Maxence Mayrand
Curriculum Vitae | November 2019

Contact

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Employment

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

Lecturer in Pure Mathematics | University of Oxford — 2018–2019
  Part-time 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 interests

My research is in hyperkähler geometry and its interesting connections with Lie theory and mathematical physics which arise through gauge theory.

Publications and preprints

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

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

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

[4] 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 experience

University of Toronto
- 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. *Two lectures on Nahm's equations*   30–31 Oct 2019
   The Fields Institute, Toronto, Canada
   Geometric Structures Laboratory Seminar
2. *Symplectic reduction, GIT quotients, and Nahm's equations*   11 Oct 2019
   Centre interuniversitaire de recherches en géométrie et topologie
   (CIRGET)
   Montreal, Canada
   Geometry and Topology Seminar
3. *Singular hyperkähler quotients*   16 May 2019
   University of Duisburg-Essen, Germany
   The Essen Seminar for Algebraic Geometry and Arithmetic

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

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

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

7. *Nahm's equations, groupoids, and Higgs bundles*   25 Jul 2018
     (Part II of a 4-hour mini-course on my thesis work)
     The Fields Institute, Toronto, Canada
     Geometric Structures Laboratory Seminar

8. *Stratified hyperkähler spaces and Nahm's equations*   24 Jul 2018
     (Part I of a 4-hour mini-course on my thesis work)
     The Fields Institute, Toronto, Canada
     Geometric Structures Laboratory Seminar

9. *Stratified hyperkähler spaces*   15 Jun 2018
     University of Edinburgh, UK
     GLEN Algebraic Geometry Seminar

10. *Stratified hyperkähler spaces*   05 Mar 2018
     University of Oxford, UK
     Geometry and Analysis Seminar

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

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

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

14. *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

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

Scholarships and awards

University of Toronto (Postdoc)

- NSERC Postdoctoral Fellowship   2019–2021

- FRQNT Postdoctoral research scholarship 2019–2021

University of Oxford (DPhil)

- Moussouris Scholarship (University of Oxford) | 3.5-year scholarship 2015–2019
  Covers all tuition fees, college fees, and living expenses.
- NSERC CGS D | 2-year scholarship (declined) 2017–2019
  Alexander Graham Bell Canada Graduate Scholarships–Doctoral Program
- NSERC PGS D | 2-year scholarship 2017–2019
  Postgraduate Scholarships–Doctoral Program
- FRQNT doctoral scholarship | 2-year scholarship (declined) 2017–2019
- FRQNT master scholarship | 2-year scholarship 2015–2017

McGill University (BSc)

- 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.

Personal details

Nationality Canadian