Rafael Mohr

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Personal Website
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Education

Altes Gymnasium Flensburg 2005-2014
Abitur, GPA of 1.5 *Flensburg, Germany*

Universität Leipzig 2014-2020
Diploma in Mathematics (Dipl.-Math.), GPA of 1.1 *Leipzig, Germany*

- Thesis co-supervised by Emre Sertöz and Bernd Sturmfels
- Thesis Topic: Computing periods of projective hypersurfaces

Research Experience

Post-Doc November 2024 - present
Inria Saclay, MATHEXP team *Palaiseau, France*

PhD student November 2020 - October 2024
Sorbonne Université and RPTU Kaiserslautern-Landau *Paris, France and Kaiserslautern, Germany*

- co-supervised by Max Horn and Mohab Safey El Din
- Thesis Topic: Gröbner Basis Algorithms in Service of Algebraic Set Decomposition

Scientific Publications

A Signature-Based Algorithm for Computing the Nondegenerate Locus of a Polynomial System
2023, Journal of Symbolic Computation. Joint with Christian Eder, Pierre Lairez and Mohab Safey El Din

A Direttissimo Algorithm for Equidimensional Decomposition
2023, ISSAC '23 proceedings. Joint with Christian Eder, Pierre Lairez and Mohab Safey El Din

Computing Generic Fibers of Polynomial Ideals Using FGLM and Hensel Lifting
2024, ISSAC '24 proceedings. Joint with Jérémy Berthomieu

Gröbner Bases for Polynomial Ideals and Applications
2025, The Computer Algebra System OSCAR. Joint with Christian Eder and Mohab Safey El Din

Invited Talks

Direttissimo Equidimensional Decomposition
SIAM AG 2023

Gröbner Basis Algorithms in Service of Algebraic Set Decomposition
DRN + EFI Conference 2024

Other Scientific Activities

Reviewer
Journal of Symbolic Computation, ISSAC, Mathematics in Computer Science

Organizational Experience

Workshop on Polynomial System Solving
03.04.23 -04.04.23, MPI Leipzig

Mini-symposium "Software in Algebraic Geometry"
SIAM AG 2025

Other Experience

Tutor in mathematics and computer science 2016-2020
Universität Leipzig

Tutor in mathematics and computer science 2021-2022
RPTU Kaiserslautern-Landau

Research assistant co-developing the computer algebra system Oscar 2022-2024
RPTU Kaiserslautern-Landau

Tutor in computer science 2025-
École Polytechnique

Specialized Skills

Programming Languages: `C`, `C++`, `Python`, `Java`, `Julia`
Technical skills: Linux, Emacs, LaTeX
Languages: German (native), English (fluent), French (advanced)