

# Matthijs Sebastiaan Lau

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## Personal Statement

I have always been passionate about learning and tackling complex problem solving, which I pursued in my Bachelors of Science in Mathematics and in Physics and Astronomy, and later by completing my Master of Science in Mathematics. My focus during my studies lies in differential geometry, functional analysis and topics in mathematical physics. Both my Bachelor's and Master's degrees had a particular focus on research. Additionally, by taking part in many workshops, conferences and seminars, I got to see a glimpse of the academic life. These experiences have inspired me to pursue a career as a PhD student. Beyond my studies, I love to travel, teach and participate in committees of the study association and mathematics department. My passion for mathematics motivates me not only to keep learning but also to share knowledge with others through teaching and other educational activities.

## Education

### PhD Mathematics at *University of Salerno*

Nov 2025 - Present

◊ *Advisor:* Prof. Luca Vitagliano

◊ Research in the field of Lie groupoids, differentiable stacks and  $G$ -structures, mainly related to  $k$ -shifted metric structures.

### MSc Mathematics at *Radboud Universiteit, Nijmegen*

Sep 2023 - Aug 2025

◊ *Track:* Mathematical Physics, Gravity +

◊ Graduated August 31st 2025 *cum laude*, final grade: 4.0 GPA

◊ Specialised in mathematical physics, with a strong background in both differential geometry and functional analysis.

◊ *Thesis/Research project:* Fibred Lie groupoids and multiplicative connections, supervised by Dr. Ioan Mărcuț.

### BSc Mathematics at *Radboud Universiteit, Nijmegen*

Sep 2019 - Jun 2023

◊ Graduated June 30th 2023 *cum laude*, final grade: 4.0 GPA

◊ Focused on differential geometry, functional analysis, and mathematical physics.

◊ *Thesis:* Symplectic geometry: Darboux's theorem and Hamiltonian systems, supervisor: Dr. Ioan Mărcuț. Included a digression on physics and the role of symplectic geometry in this field.

◊ Completed 268 ECTS instead of the required 225 and followed a minor in Philosophy of 16 ECTS

### BSc Physics & Astronomy at *Radboud Universiteit, Nijmegen*

Sep 2019 - Jun 2023

◊ Graduated June 30th 2023 *cum laude*, final grade: 4.0 GPA

◊ Focused on general relativity and quantum mechanics, related to high energy particle physics

◊ Collaborated on research-oriented projects with practical applications.

◊ Completed 268 ECTS instead of the required 225 and followed a minor in Philosophy of 16 ECTS

### VWO (N&T, N&G) at *Het Rbedens Rozendaal*

Sep 2013 - Jun 2019

◊ Graduated *cum laude*, final grade: 4.0 GPA

◊ Majored in both Nature and Engineering, and Nature and Health.

## Publications

[1] Matthijs Lau and Ioan Mărcuț. "Multiplicative Ehresmann connection for Lie groupoid fibrations". In preparation.

## Conferences, workshops and seminars

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### Upcoming

- ◇ Higher Geometric Structures along the Lower Rhine XX at *UU Utrecht (Netherlands)* Apr 16-17 2026
  - ◇ Higher Structures in Pavia at *Univ. di Pavia (Italy)* Jun 17-19 2026
  - ◇ Summer School Poisson 2026 at *Univ. of Antwerp (Belgium)* Aug 3-7 2026
  - ◇ Poisson 2026 Conference at *KU Leuven (Belgium)* Aug 10-14 2026
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### Past

- ◇ Bari-Salerno Differential Geometry Days at *Università degli Studi di Salerno (Italy)* Feb 9-11 2026
  - ◇ Around Singularities in Poisson Geometry at *IASM Hangzhou (China)* Aug 3-8 2025
  - ◇ Interactions of Poisson Geometry, Lie Theory and Symmetry at *IST Lisbon (Portugal)* Jun 30 - Jul 4 2025
  - ◇ Seminar: Non-commutative geometry of foliations at *RU Nijmegen* Feb 1 - Jul 31 2025
  - ◇ Higher Geometric Structures along the Lower Rhine XVIII at *RU Nijmegen (Netherlands)* Jan 23-24 2025
  - ◇ Central Europe Relativity Seminar 15 at *RU Nijmegen (Netherlands)* Jan 22-23 2025
  - ◇ Poisson aan de Waal 4 at *RU Nijmegen and UU Utrecht (Netherlands)* Jun 27-28 2024
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### Talks

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- ◇ “Multiplicative Ehresmann connections” for Bari-Salerno Differential Geometry Days (Univ. degli Studi di Salerno (Italy)), February 11 2026
  - ◇ “Lie groupoids; Holonomy and Monodromy of foliations” for Seminar: Non-commutative geometry of foliations (RU Nijmegen (Netherlands)), March 20 2025
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### Posters

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- ◇ “Completeness of multiplicative Ehresmann connections on fibred Lie groupoids” for Interactions of Poisson Geometry, Lie Theory and Symmetry (IST Lisbon (Portugal)), July 2 2025
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### Experience

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#### Teaching Assistent at *Radboud Universiteit, Nijmegen*

Jan 2021 - Aug 2025

- ◇ Tutored for many courses in mathematics, physics and computing science, such as: introduction to mathematics, group theory, multivariable analysis, complex analysis, (vector) calculus, linear algebra, special relativity, and programming courses. I was often asked by professors in following years to teach their courses again.
  - ◇ Lead tutorial sessions and small lectures with students returning in my tutorial sessions for later courses as well.
  - ◇ Graded homework and exams, wrote homework solutions, and coordinated the tutorial side courses.
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#### Tutor

Aug 2017 - Jun 2020

- ◇ Taught high-school students in exact sciences —e.g. mathematics, physics, chemistry, biology —as a freelance tutor.
  - ◇ Students were referred through teachers, and stayed on for multiple years.
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### Extracurricular

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#### Chair of the Education Committee at *Study association Marie Curie Nijmegen*

Sep 2022 - Jul 2025

- ◇ Managed a committee of around 15 members to organize the educational oriented activities for physics students.
  - ◇ Organized and implemented new educational activities, like colloquia, seminars, excursions, and study afternoons.
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#### Student Committee Member of BAC at *Radboud Universiteit, Nijmegen*

Sep 2023 - Jan 2024 and

Nov 2024 - Apr 2025

- ◇ Advised on the appointment advisory committee for promotions of academics within the mathematics department on two separate occasion pertaining to teaching capabilities and educational related activities.
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### Languages

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- ◇ Dutch (Native), English (C2)
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### References

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- ◇ References available on request.