

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 *Diffeological submanifolds and their friends*
Yael Karshon, David Miyamoto, and Jordan Watts
To appear in *Differential Geom. Appl.*, 15 pages. [arXiv:2204.10381](https://arxiv.org/abs/2204.10381)
- *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](https://arxiv.org/abs/2204.10381)
- 2023 *Quasifold groupoids and diffeological quasifolds*
Yael Karshon and David Miyamoto
Transform. 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](https://arxiv.org/abs/2204.10381)

Submitted

- 2023 *Lie groupoids determined by their orbit spaces*
David Miyamoto
Preprint, 31 pages. [arXiv:2310.11968](https://arxiv.org/abs/2310.11968)
- *Riemannian foliations and quasifolds*
Yi Lin and David Miyamoto
Preprint, 33 pages. [arXiv:2309.15166](https://arxiv.org/abs/2309.15166)

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 Lorraine
- 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