Maxence Mayrand
Curriculum Vitae | July 2021

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Employment

University of Toronto | Postdoctoral Fellow   2019–present
Department of Mathematics
Geometric Structures Laboratory
Mentor: Prof. Marco Gualtieri

University of Oxford | Lecturer in Pure Mathematics   2018–2019
Teaching position at Jesus College (part time).

Education

University of Oxford | DPhil in Mathematics   2015–2019
Supervisor: Prof. Andrew Dancer

McGill University | BSc Honours Mathematics   2012–2015
Mentor: Prof. Niky Kamran

Research keywords

Complex geometry; Kähler geometry; hyperkähler geometry; Riemannian geometry; geometric quantization; topological quantum field theories; moduli spaces; gauge theory (Higgs bundles, monopoles, Nahm's equations, Yang–Mills equations); mirror symmetry; deformation theory; holomorphic Poisson geometry; Lie groupoids; Lie theory; integrable systems; moment maps; geometric invariant theory.

Research papers

[1] Crooks, P., Mayrand, M., *Symplectic reduction along a submanifold.* arXiv:2107.03198 (2021)

[2] Mayrand, M., *Hyperkähler metrics near Lagrangian submanifolds and symplectic groupoids.* arXiv:2011.09282 (2020)

[3] Mayrand, M., *Stratifed hyperkähler spaces and Nahm's equations* (PhD thesis). Oxford University Research Archive (2019)

[4] Mayrand, M., *Kempf–Ness type theorems and Nahm equations.* Journal of Geometry and Physics, **136** (2019), 138–155.

[5] Mayrand, M., *Stratification of singular hyperkähler quotients.* arXiv:1807.05992 (2018)

[6] Mayrand, M., *Stratified hyperkähler spaces from semisimple Lie algebras.* Transformation Groups (2018).

[7] Mayrand, M., *Particle motion in monopoles and geodesics on cones.* Symmetry, Integrability and Geometry: Methods and Applications (SIGMA), **10** (2014), 102, 17 pages.

Teaching

University of Toronto
- Introduction to Combinatorics — Fall 2020
- Concepts in Abstract Mathematics — Winter 2020

Jesus College, University of Oxford
- Group Theory — Spring 2019
- Groups and Group Actions — Winter and Spring 2019
- Linear Algebra II — Winter 2019
- Topology — Winter 2019
- Linear Algebra I — Fall 2018
- Introduction to University Mathematics — Fall 2018
- Introduction to Complex Numbers — Fall 2018

Mathematical Institute, University of Oxford

Tutor:
- Lie Algebras — Spring 2017
- Lie Algebras — Fall 2017

Teaching assistant:
- Commutative Algebra — Winter 2018
- Representation Theory of Semisimple Lie Algebras — Winter 2017
- Lie Algebras — Fall 2016

Mini-courses at the graduate level
- Symplectic Reduction and Geometric Invariant Theory — Dec 2020
  2020 Canadian Mathematical Society Winter Meeting (3 hours)
- Nahm's Equations — Oct 2019
  The Fields Institute (6 hours)
- Stratified Hyperkähler Spaces and Nahm's Equations — Jul 2018
  The Fields Institute (6 hours)

Selected talks

1. *Symplectic reduction along a submanifold and the Moore-Tachikawa TQFT* 1 May 2021
   AMS Spring Western Sectional Meeting
   Geometric and Categorical Methods in Representation Theory
   American Mathematical Society
2. *Hyperkähler metrics near Lagrangian submanifolds and symplectic groupoids* — 22 Jan 2021

Geometry and Topology Seminar
University of Waterloo

3. *Hyperkähler metrics near Lagrangian submanifolds and symplectic groupoids*   11 Jan 2021
   Differential Geometry Research Seminar
   University of Hamburg

4. *Hyperkähler realizations of holomorphic Poisson surfaces*   11 Dec 2020
   Friday Fish Seminar
   Utrecht University

5. *Symplectic reduction along a submanifold and the Moore–Tachikawa TQFT* 3 Sep 2020
   Northeastern University
   Geometry, Physics, and Representation Theory Seminar

6. *Hyperkähler structures on holomorphic symplectic groupoids*   7 Jun 2020
   Workshop on Lie theory and integrable systems in symplectic and
   Poisson geometry

7. *Hyperkähler structures on symplectic realizations of holomorphic Poisson surfaces*   28 May 2020
   School on Geometry and Dynamics of Foliations
   CIRM

8. *Kempf-Ness type theorems and Nahm's equations*   7 Dec 2019
   2019 Canadian Mathematical Society Winter Meeting
   Algebraic Geometry and Representation Theory
   Toronto, Canada

9. *Stratified hyperkähler spaces, GIT, and Nahm's equations*   5 Dec 2019
   Boston College
   Geometry and Topology Seminar

10. *Symplectic reduction, GIT quotients, and Nahm's equations*   21 Nov 2019
    McMaster University
    Geometry and Topology Seminar

11. *Singular hyperkähler reduction and geometric invariant theory*   11 Nov 2019
    University of Toronto
    Symplectic Geometry Seminar

12. *Symplectic reduction, GIT quotients, and Nahm's equations*   11 Oct 2019
    CIRGET (Centre interuniversitaire de recherches en géométrie et topologie)
    Geometry and Topology Seminar

13. *Singular hyperkähler quotients*   16 May 2019
    University of Duisburg-Essen, Germany
    The Essen Seminar for Algebraic Geometry and Arithmetic

14. *Stratified hyperkähler spaces*   6 Feb 2019
    Centre for Quantum Geometry of Moduli Spaces, Aarhus, Denmark
    QGM seminars

15. *Hyperkähler quotients and geometric invariant theory*   5 Feb 2019
    Centre for Quantum Geometry of Moduli Spaces, Aarhus, Denmark
    Introductory seminars

16. *Stratified hyperkähler spaces*   15 Jun 2018
    University of Edinburgh
    GLEN Algebraic Geometry Seminar
17. *Stratified hyperkähler spaces*   5 Mar 2018
    University of Oxford
    Geometry and Analysis Seminar
18. *Nahm equations, stratified hyperkähler spaces and the Moore–Tachikawa*   30 Mar 2017
    category.
    ICTS, Tata Institute of Fundamental Research, Bangalore, India
    ICTS Special Seminar
19. *Nahm equations and stratified hyperkähler spaces*   28 Mar 2017
    Indian Institute of Science, Bangalore, India
    School and Workshop on Geometry and Physics of Moduli Spaces

Scholarships and awards

University of Toronto
- F. V. Atkinson Teaching Award   June 2021
- NSERC Postdoctoral Fellowship   2019–2021
- FRQNT Postdoctoral Research Scholarship   2019–2021

Pacific Institute for the Mathematical Sciences
- PIMS Postdoctoral Fellowship (declined)   2019–2021

University of Oxford
- Moussouris Scholarship   2015–2019
    Full scholarship (tuition fees and living expenses)
    Awarded by the University of Oxford
- NSERC CGS D (declined)   2017–2019
    Alexander Graham Bell Canada Graduate Scholarships
- NSERC PGS D   2017–2019
    Postgraduate Scholarships–Doctoral Program
- FRQNT Doctoral Scholarship (declined)   2017–2019
- FRQNT Master Scholarship   2015–2017

McGill University
- Dean's Honour List   May 2015
- First Class Honours in Mathematics   May 2015
- Gowrisankaran Prize in Mathematics and Statistics   May 2015
- NSERC Undergraduate Student Research Award   Summer 2014
- Kamran Undergraduate Award   Summer 2013