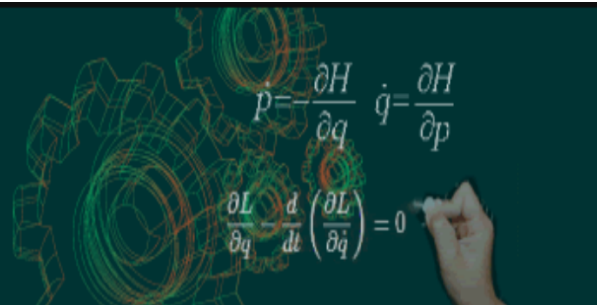# GDFT Network

Geometry, Dynamics and Field Theory Network Infosheet

November 2023

Editors: Miguel Berbel, Viviana Díaz, Rodrigo Sato

Contents

Network's activities

"deLeonfest 2023": An interdisciplinary conference on Geometric Mechanics and Related Fields.
11–13 December 2023, Madrid, Spain.

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

Other conferences

International Conference on Quantum Physics and Relativity (Digital).
2–3 December 2023, Sidney, Australia.

Vortex Dynamics: the Crossroads of Mathematics, Physics and Applications.
3–8 December 2023, Banff, Canada.

International Conference on Symplectic Geometry in Physics (Digital).
4–5 December 2023, Kuala Lumpur, Malaysia.

International Conference on Mathematical and Theoretical Physics (Digital).
4–5 December 2023, Sidney, Australia.

International Conference on Symplectic Geometry and Theoretical Physics (Digital).
4–5 December 2023, Amsterdam, Netherlands.

International Conference on Symplectic Geometry and Mathematical Physics (Digital).
4–5 December 2023, Sidney, Australia.

International Conference on Physics and Symplectic Geometry (Digital).
4–5 December 2023, Tokyo, Japan.

8th Iberoamerican Congress on Geometry.
10–15 December 2023, Pucón, Chile.

International Conference on Physics and Mathematics (Digital).
11–12 December 2023, Roma, Italy.

International Conference on Symplectic Geometry in Theoretical Physics (Digital).
11–12 December 2023, Roma, Italy.

International Conference on Symplectic Geometry and Physics (Digital).
11–12 December 2023, Roma, Italy.

International Conference on Geometric Analysis and Mathematical Physics (Digital).
11–12 December 2023, Roma, Italy.

Mathematical Analysis of Viscous Incompressible Fluid.
11–13 December 2023, Kyoto, Japan.

International Conference on Theoretical Physics and Classical Mechanics (Digital).
18–19 December 2023, Barcelona, Spain.

International Conference on Symplectic Geometry in Classical Mechanics (Digital).
18–19 December 2023, Barcelona, Spain.

International Conference on Theoretical Physics and Mathematical Physics (Digital).
18–19 December 2023, Barcelona, Spain.

International Conference on Mathematical Physics and Dynamical Systems (Digital).
18–19 December 2023, Cairo, Egypt.

Indian Control Conference.
18–20 December 2023, Visakhapatnam, India.

International Conference on Mathematical and Computational Methods in Physics (Digital).
25–26 December 2023, Dubai, United Arab Emirates.

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.

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

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 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.

Layering — 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.

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 Worshop 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, 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.

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.

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.

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.

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.

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

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

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

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

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

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 position in Algebraic Geometry.
Leibniz University Hannover, Hannover, Germany
Closing date: 10 December 2023.

PhD positions in Algebraic Geometry .
Leibniz University Hannover, Hannover, Germany
Closing date: 10 December 2023.

PhD position in Arithmetic Geometry.
Utrecht University, Utrecht, Netherlands
Closing date: 10 December 2023.

PhD position in Geometric Mechanics.
University of Antwerp, Antwerp, Belgium
Closing date: 18 December 2023.

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

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

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

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

PhD position in Control of Multi-Agent Systems.
University of Granada, Granada, Spain
Closing date: Open Untill Filled.

3 PhD positions in Geometry for Fluid Dynamics.
NTU Singapore, Singapore, Singapore
Closing date: Open Until Filled. Apply by email.

Postdoctoral fellowships

Postdoctoral position in Mathematical Physics.
Leibniz University Hannover, Hannover, Germany
Closing date: 10 December 2023.

Postdoctoral position in Differential Geometry.
University of Sao Paulo, Sao Carlos, Brazil
Closing date: 10 December 2023.

Postdoctoral position in Symplectic Optimal Control.
FAU Erlangen-Nürnberg, Erlangen, Germany
Closing date: 15 December 2023.

2 Postdoctoral positions in Symplectic and Contact Geometry.
Several institutions, Nantes-Lyon-Paris-Strasbourg,, France
Closing date: 31 December 2023.

Postdoctoral positions in Pure Mathematics.
KU Leuven, Leuven, Belgium
Closing date: 8 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 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 positions in Mathematics.
Tsinghua University, Beijing, China
Closing date: 1 March 2024.

Postdoctoral position in Geometry for Fluid Dynamics.
NTU Singapore, Singapore, Singapore
Closing date: Open Until Filled. Apply by email.

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

Offers for researchers

Tenure-track position in Mathematics.
Oregon State University, Corvallis (OR), United States of America
Closing date: 11 December 2023.

Professorship in Algebra or Geometry.
University of Basel, Basel, Switzerland
Closing date: 11 December 2023.

Senior Researcher in Geometry and Physics.
IBS Center for Geometry and Physics, Pohang, South Korea
Closing date: 12 December 2023.

Professor position in Mathematical Physics.
KTH Royal Institute of Technology, Stockholm, Sweden
Closing date: 14 December 2023.

Senior Lecturer in Mathematics.
Mid Sweden University, Sundsvall, Sweden

Closing date: 31 December 2023.

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

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

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

Tenure Track Position in Differential Geometry.
University of California, Santa Barbara(CA) , United States of America
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.

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.
Deadline: Open.

Hosting a workshop at AIMS South Africa.
Contributions for workshops about AIMS's research focus areas.
Deadline: No precise deadline.

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.
Deadline: No precise deadline.

Preprints

Network's members

Nirabhra Mandal, Mohammad Khajenejad and Sonia Martínez: *Distributed Task Allocation for Self-Interested Agents with Partially Unknown Rewards.*
2311.00222
[math.OC]

Alexandre Anahory Simões, Anthony Bloch and Leonardo Colombo: *Optimal Control with Obstacle Avoidance for Incompressible Ideal Flows of an Inviscid Fluid.*
2311.01774
[math-ph, cs.NA, math.MP, math.NA, math.OC]

Ivan Booth, Graham Cox and Juan Margalef-Bentabol: *Symmetry and instability of marginally outer trapped surfaces.*
2311.02063
[gr-qc, math.DG]

Álvaro Rodríguez Abella and Leonardo Colombo: *Implicit Nonholonomic Mechanics with Collisions.*

2311.02614
[math-ph, math.DG, math.DS, math.MP]

Pol Mestres, Kehan Long, Nikolay Atanasov and Jorge Cortés: *Feasibility Analysis and Regularity Characterization of Distributionally Robust Safe Stabilizing Controllers.*
2311.05813
[math.OC, cs.SY, eess.SY]

Álvaro Rodríguez Abella and Leonardo J. Colombo: *Nonholonomic reduction for mechanical systems with collisions.*
2311.07707
[math-ph, math.DG, math.DS, math.MP]

Ahmed Allibhoy and Jorge Cortés: *Anytime Solvers for Variational Inequalities: the (Recursive) Safe Monotone Flows.*
2311.09527
[math.OC]

Masih Haseli and Jorge Cortés: *Invariance Proximity: Closed-Form Error Bounds for Finite-Dimensional Koopman-Based Models.*
2311.13033
[math.OC, cs.SY, eess.SY, math.DS]

Pol Mestres, Ahmed Allibhoy and Jorge Cortés: *Robinson's Counterexample and Regularity Properties of Optimization-Based Controllers.*
2311.13167
[math.OC]

José Ángel Acosta, Anthony Bloch and David Martín de Diego: *Completeness of Riemannian metrics: an application to the control of constrained mechanical systems.*
2311.14969
[eess.SY, cs.SY, math.DG, math.DS]

Leonardo Colombo, Javier de Lucas, Xavier Rivas and Bartosz M. Zawora: *An energy-momentum method for ordinary differential equations with an underlying k-polysymplectic manifold.*
2311.15035

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

Florio M. Ciaglia, Fabio Di Cosmo, Alberto Ibort, Giuseppe Marmo, Luca Schiavone and Alessandro Zampini: *The Geometry of the solution space of first order Hamiltonian field theories III: Palatini's formulation of General Relativity.*
2311.15714
[math-ph, math.DG, math.MP]

Yoshihiko Mitsumatsu, Daniel Peralta-Salas and Radu Slobodeanu: *On the existence of critical compatible metrics on contact 3-manifolds.*
2311.15833
[math.DG, math.DS, math.SG]

Matthias Schubert, Rodrigo T. Sato Martín de Almagro, Karin Nachbagauer, Sina Ober-Blöbaum and Sigrid Leyendecker: *Discrete Adjoint Method for Variational Integration of Constrained ODEs and its application to Optimal Control of Geometrically Exact Beam Dynamics.*
2311.15913
[math.OC, math-ph, math.DS, math.MP]

Network's collaborators

Brian K. Tran and Melvin Leok: *Type II Hamiltonian Lie Group Variational Integrators with Applications to Geometric Adjoint Sensitivity Analysis.*
2311.03527
[math.NA, cs.NA, math.OC]

Veronica Centorrino, Anand Gokhale, Alexander Davydov, Giovanni Russo and Francesco Bullo: *Positive Competitive Networks for Sparse Reconstruction.*
2311.03821
[q-bio.NC, cs.SY, eess.SY, math.OC]

Kurusch Ebrahimi–Fard, W. Steven Gray and Venkatesh G. S: *On the Post-Lie Structure in SISO Affine Feedback Control Systems.*
2311.04070
[math.OC]

Alejandro Cabrera and Ross L. Hatton: *Optimal Control of Robotic Systems and Biased Riemannian Splines.*
2311.05593 (version 2)
[math.OC, math.DG, 53A04 (Primary) 53A17, 49K15 (Secondary)]

Pavol Ševera: *The geometry of the maximum likelihood of Cauchy-like distributions.*
2311.07165 (version 4)
[math.ST, math.DG, stat.TH]

Severin Bunk, Vicente Muñoz and C. S. Shahbazi: *The local moduli space of the Einstein-Yang-Mills system.*
2311.07572
[math.DG]

Dmitry Korotkin and Henning Samtleben: *Integrability and Einstein's Equations.*
2311.07900
[gr-qc, hep-th, math-ph, math.MP, nlin.SI]

Christopher Beem, Mario Martone, Matteo Sacchi, Palash Singh and Jake Stedman: *Simplifying the Type A Argyres-Douglas Landscape.*
2311.12123
[hep-th, math-ph, math.MP]

Links of interest

Geometry, Dinamics and Field Theory Network

Journal "Geometric Mechanics"

International Mathematical Union (IMU) Newsletter - September 2023

Instituto de Ciencias Matemáticas (ICMAT)

Newsletter - October 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