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David Miyamoto

Current position

2023– **Postdoctoral researcher**, *Max Planck Institute for Mathematics*, Bonn, Germany
Working group: Christian Blohmann

Education

2018–2023 **PhD Mathematics**, *University of Toronto*, Toronto, Canada
Supervisor: Yael Karshon
Thesis: Geometry of leaf spaces of singular foliations

2017–2018 **MSc Mathematics**, *University of Toronto*, Toronto, Canada
Supervisor: Dmitry Faifman
Thesis: Characterizing $U(1,1)$ and translation-invariant generalized convex valuations on $\mathbb{C}^2$

2013–2017 **BSc Mathematics (Minor in History)**, *University of Toronto*, Toronto, Canada

Publications and Preprints

Published

2024 *Singular foliations through diffeology*
David Miyamoto
In *Recent advances in diffeologies and their applications*, 139–160, Contemporary Mathematics vol. 794, published by the American Mathematical Society (2024). MR4712602

2023 *Quasifold groupoids and diffeological quasifolds*
Yael Karshon and David Miyamoto
Transformation Groups (2023), 35 pages

– *The basic de Rham complex of a singular foliation*
David Miyamoto
Int. Math. Res. Not. IMRN (2023), no. 8, 6364–6401. MR4574377

Submitted

2023 *Lie groupoids determined by their orbit spaces*
David Miyamoto
Preprint, 31 pages. arXiv:2310.11968

– *Riemannian foliations and quasifolds*
Yi Lin and David Miyamoto
Preprint, 33 pages. arXiv:2309.15166

2022 *Diffeological submanifolds and their friends*
Yael Karshon, David Miyamoto, and Jordan Watts
Preprint, 15 pages. arXiv:2204.10381

Research Presentations

Conference talks

2024 July "Lie groupoids determined by their orbit spaces"
Workshop on Hamiltonian Geometry and Quantization
Fields Institute, Toronto, Canada

2024 Mar. "Lie groupoids determined by their orbit spaces"
Higher Geometric Structures Along the Lower Rhine XVII
Max Planck Institute for Mathematics, Bonn, Germany

2024 Mar. "Lie groupoids determined by their orbit spaces"
Building-up Differential Homotopy Theory
Osaka Metropolitan University, Osaka, Japan

2023 Nov. "Leaf spaces of Killing foliations"
Atelier on Higher Structures in Differential Geometry (poster)
Institut Camille Jordan, Lyon, France

2023 Jan. "The basic complex of a singular foliation"
Workshop on Lie Groups, Singular Spaces, and Higher Structures
Fields Institute, Toronto, Canada

2022 July "Quasifolds as groupoids and as diffeological spaces"
Poisson 2022 (poster)
Instituto de Ciencias Mathematicas, Madrid, Spain

2022 July "Quasifold groupoids and diffeological quasifolds"
AMS-EMS-SMF Joint International Meeting, Diffeology session
Université Grenoble Alpes, Grenoble, France

2022 Apr. "Basic forms on foliated manifolds"
Gone Fishing 2022
Georgia Southern University, Savannah, United States

2019 Dec. "Basic forms on foliated manifolds"
CMS Winter Meeting (poster)
Toronto, Canada

Seminar talks

In reverse chronological order

2024
- Special Seminar
  Université de Lorainne

2023
- Global Diffeology Seminar
  Online
- Symplectic Geometry Seminar
  University of Toronto, Toronto, Canada
- MPI–Oberseminar
  Max Planck Institute for Mathematics, Bonn, Germany
- MPIM Topology Seminar
  Max Planck Institute for Mathematics, Bonn, Germany
- Higher Differential Geometry Seminar
  Max Planck Institute for Mathematics, Bonn Germany
- Symplectic and Poisson Geometry Seminar
  University of Illinois Urbana-Champaign, Urbana-Champaign, United States

2022
- Graduate Student Seminar
  University of Toronto, Toronto, Canada
- Symplectic Geometry Seminar
  University of Toronto, Toronto, Canada
- Geometry and Dynamics Seminar
  Tel Aviv University, Tel Aviv, Israel
- Symplectic and Poisson Geometry Seminar
  University of Illinois Urbana-Champaign, Urbana-Champaign, United States
- Local Poisson Mini-Conference
  University of Toronto, Toronto, Canada

2021
- Global Diffeology Seminar
  Online
- Graduate Student Seminar
  University of Toronto, Toronto, Canada

2020
- Graduate Student Seminar
  University of Toronto, Toronto, Canada

Awards and Grants

2023 Queen Elizabeth II/Lloyd George Elliott Graduate Scholarship in Science and Technology
For academic achievement

2022 Ida Bulat Memorial Graduate Fellowship
For academic achievement

2021 Daniel B. DeLury Teaching Assistant Award
For teaching achievement

2019 Coxeter Graduate Scholarship
For academic achievement

2019 AARMS Award
For poster presented at the 2019 Canadian Mathematical Society winter meeting

2017 NSERC USRA
Undergraduate research on a Radon transform in Minkowski space, supervised by Dmitry Faifman

2013–2016 In-course scholarships
For academic achievement
- Isabel Bader In Course Scholarship
- William Ewart Staples Scholarship
- William Crichton Webster Scholarship
- University of Toronto Scholar

Teaching

2021–2022 **Instructor**, *University of Toronto*, Toronto
Multivariable Calculus

2015–2023 **Teaching Assistant**, *University of Toronto*, Toronto
In reverse chronological order
- Hamiltonian Mechanics (graduate)
- Classical Geometries
- Introduction Differential Topology
- Control Theory (graduate)
- Analysis I
- Multivariable Calculus
- Introduction to Proofs
- Introduction to Topology
- Introduction to Ordinary Differential Equations
- Calculus II
- Multivariable Calculus with Proofs
- Differential Topology (graduate)
- Calculus!
- Linear Algebra II

Service

Journal Referee

Israel Journal of Mathematics

Advances in Geometry

Pure and Applied Mathematics Quarterly

Community

2024 Organizer of the workshop "Exploring new arrows in the BGW groupoid," a retreat for early career researchers
October 25–28, 2024 in Bielefeld, Germany

2022–2023 Organizer of the Symplectic Seminar at the University of Toronto

2022–2023 Organizer of the Graduate Student Seminar at the University of Toronto

2021–2022 Mathematics representative to Graduate Student Union at the University of Toronto

2021–2022 Facilitator of a graduate student social form