

Maxence Mayrand

Curriculum Vitae | December 2019

Contact

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Employment

Postdoctoral Fellow University of Toronto Department of Mathematics Geometric Structures Laboratory Supervisor: Prof. Marco Gualtieri	2019–present (3-year contract)
Lecturer in Pure Mathematics University of Oxford Part-time teaching at Jesus College	2018–2019

Education

DPhil in Mathematics University of Oxford Supervisor: Prof. Andrew Dancer	2015–2019
BSc Honours Mathematics McGill University Mentor: Prof. Niky Kamran	2012–2015

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. *Kempf-Ness type theorems and Nahm's equations* 7 Dec 2019
2019 Canadian Mathematical Society Winter Meeting
Algebraic Geometry and Representation Theory
Toronto, Canada
2. *Stratified hyperkähler spaces, GIT, and Nahm's equations* 5 Dec 2019
Boston College, Department of Mathematics
Chestnut Hill, Massachusetts, US
Geometry and Topology Seminar
3. *Symplectic reduction, GIT quotients, and Nahm's equations* 21 Nov 2019
McMaster University, Department of Mathematics
Geometry and Topology Seminar

4. *Singular hyperkähler reduction and geometric invariant theory* 11 Nov 2019
University of Toronto, Department of Mathematics
Symplectic Geometry Seminar
5. *Two lectures on Nahm's equations* 30–31 Oct 2019
The Fields Institute, Toronto, Canada
Geometric Structures Laboratory Seminar
6. *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
7. *Singular hyperkähler quotients* 16 May 2019
University of Duisburg-Essen, Germany
The Essen Seminar for Algebraic Geometry and Arithmetic
8. *TQFTs with values in holomorphic symplectic varieties* 14 Feb 2019
University of Oxford, UK
Junior Geometry and Topology Seminar
9. *Stratified hyperkähler spaces* 06 Feb 2019
Centre for Quantum Geometry of Moduli Spaces, Aarhus, Denmark
QGM seminars
10. *Hyperkähler quotients and geometric invariant theory* 05 Feb 2019
Centre for Quantum Geometry of Moduli Spaces, Aarhus, Denmark
Introductory seminars
11. *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
12. *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
13. *Stratified hyperkähler spaces* 15 Jun 2018
University of Edinburgh, UK
GLEN Algebraic Geometry Seminar
14. *Stratified hyperkähler spaces* 05 Mar 2018
University of Oxford, UK
Geometry and Analysis Seminar
15. *Symplectic reduction and geometric invariant theory* 08 Feb 2018
University of Oxford, UK
Junior Geometry and Topology Seminar
16. *Stratified Spaces and Nahm Equations* 11 Apr 2017
University of Oxford, UK
Junior Geometry and Topology Seminar
17. *Nahm equations, stratified hyperkähler spaces and the Moore–Tachikawa category.* 30 Mar 2017

- ICTS, Tata Institute of Fundamental Research, Bangalore, India
ICTS Special Seminar
18. *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
19. *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