Maxence Mayrand
Curriculum Vitae | November 2020

Contact

Email	mayrand@math.toronto.edu
Webpage	https://www.math.toronto.edu/mayrand
Affiliation	University of Toronto, Department of Mathematics

Employment

Postdoctoral Fellow | University of Toronto — 2019–present (3 years)
Department of Mathematics
Geometric Structures Laboratory
Supervisor: Prof. Marco Gualtieri

Lecturer in Pure Mathematics | University of Oxford — 2018–2019
Teaching at Jesus College

Education

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

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

Research keywords

Complex geometry; hyperkähler geometry; holomorphic Poisson structures; Lie groupoids; Lie algebras; moment maps; symplectic reduction; geometric invariant theory; stratified spaces; gauge theory; moduli spaces; Nahm's equations.

Publications and preprints

[1] Mayrand, M., *Hyperkähler metrics near Lagrangian submanifolds and symplectic groupoids*
arXiv:2011.09282

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

[3] Mayrand, M., *Kempf–Ness type theorems and Nahm equations.*
Journal of Geometry and Physics, **136** (2019), 138–155.
arXiv:1809.04518

[4] Mayrand, M., *Local structure of singular hyperkähler quotients.*
Submitted.
arXiv:1807.05992

[5] Mayrand, M., *Stratified hyperkähler spaces from semisimple Lie algebras.*
Transformation Groups (2018).
arXiv:1709.09126

[6] Mayrand, M., *Particle motion in monopoles and geodesics on cones.*
Symmetry, Integrability and Geometry: Methods and Applications (SIGMA),
10 (2014), 102, 17 pages.
arXiv:1407.7919

Teaching

University of Toronto
- Introduction to Combinatorics (MAT344)   Fall 2020
- Concepts in Abstract Mathematics (MAT246)   Winter 2020

Jesus College, University of Oxford
- Linear Algebra I (1st year)   Fall 2018
- Introduction to University Mathematics (1st year)   Fall 2018
- Introduction to Complex Numbers (1st year)   Fall 2018
- Linear Algebra II (1st year)   Winter 2019
- Groups and Group Actions (1st year)   Winter–Spring 2019
- Topology (2nd year)   Winter 2019
- Group Theory (2nd year)   Spring 2019

Mathematical Institute, University of Oxford
- Commutative Algebra (3rd year); TA.   Winter 2018
- Lie Algebras (4th year); Tutor.   Fall 2017
- Lie Algebras (4th year); Tutor.   Spring 2017
- Representation Theory of Semisimple Lie Algebras (4th year); TA.   Winter 2017
- Lie Algebras (4th year); TA.   Fall 2016

Talks

1. *Mini-course on Symplectic Reduction and Geometric*   3 December 2020
   Invariant Theory
   2020 Canadian Mathematical Society Winter Meeting
2. *Symplectic reduction along a submanifold and the*   3 September 2020
   Moore–Tachikawa TQFT
   Northeastern University
   Geometry, Physics, and Representation Theory Seminar
3. *Hyperkähler structures on holomorphic symplectic groupoids*   7 June 2020
   Online conference on
   Lie theory and integrable systems in symplectic and Poisson geometry

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

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

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

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

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

9. *Two lectures on Nahm's equations*   30–31 Oct 2019
     The Fields Institute
     Geometric Structures Laboratory Seminar

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

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

12. *TQFTs with values in holomorphic symplectic varieties*   14 Feb 2019
     University of Oxford
     Junior Geometry and Topology Seminar

13. *Stratified hyperkähler spaces*   06 Feb 2019
     Centre for Quantum Geometry of Moduli Spaces, Aarhus, Denmark
     QGM seminars

14. *Hyperkähler quotients and geometric invariant theory*   05 Feb 2019
     Centre for Quantum Geometry of Moduli Spaces, Aarhus, Denmark
     Introductory seminars

15. *Nahm's equations, groupoids, and Higgs bundles*   25 Jul 2018
     (Part II of a mini-course on my thesis work)
     The Fields Institute
     Geometric Structures Laboratory Seminar

16. *Stratified hyperkähler spaces and Nahm's equations*   24 Jul 2018
     (Part I of a mini-course on my thesis work)
     The Fields Institute
     Geometric Structures Laboratory Seminar

17. *Stratified hyperkähler spaces*   15 Jun 2018
     University of Edinburgh

GLEN Algebraic Geometry Seminar

18. *Stratified hyperkähler spaces*   05 Mar 2018
University of Oxford
Geometry and Analysis Seminar

19. *Symplectic reduction and geometric invariant theory*   08 Feb 2018
University of Oxford
Junior Geometry and Topology Seminar

20. *Stratified Spaces and Nahm Equations*   11 Apr 2017
University of Oxford
Junior Geometry and Topology Seminar

21. *Nahm equations, stratified hyperkähler spaces and the Moore–Tachikawa*   30 Mar 2017
category.
ICTS, Tata Institute of Fundamental Research, Bangalore, India
ICTS Special Seminar

22. *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

23. *A hyperkähler metric on the cotangent bundle of a complex reductive group* 02 Jun 2016
University of Oxford
Junior Geometry and Topology Seminar

Scholarships and awards

University of Toronto

- NSERC Postdoctoral Fellowship (2 years)   2019–2021
- FRQNT Postdoctoral research scholarship (2 years)   2019–2021

Pacific Institute for the Mathematical Sciences

- PIMS Postdoctoral Fellowship (2 years)   2019–2021
  Declined

University of Oxford

- Moussouris Scholarship, University of Oxford (3.5 years)   2015–2019
  Covers all tuition fees, college fees, and living expenses.
- NSERC CGS D (2 years)   2017–2019
  Alexander Graham Bell Canada Graduate Scholarships–Doctoral Program
  Declined
- NSERC PGS D (2 years)   2017–2019
  Postgraduate Scholarships–Doctoral Program
- FRQNT doctoral scholarship (2 years)   2017–2019
  Declined
- FRQNT master scholarship (2 years)   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
    Supervisor: Prof. Niky Kamran.
- Kamran Undergraduate Award   Summer 2013
    Supervisor: Prof. Niky Kamran.