

Maxence Mayrand

Curriculum Vitae | October 2019

Contact

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Employment

Postdoctoral Fellow University of Toronto Department of Mathematics Supervisor: Prof. Marco Gualtieri	2019–present
Lecturer in Pure Mathematics University of Oxford Undergraduate teaching at Jesus College	2018–2019

Education

DPhil in Mathematics University of Oxford Supervisor: Prof. Andrew Dancer Thesis: Stratified hyperkähler spaces and Nahm’s equations	2015–2019
BSc Honours Mathematics McGill University Mentor: Prof. Niky Kamran First Class Honours; Dean’s Honour List; Final grade 4.0/4.0.	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](https://arxiv.org/abs/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. *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
2. *Singular hyperkähler quotients* 16 May 2019
University of Duisburg-Essen, Germany
The Essen Seminar for Algebraic Geometry and Arithmetic
3. *TQFTs with values in holomorphic symplectic varieties* 14 Feb 2019
University of Oxford, UK
Junior Geometry and Topology Seminar

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| 4. <i>Stratified hyperkähler spaces</i>
Centre for Quantum Geometry of Moduli Spaces, Aarhus, Denmark
QGM seminars | 06 Feb 2019 |
| 5. <i>Hyperkähler quotients and geometric invariant theory</i>
Centre for Quantum Geometry of Moduli Spaces, Aarhus, Denmark
Introductory seminars | 05 Feb 2019 |
| 6. <i>Nahm's equations, groupoids, and Higgs bundles</i>
(Part II of a 4-hour mini-course on my thesis work)
The Fields Institute, Toronto, Canada
Geometric Structures Laboratory Seminar | 25 Jul 2018 |
| 7. <i>Stratified hyperkähler spaces and Nahm's equations</i>
(Part I of a 4-hour mini-course on my thesis work)
The Fields Institute, Toronto, Canada
Geometric Structures Laboratory Seminar | 24 Jul 2018 |
| 8. <i>Stratified hyperkähler spaces</i>
University of Edinburgh, UK
GLEN Algebraic Geometry Seminar | 15 Jun 2018 |
| 9. <i>Stratified hyperkähler spaces</i>
University of Oxford, UK
Geometry and Analysis Seminar | 05 Mar 2018 |
| 10. <i>Symplectic reduction and geometric invariant theory</i>
University of Oxford, UK
Junior Geometry and Topology Seminar | 08 Feb 2018 |
| 11. <i>Stratified Spaces and Nahm Equations</i>
University of Oxford, UK
Junior Geometry and Topology Seminar | 11 Apr 2017 |
| 12. <i>Nahm equations, stratified hyperkähler spaces and the Moore–Tachikawa category.</i>
ICTS, Tata Institute of Fundamental Research, Bangalore, India
ICTS Special Seminar | 30 Mar 2017 |
| 13. <i>Nahm equations and stratified hyperkähler spaces</i>
Indian Institute of Science, Bangalore, India
School and Workshop on Geometry and Physics of Moduli Spaces | 28 Mar 2017 |
| 14. <i>A hyperkähler metric on the cotangent bundle of a complex reductive group</i>
University of Oxford, UK
Junior Geometry and Topology Seminar | 02 Jun 2016 |

Scholarships and awards

University of Toronto (Postdoc)

- NSERC Postdoctoral Fellowship 2019–2021
- FRQNT Postdoctoral research scholarship 2019–2021

University of Oxford (PhD)

- Moussouris Scholarship (3.5-year scholarship) 2015–2019

Covers all tuition fees, college fees, and living expenses.

Awarded by the Mathematical Institute, University of Oxford.

- NSERC CGS D (2-year scholarship) 2017–2019
Alexander Graham Bell Canada Graduate Scholarships-Doctoral Program.
\$35,000 per year (declined)
- NSERC PGS D (2-year scholarship) 2017–2019
Postgraduate Scholarships-Doctoral Program.
\$21,000 per year
- FRQNT doctoral scholarship (2-year scholarship) 2017–2019
\$21,000 per year (declined)
- FRQNT master scholarship (2-year scholarship) 2015–2017
\$21,500 per year

McGill University (BSc)

- Dean's Honour List May 2015
Top 10% of the Faculty of Science.
- First Class Honours in Mathematics May 2015
Final GPA $\geq 3.5/4.0$ (it was 4.0/4.0).
- Gowrisankaran Prize in Mathematics and Statistics (\$1,490) May 2015
Awarded annually to an outstanding student in their final year.
- NSERC Undergraduate Student Research Award Summer 2014
\$5,625 to carry an undergraduate research project.
Supervisor: Prof. Niky Kamran.
- Kamran Undergraduate Award Summer 2013
\$2,800 to carry an undergraduate research project.
Supervisor: Prof. Niky Kamran.

Personal details

Nationality Canadian