

Rafael Mohr

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Education

Altes Gymnasium Flensburg	2005-2014
<i>Abitur, GPA of 1.5</i>	<i>Flensburg, Germany</i>
Universität Leipzig	2014-2020
<i>Diploma in Mathematics (Dipl.-Math.), GPA of 1.1</i>	<i>Leipzig, Germany</i>
<ul style="list-style-type: none">• Thesis co-supervised by Emre Sertöz and Bernd Sturmfels• Thesis Topic: Computing periods of projective hypersurfaces	

Research Experience

Post-Doc	November 2024 - present
<i>Inria Saclay, MATHEXP team</i>	<i>Palaiseau, France</i>
PhD student	November 2020 - October 2024
<i>Sorbonne Université and RPTU Kaiserslautern-Landau</i>	<i>Paris, France and Kaiserslautern, Germany</i>
<ul style="list-style-type: none">• co-supervised by Max Horn and Mohab Safey El Din• 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, to appear in: *The Computer Algebra System OSCAR*. Joint with Christian Eder and Mohab Safey El Din

Research Talks

Nondegenerate Loci via F5
Journées Nationales de Calcul Formel 2022

A Simple Algorithm for Equidimensional Decomposition of Algebraic Sets
Nikolaus School on Algebraic Geometry 2022, Kaiserslautern

Direttissimo Equidimensional Decomposition
Journées Nationales de Calcul Formel 2023, MEGA 2023, ISSAC 2023

Computing Generic Fibers of Polynomial Ideals Using FGLM and Hensel Lifting
Journées Nationales de Calcul Formel 2024, ISSAC 2024

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

Organizational Experience

Workshop on Polynomial System Solving
03.04.23 - 04.04.23, *MPI Leipzig*

Other Experience

Tutor for linear algebra, calculus and complex analysis <i>Universität Leipzig</i>	2016-2020
Tutor for linear algebra, calculus and cryptography <i>RPTU Kaiserslautern-Landau</i>	2021-2022
Research assistant co-developing the computer algebra system Oscar <i>RPTU Kaiserslautern-Landau</i>	2022-2024

Specialized Skills

Programming Languages: Emacs Lisp (beginner), Python and C (intermediate), Julia (advanced)
Technical skills: Linux, Emacs
Languages: German (native), English (fluent), French (intermediate)