

# Curriculum Vitae

Gustav Nilsson  
Mathematisches Institut  
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## Education

2020–2025: Dr. rer. nat. in Mathematics, University of Potsdam, Germany.  
2014–2020: M.Sc. in Mathematics and B.Sc. in Engineering Physics, KTH, Sweden.

## Employment

2026–current: Postdoctoral Researcher, University of Münster, Germany.  
2024–2025: Teaching Assistant, Department of Mathematics, KTH, Sweden.  
2020–2024: IMPRS Fellow, AEI, Germany.  
2016: Teaching Assistant, Department of Mathematics, KTH, Sweden.  
2015–2016: Teaching Assistant, School of Electrical Engineering and Computer Science, KTH, Sweden.  
2014–2015: Mathematics and Physics Tutor, Studybuddy AB, Sweden.

## Teaching

2025: Differential Equations and Transforms, SF1683, KTH, Sweden.  
2025: Linear Algebra. Advanced Course, SF1681, KTH, Sweden.  
2025: Mathematics, Basic course, with Discrete Mathematics, SF1671, KTH, Sweden.  
2025: Calculus in One Variable, SF1625, KTH, Sweden.  
2024: Complementary Course in Differential Equations and Transforms, SF1687, KTH, Sweden.  
2024: Differential Equations with Applications, SF1676, KTH, Sweden.  
2023: Linear Algebra, SF1672, KTH, Sweden.  
2023: Calculus in One Variable, SF1625, KTH, Sweden.  
2023: Calculus in Several Variables, SF1626, KTH, Sweden.  
2022: Riemannian Geometry, University of Potsdam, Germany.  
2016: Calculus in One Variable, SF1625, Department of Mathematics, KTH, Sweden.  
2015–2016: Fundamentals of Programming and Computer Science, DD1345, School of Electrical Engineering and Computer Science, KTH, Sweden.

## Theses

- [1] G. Nilsson, *Symmetries and mode stability of gravitational instantons*, Ph.D. thesis, University of Potsdam, 2025. Supervisor: Lars Andersson. [doi:10.25932/publishup-67859](https://doi.org/10.25932/publishup-67859).
- [2] G. Nilsson, *Ricci-Flat 4-Manifolds with Toric Symmetry*, M.Sc. thesis, KTH, 2020. Supervisor: Mattias Dahl.
- [3] G. Nilsson, *Ricci Flow*, B.Sc. thesis, KTH, 2019. Supervisor: Hans Ringström. <http://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-254702>.

## Papers Published in Refereed Journals

- [1] S. Aksteiner, L. Andersson, M. Dahl, G. Nilsson, W. Simon, Gravitational instantons with  $S^1$  symmetry, *Journal für die reine und angewandte Mathematik*, 2025. [doi:10.1515/crelle-2025-0037](https://doi.org/10.1515/crelle-2025-0037).
- [2] G. Nilsson, Mode Stability for Gravitational Instantons of Type D, *Classical and Quantum Gravity*, 2024. [doi:10.1088/1361-6382/ad296f](https://doi.org/10.1088/1361-6382/ad296f).
- [3] G. Nilsson, Topology of Toric Gravitational Instantons *Differential Geometry and its Applications*, 2023. [doi:10.1016/j.difgeo.2024.102171](https://doi.org/10.1016/j.difgeo.2024.102171).

## Conference Talks

- 2023: Einstein Spaces and Special Geometry, Institut Mittag-Leffler, Stockholm.
- 2023: Central European Relativity Seminar, Stockholm.
- 2022: Central European Relativity Seminar, Budapest.

## Seminar Talks

- 2025: Topics in general relativity (Seminar), Universität Münster.
- 2024: Seminar, differential geometry and general relativity, KTH, Stockholm.
- 2023: Relativity Seminar, BIMSA, Beijing.
- 2023: Seminar, differential geometry and general relativity (again), KTH, Stockholm.
- 2023: Seminar, differential geometry and general relativity, KTH, Stockholm.
- 2023: Oberseminar Differentialgeometrie, WWU Münster.
- 2022: Geometry and Gravitation Seminar, AEI, Potsdam.
- 2021: IMPRS Student Seminar, AEI, Potsdam.

## Skills and Interests

- Technical skills: Python, Java, C#, C++, Rust, Haskell, MATLAB,  $\LaTeX$ , Mathematica.
- Interests: Differential geometry, geometric analysis, complex analysis, topology.

## Language Proficiency

- Swedish: Native
- English: Fluent
- German: Conversational