2 May 2025, Luminy, France.

## Virtual seminars

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**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

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### Ph.D. offers

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#### PhD positions in Mathematics.

University of Copenhagen, Copenhagen, Denmark

Closing date: 15 November 2024.

#### PhD position in Robotics.

Technical University of Darmstadt, Darmstadt, Germany

Closing date: 18 November 2024.

#### PhD position in Computational Geometry.

TU Graz, Graz, Austria

Closing date: 29 November 2024.

#### PhD positions in Gravitational Physics.

Max Plank Insitute, Potsdam, Germany

Closing date: 6 December 2024.

#### PhD position in Geometric Learning.

The University of Edinburgh, Edinburgh, United Kingdom

Closing date: 16 December 2024.

#### 15 PhD positions in Tensor Modelling, Geometry and Optimisation.

University of Cote d'Azur, Antibes, France

Closing date: 31 December 2024.

#### PhD position in Calculus of Variations.

University of Ottawa, Ottawa, Canada

Closing date: 31 December 2024.

#### PhD position in Analysis of PDEs.

Regensburg University, Regensburg, Germany

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

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#### Postdoctoral position in Mathematics.

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

Closing date: 8 November 2024.

#### Postdoctoral position in Discretization and Optimal Control.

University of Erlangen–Nuremberg, Erlangen, Germany

Closing date: 15 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.

#### Titchmarsh Research Fellowship.

University of Oxford, Oxford, United Kingdom

Closing date: 27 November 2024.

#### Postdoctoral position in Geometry Analysis and Gravitation .

TQueen Mary University of London, London, United Kingdom

Closing date: 27 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.

#### 3 Postdoctoral position in Mathematical Physics.

University of Oxford, Oxford, United Kingdom

Closing date: 2 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

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**Senior Lecturer in Pure Mathematics.**

Imperial College London, London, United Kingdom

Closing date: 7 November 2024.

**W3 Professorship in Pure Mathematics.**

Johannes Gutenberg University, Mainz, Germany

Closing date: 15 November 2024.

**Tenure-track position in Computational Mechanics.**

Worcester Polytechnic Institute, Worcester(MI), United States of America

Closing date: 24 November 2024.

**Assistant professor in Analysis of Dynamical Systems.**

Utrecht University, Utrecht, The Netherlands

Closing date: 25 November 2024.

**Senior researcher in Geometry and Physics.**

IBS Center for Geometry and Physics, Pohang, South Korea

Closing date: 29 November 2024.

**Full professor position in Mathematical Analysis.**

Bocconi University, Milan, Italy

Closing date: 15 December 2024.

**Tenured/Tenure-track position in Differential Geometry.**

ShanghaiTech University, Shanghai, China

Closing date: 10 January 2025.

**Professor of Mathematics.**

University of Alaska Fairbanks, Fairbanks(AK), United States of America

Closing date: 14 January 2025.

**University Professor of Mathematical General Relativity.**

University of Vienna, Vienna, Austria

Closing date: 10 January 2025.

## Offers for visiting researchers

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**Abel Visiting Scholar Program.**

International Mathematical Union.

Postdoctoral mathematician to visit a research collaborator for a month.

Closing date: 31 December, 30 April and 31 August.

**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 Mathématiques (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 Mathématiques (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 University.

Mathematics Department-KSU, Ohio, USA.

Visiting for scholar researchers.

Closing date: Open.

## Financial support

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### 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.

### Thematic programs at MSRI.

Mathematical Sciences Research Institute, Berkeley, United States.

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

### Hot topics Workshop at MSRI.

Mathematical Sciences Research Institute, Berkeley, United States.

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

### Summer graduate schools at MSRI.

Mathematical Sciences Research Institute, Berkeley, United States.

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

### Full- or half-year scientific programs.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.

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

### Hot topic workshops.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.

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

### Revisiting Fundamental Problems Workshop.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.

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

### 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

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### Journals

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#### 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

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### Network's members

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Manuel de León and Rubén Izquierdo-López: *Graded Poisson and Graded Dirac structures.*

2410.06034

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

Pol Mestres, Carlos Nieto-Granda and Jorge Cortés: *Safe and Dynamically-Feasible Motion Planning using Control Lyapunov and Barrier Functions.*

2410.08364

[cs.RO, cs.SY, eess.SY, math.OC]

Alfonso Garmendia and Eva Miranda: *E-structures and almost regular Poisson manifolds.*

2410.11641

[math.SG]

Manuel de León and Pablo Soto Martín: *Coisotropic embeddings of precosymplectic manifolds.*

2410.15507

[math-ph, math.MP]

P. R. Gordoa, A. Pickering, D. Puertas-Centeno and E. V. Toranzo: *Generalized and new solutions of the NRT nonlinear Schrödinger equation.*

2410.20228

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

### Network's collaborators

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Alexey V. Bolsinov, Andrey Yu. Konyaev and Vladimir S. Matveev: *Finite-dimensional reductions and finite-gap type solutions of multicomponent integrable PDEs.*

2410.00895

[math-ph, math.AP, math.DG, math.MP, nlin.SI]

Anna Cima, Armengol Gasull, Víctor Mañosa and Francesc Mañosas: *Invariant graphs and dynamics of a family of continuous piecewise linear planar maps.*

2410.01052

[math.DS]

Brian K. Tran and Melvin Leok: *Variational Principles for Hamiltonian Systems*.

2410.02960

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

Alexey V. Bolsinov, Andrey Yu. Konyaev and Vladimir S. Matveev: *Research problems on relations between Nijenhuis geometry and integrable systems*.

2410.04276

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

Moise R. Mouyebé and Anthony M. Bloch: *On the Local Controllability of a Class of Quadratic Systems*.

2410.04770

[math.OC]

Yunhe Sheng, Rong Tang and Chenchang Zhu: *Post-groupoids and quiver-theoretical solutions of the Yang-Baxter equation*.

2410.04973

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

Ben Brubaker, A. Suki Dasher, Michael Hu, Nupur Jain, Yifan Li, Yi Lin, Maria Mihaila, Van Tran and I. Deniz Ünel: *Kirillov's conjecture on Hecke-Grothendieck polynomials*.

2410.07960

[math.CO, math-ph, math.MP, math.RT]

Jakob Hedicke and Karl-Hermann Neeb: *Elliptic domains in Lie groups*.

2410.08083

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

Gregorio Falqui, Igor Mencattini and Marco Pedroni: *Poisson quasi-Nijenhuis manifolds and generalized recursion relations*.

2410.08671

[math-ph, math.MP]

Jinwoo Choi, Alejandro Cabrera and Ross L. Hatton: *Geometric Optimal Control of Mechanical Systems with Gravitational and Resistive Force*.

2410.09657

[cs.RO, math.OC]

Baiyue Wang and Anthony Bloch: *Learning the Rolling Penny Dynamics*.

2410.15201

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

Claudio Dappiaggi, Felix Finster, Niky Kamran and Moritz Reintjes: *Holographic Mixing and Fock Space Dynamics of Causal Fermion Systems*.

2410.18045

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

João Faria Martins and Catherine Meusburger: *A geometrical description of untwisted Dijkgraaf-Witten TQFT with defects*.

2410.18049

[math.QA, math-ph, math.CT, math.GT, math.MP]

Willem Esterhuizen, Bernhard Maschke, Till Preuster, Manuel Schaller and Karl Worthmann: *Existence of solutions to port-Hamiltonian systems: initial value problems and optimal control*.

2410.18888

[math.OC, cs.SY, eess.SY]

J. Llibre and Adrian C. Murza: *Darboux theory of integrability for real polynomial vector fields on the  $n$ -dimensional ellipsoid*.

2410.21336

[math.DS]

## Links of interest

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**Geometry, Dynamics and Field Theory Network**

**Journal "Geometric Mechanics"**

**International Mathematical Union (IMU) Newsletter - September 2024**

**Instituto de Ciencias Matemáticas (ICMAT) Newsletter - August & September 2024**

**International Association of Mathematical Physics Bulletin - October 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 Poincarè 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](mailto:gmactivities@gmail.com)**