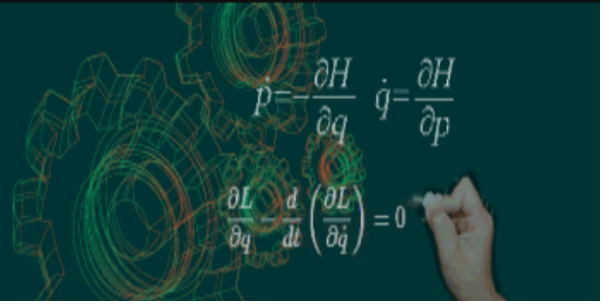# GDFT Network

Geometry, Dynamics and Field Theory Network Infosheet

December 2023

Editors: Miguel Berbel, Viviana Díaz, Rodrigo Sato

Contents

Network's activities

Winter Meeting on Geometry, Mechanics and Control.
18–19 January 2024, Zaragoza, Spain.

XVIII International Young Researchers Workshop in Geometry, Dynamics and Field Theory.
21–23 February 2024, Warsaw, Poland.

Other conferences

AMS Special Session on Geometric Group Theory.
3–6 January 2024, San Francisco, United States.

Winter School in Mathematical Physics.
7–12 January 2024, Les Diablerets, Switzerland.

Geometry and Physics: Remembering Włodzimierz Tulczyjewtra.
8 January 2024, Salerno, Italy.

Equivariant methods in geometry.
8–12 January 2024, Cambridge, United Kingdom.

Solving N=4 super-Yang-Mills theory via Scattering Amplitudes.
8 January–8 March 2024, New York, United States.

Quantum many-body systems out-of-equilibrium (Thematic programme).
8 January–22 March 2024, Paris, France.

International Conference on Nonlinear Mathematics and Physics (Digital).
11–12 January 2024, Tokyo, Japan.

International Conference on Theoretical and Mathematical Physics (Digital).
11–12 January 2024, Singapore, Singapore.

International Conference on Mathematical Physics, and Applications (Digital).
11–12 January 2024, Nicosia, Cyprus.

International Conference on Continuum Mechanics and Mathematical Physics (Digital).
11–12 January 2024, Zurich, Switzerland.

International Conference on Computational and Theoretical Physics (Digital).
15–16 January 2024, Bangkok, Thailand.

Spectral Analysis for Quantum Hamiltonians.
15–19 January 2024, Luminy, France.

A structure formation mechanism in oceans, atmospheres, active fluids and plasmas.
15–19 January 2024, Cambridge, United Kingdom.

Discrete Geometry.
21–26 January 2024, Oberwolfach, Germany.

Conformal field theory 3 ways: integrable, probabilistic, and supersymmetric.
21–26 January 2024, Les Diablerets, Switzerland.

Discrete Mathematics & Computer Science: Groups, Dynamics, Complexity, Words.
29 January–1 May 2024, Marseille, France.

Mirror Research Brazil-France School on Foliation Theory.
29 January–1 May 2024, Marseille (France) and Rio de Janeiro (Brazil).

Numerical PDEs: Analysis, Algorithms, and Data Challenges.
29 January–3 May 2024, Providence, USA.

International Conference on Mathematical and Theoretical Physics (Digital).
1–2 February 2024, Rio de Janeiro, Brazil.

International Conference on Mathematical Physics (Digital).
1–2 February 2024, Guangzhou, China.

International Conference on Mathematical Physics, and Applications (Digital).
2–3 February 2024, Rio de Janeiro, Brazil.

Phase Mixing, Kinetic Theory and Fluid Mechanics.
4–9 February 2024, Les Diablerets, Switzerland.

Exponential Fields.
4–9 February 2024, Banff, Canada.

Geometric and Asymptotic Group Theory with Applications.
5–9 February 2024, Luminy, France.

Lectures on Statistical Field Theories.
5–16 February 2024, Firenze, Italy.

Texas Analysis and Mathematical Physics Symposium.
9–11 February 2024, Texas, USA.

Interfaces, Free Boundaries and Geometric Partial Differential Equations.
11–16 February 2024, Oberwolfach, Germany.

Numerical Analysis of Multiphysics Problems.
12–16 February 2024, Providence, USA.

Structured Machine Learning and Time–Stepping for Dynamical Systems.
18–23 February 2024, Banff, Canada.

Workshop in Mathematical Physics.
18–23 February 2024, Les Diablerets, Switzerland.

International Conference on Mathematical Physics, and Applications (Digital).
19–20 February 2024, Paris, France.

International Conference on Nonlinear Mathematical Physics (Digital).
19–20 February 2024, Rome, Italy.

International Conference on Mathematical Physics (Digital).
19–20 February 2024, Paris, France.

International Conference on Mathematical and Theoretical Physics (Digital).
19–20 February 2024, Paris, France.

Workshop on Quantum Simulators of the Future: From Dynamical Gauge Fields to Lattice Gauge Theories.
20–22 February 2024, Trieste, Italy.

International Conference on Mathematical Physics, and Applications (Digital).
26–27 February 2024, Sydney, Australia.

VIII Latin American Workshop on Optimization and Control.
26 February–1 March 2024, Córdoba, Argentina.

Mathematical Aspects of N=4 Super-Yang-Mills Theory.
26 February–1 March 2024, New York, United States.

Mini-Workshop: Skew Braces and the Yang–Baxter Equation.
26 February–4 March 2024, Oberwolfach, Germany.

Mini-Workshop: Free Boundary Problems Arising in Fluid Mechanics.
26 February–4 March 2024, Oberwolfach, Germany.

International Conference on Mathematical and Theoretical Physics (Digital).
4–5 March 2024, Barcelona, Spain.

International Conference on Physics and Geometry (Digital).
4–5 March 2024, Rome, Italy.

International Conference on Mathematical and Computational Methods in Physics (Digital).
11–12 March 2024, London, United Kingdom.

International Conference on Nonlinear Mathematical Physics (Digital).
11–12 March 2024, Prague, Czechia.

Conformal Field Theory, Integrability, and Geometry.
11–15 March 2024, New York, USA.

PDEs and Geometry: Numerical Aspects.
11–15 March 2024, Providence, USA.

School of Physics and Mathematics Without Frontiers.
11–23 March 2024, La Habana, Cuba.

New Directions in far from Equilibrium Integrability and beyond.
11 March–10 May 2024, New York, United States.

Geometry, Statistical Mechanics, and Integrability.
11 March–14 June 2024, Los Angeles, United States.

Gauge/Gravity Duality (on line).
11 March–31 July 2024, Trieste, Italy.

New Directions in far from Equilibrium Integrability and beyond.
11 March–10 May 2024, New York, United States.

International Conference on Mathematical Physics, and Applications (Digital).
18–19 March 2024, Madrid, Spain.

International Conference on Mathematical Physics and Advanced Mathematics (Digital).
18–19 March 2024, Tokyo, Japan.

Workshop on New Directions in Conformal Field Theory.
18–22 March 2024, Toronto, Canada.

Rare Events in Dynamical Systems.
18–22 March 2024, Wien, Austria.

Dynamics and Thermodynamics of Large Interacting Systems.
18–22 March 2024, Warszawa, Poland.

International Conference on Nonlinear Problems in Mathematical Physics (Digital).
25–26 March 2024, Paris, France.

International Conference on Mathematical and Computational Methods in Physics (Digital).
25–26 March 2024, Paris, France.

Mathematical and Computational Modelling of Anti-Diffusive Phenomena.
25–28 March 2024, Cambridge, United Kingdom.

Theoretical and Analytical Aspects of Kinetic equations in Plasmas.
25–29 March 2024, Marseille, France.

Statistical Mechanics and Discrete Geometry.
25–29 March 2024, Los Angeles, USA.

Multidimensional symbolic dynamics and lattice models of quasicrystals.
1–5 April 2024, Marseille, France.

International Conference on Mathematical Physics and Fluid Dynamics (Digital).
4–5 April 2024, Athens, Greece.

Differential Geometry Workshop in Lerici.
8–10 April 2024, Lerici, Italy.

Aggregation-Diffusion Equations & Collective Behavior: Analysis, Numerics and Applications .
8–12 April 2024, Marseille, France.

14th International Conference on Applied Physics and Mathematics.
10–12 April 2024, Taipei, Taiwan.

International Conference on Theoretical Physics and Mathematics (Digital).
11–12 April 2024, Paris, France.

Nonlocality: Challenges in Modeling and Simulation.
15–19 April 2024, Providence, USA.

Introductory school –Higher Structures in Geometry and Mathematical Physics.
17–21 April 2024, Marseille, France.

Modern Methods for Differential Equations of Quantum Mechanics.
21–26 April 2024, Banff, Canada.

International Conference on Nonlinear Mathematical Physics (Digital).
22–23 April 2024, Jerusalem, Israel.

Group operator algebras and Non commutative geometry.
22–26 April 2024, Marseille, France.

International Conference on Mathematical Physics and Dynamical Systems (Digital).
2–3 May 2024, Singapore, Singapore.

International Conference on Mathematical Physics and Geometric Analysis (Digital).
2–3 May 2024, Montreal, Canada.

Skew Braces, Braids and the Yang-Baxter Equation.
5–10 May 2024, Banff, Canada.

Higher Algebra, Geometry, and Topology.
6–10 May 2024, Luminy, France.

Analysis of Geometric Singularities.
13–17 May 2024, Montreal, Canada.

Nonlinear Days 2024: Dynamics of Group Actions and Random Walks on Groups.
13–17 May 2024, Toronto, Canada.

Poisson Geometry and Mathematical Physics (intensive period).
13 May–12 July 2024, Napoli, Italy.

Geometric, Algebraic, and Physical structures around the moduli of Meromorphic Quadratic Differentials.
13 May–21 July 2024, New York, United States.

Symmetry & Reduction in Poisson & Related Geometries.
20–24 May 2024, Salerno, Italy.

Symmetric Mass Generation, Topological Phases and Lattice Chiral Gauge Theories.
20–24 May 2024, New York, United States.

XXII Geometrical Seminar.
26–31 May 2024, Vrnjačka Banja, Serbia.

Propagation and Stability in Evolution Equations.
26–31 May 2024, Banff, Canada.

Representation Theory and Related Geometry: Progress and Prospects.
27–31 May 2024, Athens, Greece.

Geometric Sciences in Action: from geometric statistics to shape analysis.
27–31 May 2024, Marseille, France.

Analysis and Numerics of Partial Differential Equations (CIMPA School).
2–15 June 2024, Cape Coast, Ghana.

International Conference on Physics and Symplectic Geometry (Digital).
3–4 June 2024, New York, United States.

Mathematical aspects of the physics with non-self-adjoint operators.
3–7 June 2024, Marseille, France.

Kinetic and hydrodynamic descriptions in collective behavior.
3–7 June 2024, Warszawa, Poland.

Geometric And Variational Analysis.
9–15 June 2024, Będlewo, Poland.

Gauge theories, supergravity and superstrings.
9–22 June 2024, Benasque, Spain.

Anti-Diffusion in Multiphase and Active Flows.
10–14 June 2024, Cambridge, United Kingdom.

Harmonic analysis and partial differential equations.
10–14 June 2024, Marseille, France.

Vertex algebras, geometric representation theory and quantum groups.
10–14 June 2024, Marseille, France.

Lie Groupoids, Lie Algebroids & Differentiable Stacks.
11–14 June 2024, Salerno, Italy.

Structural Dynamical Systems: Computational Aspects.
11–14 June 2024, Monopoli, Italy.

Computational Geometry.
23–28 June 2024, Banff, Canada.

Open Communications in Nonlinear Mathematical Physics.
23–29 June 2024, Bad Ems, Germany.

Canadian Symposium on Fluid Dynamics.
24–27 June 2024, Toronto, Canada.

Research School: Frontiers in Interacting Particle Systems, Aggregation-Diffusion Equations & Collective Behavior.
24–28 June 2024, Marseille, France.

Online course

Equivariant methods in geometry. 8–12 January 2024, Cambridge, United Kingdom.

Virtual seminars

Seminar of the Geometry, Dynamics and Field Theory Thematic Network.
Instituto de Ciencias Matemáticas' seminars on these topics.

Mathematics and High Energy Physics Seminars.
ICTP-PWF Latin America-Physics Latam New Seminar Series.

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 positions in Mathematics.
Institute of Science and Technology Austria, Klosterneuburg, Austria
Closing date: 7 January 2024.

PhD positions in Mathematics.
KTH Royal Institute of Technology, Stockholm, Sweden
Closing date: 8 January 2024.

PhD positions in Mathematics.
University of Vienna, Vienna, Austria
Closing date: 13 January 2024.

PhD positions in Mathematics.
Aalto University, Espoo, Finland
Closing date: 24 January 2024.

PhD position in Dirac Operators and Global Symmetries.
Aberdeen University, Aberdeen, United Kingdom
Closing date: 28 January 2024.

PhD position in Stochastic Partial Differential Equations .
TU of Delft, Delft, Netherlands
Closing date: 30 January 2024.

PhD positions in Pure Mathematics.
KU Leuven, Leuven, Belgium
Closing date: 12 February 2024.

PhD positions in Mathematics.
Chalmers University of Technology, Gothenburg, Sweden
Closing date: 19 February 2024.

PhD position in Dynamical Systems.
University of Haute-Alsace, Mulhouse, France
Closing date: 28 February 2024.

PhD position in Geometry and Optimization.
Centrum Wiskunde and Informatica, Amsterdam, Netherlands
Closing date: 31 March 2024.

Postdoctoral fellowships

Postdoctoral positions in Pure Mathematics.
KU Leuven, Leuven, Belgium
Closing date: 8 January 2024.

Postdoctoral position in Probability and Mathematical Physics.
University of L'Aquila, L'Aquila, Italy
Closing date: 10 January 2024.

Posdoctoral position in PDEs and Fluid Mechanics.
Basque Center for Applied Mathematics, Bilbao, Spain
Closing date: 11 January 2024.

Postdoctal position in Differential Geometry.
Scuola Normale Superiore, Pisa, Italy
Closing date: 11 January 2024.

Postdoctoral position in Low Dimensional Geometry .
University of Paris-Est Créteil, Créteil, France
Closing date: 14 January 2024.

Postdoctoral position in Geometry and Gravitation.
Queen Mary University of London, London, United Kingdom
Closing date: 17 January 2024.

Postdoctoral position in Geometric Analysis.
Vrije Universiteit Brussel, Brussel, Belgium
Closing date: 20 January 2024.

Postdoctoral position in Calculus of Variation.
University of Lorraine, Nancy, France
Closing date: 31 January 2024.

Postdoctoral position in Differential Geometry.
University of Sao Paulo, Sao Carlos, Brazil
Closing date: 31 January 2024.

Postdoctoral positions in Mathematics.
Institute of Information Theory and Automation, Prague, Czechia
Closing date: 29 February 2024.

Postdoctoral positions in Mathematics.
Tsinghua University, Beijing, China
Closing date: 1 March 2024.

Humboldt research fellowship for postdoctoral researchers.
Alexander von Humboldt Foundation
Closing date: Open.

Offers for researchers

Tenure-track position in Geometric PDEs.
University of Vienna, Vienna, Austria
Closing date: 15 January 2024.

Tenure-Track position in Geometry and Mathematical Physics.
University of Birmingham, Birmingham, United Kingdom
Closing date: 28 January 2024.

Tenure-track position in Mathematics.
NYU Shanghai, Shanghai, China
Closing date: 31 January 2024.

W2 Professorship in Mathematics.
University of Giessen, Giessen, Germany
Closing date: 31 January 2024.

Professor position in Quantum Mathematics.
University of Southern Denmark, Odense, Denmark
Closing date: 1 February 2024.

W3 Professorship in Numerical Mathematics.
Friedrich-Alexander University, Erlangen, Germany
Closing date: 18 February 2024.

Professor position in Geometry.
University of Oxford, Oxford, United Kingdom
Closing date: 25 February 2024.

Tenure-Track position in Mathematics.
Pennsylvania State University, State College(PA), United States of America
Closing date: 29 February 2024.

Faculty Positions in Mathematics.
Great Bay University, Dongguan, China
Closing date: Open Until Filled.

Offers for visiting researchers

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.

Simons Visiting Professors at Mathematisches Forschunginstitut 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 Researh 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

Thematic programs at MSRI.
Mathematical Sciences Research Institute, Berkeley, United States.
Deadline: 1 March, 1 October and 1 December every year. Three years ahead.

Hot topics Workshop at MSRI.
Mathematical Sciences Research Institute, Berkeley, United States.
Deadline: 1 March, 1 October and 1 December every year every year.

Summer graduate schools at MSRI.
Mathematical Sciences Research Institute, Berkeley, United States.
Deadline: 1 March, 1 October and 1 December every year every year.

Full- or half-year scientific programs.
Simons Laufer Mathematical Sciences Institute, Berkeley, United States.
Deadline: 1 March, 1 October and 1 December every year every year.

Hot topic workshops.
Simons Laufer Mathematical Sciences Institute, Berkeley, United States.
Deadline: 1 March, 1 October and 1 December every year every year.

Critical Issues in Mathematics Education Workshops.

Simons Laufer Mathematical Sciences Institute, Berkeley, United States.
Deadline: 1 March, 1 October and 1 December every year every year.

Summer Graduate Schools.
Simons Laufer Mathematical Sciences Institute, Berkeley, United States.
Deadline: 1 March, 1 October and 1 December every year every year.

IMU Volunteer Lecturer Program.
Financial assistance to universities in developing countries to host a 3-4-week intensive course.
Deadline: 15 March, 1 June 2024, and 1 September 2023.

IMU Conference support program.
For conferences in developing or economically disadvantaged countries.
Deadline: 15 April, 15 July and 1 October.

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 Forschunginstitut Oberwolfach.
Oberwolfach, Germany.

Hosting a workshop at AIMS South Africa.
Contributions for workshops about AIMS's research focus areas.

News and publications

Journal

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

Preprints

Network's members

Yiting Chen, Liliaokeawawa Cothren, Jorge Cortés and Emiliano Dall'Anese: *Online Regulation of Dynamical Systems to Solutions of Constrained Optimization Problems.*
2311.18020 (version 2)
[eess.SY, cs.SY, math.OC]

Marco Castrillón López and Álvaro Rodríguez Abella: *Higher-order Euler-Poincaré field equations.*
2311.18462
[math.DG, math-ph, math.DS, math.MP]

Alfred Michel Grundland and Javier de Lucas: *Almost rectifiable Lie algebras and k-wave solutions of nonlinear hydrodynamic-type systems.*
2312.05238
[nlin.SI, math-ph, math.DG, math.MP]

Javier de Lucas, Julia Lange and Xavier Rivas: *A symplectic approach to Schrödinger equations in the infinite-dimensional unbounded setting.*
2312.09192
[math-ph, math.DG, math.MP, quant-ph]

Daniel Peralta-Salas and Miguel Vaquero: *Beltrami Fields with Morse Proportionality Factor.*
2312.10511
[math.AP, math.DS]

Asier López-Gordón and Leonardo J. Colombo: *On the integrability of hybrid Hamiltonian systems.*
2312.12152
[math-ph, math.DS, math.MP]

Antonin Colot, Yiting Chen, Bertrand Cornelusse, Jorge Cortés and Emiliano Dall'Anese: *Optimal Power Flow Pursuit via Feedback-based Safe Gradient Flow.*
2312.12267
[eess.SY, cs.SY, math.OC]

Manuel De León and Víctor M. Jiménez: *The nonholonomic bracket on contact mechanical systems.*
2312.15044
[math.DG]

Network's collaborators

Paolo Aschieri, Giovanni Landi and Chiara Pagani: *Atiyah sequences of braided Lie algebras and their splittings.*
2312.00495
[math.QA, math-ph, math.MP]

Robert Cardona and Francisco Torres de Lizaur: *Contact type solutions and non-mixing of the 3D Euler equations.*
2312.03514
[math.DS, math.AP, math.SG]

Martin Bauer, Patrick Heslin, Gerard Misiołek and

Stephen C. Preston: *Geometric Analysis of the Generalized Surface Quasi-Geostrophic Equations.*
2312.04697
[math.DG]

Richard Montgomery: *The Kepler Cone, Maclaurin Duality and Jacobi-Maupertuis metrics.*
2312.08173
[math.DS, math.DG]

Guillermo A. Lobos, Mynor Melara and Maria R. B. Santos: *A Simons' type formula for spacelike submanifolds in semi-Riemannian warped product.*
2312.10478

[math.DG]

Vincenzo Morinelli and Karl-Hermann Neeb: *From local nets to Euler elements.*
2312.12182
[math.OA, math-ph, math.MP, math.RT]

Werner Bauer, Paul Bergold, François Gay-Balmaz and Cesare Tronci: *Koopmon trajectories in nonadiabatic quantum-classical dynamics.*
2312.13878
[math.NA, cs.NA, math-ph, math.MP, physics.chem-ph, quant-ph]

E. Ercolessi, R. Fioresi and T. Weber: *The Geometry of Quantum Computing.*
2312.14807
[quant-ph, math-ph, math.MP]

Links of interest

Geometry, Dinamics and Field Theory Network

Journal "Geometric Mechanics"

International Mathematical Union (IMU) Newsletter - November 2023

Instituto de Ciencias Matemáticas (ICMAT) Newsletter - November 2023

International Association of Mathematical Physics Bulletin - October 2023

European Mathematical Society

Royal Spanish Mathematical Society (RSME)

International Association of Mathematical Physics

Open Access American Institute of Mathematical Sciences (AIMS) Journal

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 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

Mathematical Association of America 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

European Mathematical Society Funding and Sponsorship

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 gmcactivities@gmail.com