

Praful Rahangdale

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Research Interests

- **Poisson Geometry and Integrable Systems in Infinite Dimensions:** I am primarily interested in Poisson structures on infinite-dimensional manifolds and Lie groups, alongside the linearizations of these structures, such as Lie bialgebras and Manin triples. My PhD project focuses on the correspondence between Poisson-Lie groups and Lie bialgebras. In the near future, my research goals include:
 - Developing the foundational theory of symplectic foliations for infinite-dimensional Poisson manifolds using convenient differential calculus or Keller’s C_c^∞ -calculus, potentially by establishing new versions of the Frobenius and Stefan-Sussmann theorem.
 - Investigating the existence of Riemann-Hilbert factorisations for Lie subgroups corresponding to specific Manin triples.
 - Developing analogs of the Adler-Kostant-Symes scheme adapted for infinite-dimensional Lie groups.

Education

PhD in Mathematics October 2023-Present
Universität Paderborn

- **Project:** *Drinfeld Correspondence in Infinite Dimensions*
- **Supervisor:** Prof. Dr. Helge Glöckner

Integrated BS-MS in Mathematics and Statistics 2018-2023
Indian Institute of Science Education and Research (IISER) Kolkata, India.

Publications & Preprints

- **2026** *Drinfeld Correspondence in Infinite Dimensions* Preprint [arXiv:2603.04634](https://arxiv.org/abs/2603.04634)
- **2025** *Poisson bivectors on infinite dimensional manifolds*, joint with Peter W. Michor, Preprint [arxiv:2512.08590](https://arxiv.org/abs/2512.08590).
- **2024** *Poisson Structures in the Banach Setting: Comparison of Different Approaches*, joint with Tomasz Goliński and Alice Barbora Tumpach, *Geometric Methods in Physics XLI (WGMP 2024)*, pp. 97–118.

Invited Talks

- **December 3, 2025** *Poisson Geometry in the infinite-dimensional setting*, Geometric Green Learning seminar, Wolfgang Pauli Institute, Vienna
- **January 16, 2025** *Correspondence between infinite-dimensional Poisson-Lie groups and Lie bialgebras*, Thematic Programme in Infinite-dimensional Geometry: Theory and Applications, ESI Vienna [[Video Link](#)]
- **May 21, 2025** *Poisson Lie groups, Lie bialgebras, the Yang-Baxter equation, and Manin triples*, Mini-Workshop on Symmetry and Reduction in Poisson and Related Geometries, INdAM Poisson, Department of Mathematics, University of Salerno.

Other Talks

- **July 18, 2025** *Spin in quantum mechanics and the description of the Hydrogen atom*, Mathematical Physics seminar in Paderborn
- **May 23, 2025** *Poisson geometry in infinite dimensions*, Mathematical Physics seminar in Paderborn

- **October 22, 2024** *Drinfeld correspondence between Poisson Lie groups and Lie bialgebra*, Poisson Geometry and Integrable System seminar in Paderborn
- **June 10, 2025** *Poisson and related structures* Graduate seminar Paderborn
- **December 12, 2024** *Infinite-dimensional Poisson manifolds*, Oberseminar Analysis and Geometry Paderborn.
- **December 17, 2024** *Drinfeld Correspondence in Infinite Dimensions*, Oberseminar Analysis and Geometry Paderborn.
- **July 3, 2024** *Poisson Geometry and related Geometric and Algebraic Structures*, XLI Workshop on Geometric Methods in Physics, Białystok.
- **May 7, 2024** *Introduction to convenient differential calculus*, Oberseminar Analysis and Geometry Paderborn.
- **January 9, 2024** *Lie algebra cohomology*, Oberseminar Analysis and Geometry Paderborn.

Conferences, Workshops, Summer schools & Research visits

- **10-14 August 2026** Poisson 2026 conference, KU Leuven.
- **3-7 August 2026** Poisson Summer School 2026, University of Antwerp.
- **22-26 June 2026** *XV School on Geometry and Physics*, Białystok.
- **Nov. 30 - Dec 6 2025** *Research visit in the seminar group Geometric Green Learning*, Wolfgang Pauli Institute, Vienna.
- **22-26 September 2025** *Loop groups and Kac-Moody groups*, summer school Willebadessen.
- **6-10 January 2025** *Methods in representation theory and operator algebras*, CIRM-IHP Program Research School.
- **13- 24 January 2025** *Thematic Programme in Infinite-dimensional Geometry: Theory and Applications*, ESI Vienna.
- **14 - 16 Mai 2025** *Rencontre Poisson à La Rochelle*, University of La Rochelle.
- **9-13 September 2024** *Integral Structures in Geometry and Representation Theory*, opening conference of CRC-TRR 358 in Universität Paderborn.
- **16-19 September 2024** *60th Seminar Sophus Lie*, Universität Paderborn.
- **1-6 July 2024** *XLIII Workshop on Geometric Methods in Physics*, University of Białystok.
- **8-12 July 2024** *XV School on Geometry and Physics*, University of Białystok.
- **20-24 Mai 2024** *Mini-Workshop on Symmetry and Reduction in Poisson and Related Geometries*, ImdAM Poisson, University of Salerno.
- **6-8 March 2024** *59th Seminar Sophus Lie*, Institute of Mathematics in Würzburg.
- **SS 2024 and WS 24/25** *Poisson geometry and integrable systems* seminar in Universität Paderborn.

Teaching Experience

Teaching Assistant, [MA2201: Analysis II](#), IISER Kolkata Jan 2023 - May 2023
 Course Instructor: Dr. Rajib Dutta, Assistant Professor, Dept. of Mathematics and Statistics.

Technical Skills & Languages

Programming: Python, C++
Softwares: MATLAB, AutoCAD
Languages: English (Fluent), Hindi (Native)

Extra-Cirrucular

Volunteer in Ek Pahel, IISER Kolkata's student initiative to teach and guide local underprivileged children free of cost.