Kemal Rose

Curriculum vitae

Max Planck Insitute for Mathematics in the Sciences
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Education

Since 01/2021 **PhD Student**, *Max Planck Institute for Mathematics in the Sciences*, Leipzig
Research group: nonlinear algebra
Supervised by: Bernd Sturmfels, Simon Telen

10/2018–12/2020 **M.Sc. in Mathematics**, *Technische Universität Berlin*
Thesis title: The non-Gorenstein locus of toric varieties
Supervised by: Peter Bürgisser and Christian Haase

10/2015–09/2018 **B.Sc.**, *Technische Universität Berlin*
Thesis title: Semi-invariants of quiver representations in characteristic 0
Supervised by: Peter Bürgisser and Mario Kummer

Publications

[6] Paul Breiding, Kemal Rose, and Sascha Timme. "Certifying zeros of polynomial systems using interval arithmetic". In: *ACM Trans. Math. Softw.* (2023).

[5] Julia Lindberg, Leonid Monin, and Kemal Rose. "A polyhedral homotopy algorithm for computing critical points of polynomial programs". In: *arXiv:2302.04117* (2023).

[4] Mareike Dressler et al. "Algebraic optimization of sequential decision problems". In: *arXiv:2211.09439* (2022).

[3] Rida Ait El Manssour et al. "Lines on p-adic and real cubic surfaces". In: *arXiv:2202.03489* (2022).

[2] Kemal Rose. "Multi-degrees in polynomial optimization". In: *arXiv:2209.10670* (2022).

[1] Kemal Rose. "Toric non-Gorenstein loci". In: *arXiv:2204.01317* (2022).

Presentations

Talks

01/2023 **What is a tropical discriminant?**, *Nonlinear algebra seminar* , Max Planck Institute for Mathematics in the Sciences, Leipzig ,

11/2022 **The geometry of sequential decision problems with state uncertainty**, *Research seminar at the institute of analysis and algebra* , Technische Universität Braunschweig

08/2022 **Algebraic optimization of decision rules**, *N & O seminar* , Centrum Wiskunde & Informatica (CWI), Amsterdam

07/2022 **Algebraic optimization of decision rules**, *MEGA - Effective Methods in Algebraic Geometry* , Krakow

02/2020 **The non Gorenstein locus of hibi rings**, *Milestone conference of the thematic Einstein semester Algebraic Geometry*, Freie Universität Berlin

Poster

10/2022 **Quadratically constrained polynomial optimisation in statistics**, *Workshop on solving polynomial equations and applications* , Centrum Wiskunde & Informatica (CWI), Amsterdam

Organisation

04/2023 **Workshop on solving hard polynomial systems** , Max Planck Institute for Mathematics in the Sciences, Leipzig

Other activities

02/2023 **North german algebraic geometry seminar (NOGAGS)** , Humboldt Universität Berlin,

11/2022 **Research visit**, Technische Universität Braunschweig

10/2022 **Workshop on solving polynomial equations and applications** , Centrum Wiskunde & Informatica (CWI), Amsterdam

08/2022 **Research visit**, Centrum Wiskunde & Informatica (CWI), Amsterdam

02/2022 **OSCAR developer meeting - tropical geometry** , Technische Universität Kaiserslautern

07/2021 **Workshop on Frobenius structures and operads** , Centre international de rencontres mathematiques (CIRM), Marseille

07/2021 **Minicourse on convex geometry** , Max Planck Institute for Mathematics in the Sciences, Leipzig

07/2018 **Einstein workshop geometric and topological combinatorics** , Freie Universität

09/2018–09/2020 **Student-assistant at TU Berlin**, Developer for the software package HomotopyContinuation.jl

Programming languages

- Matlab
- Julia: advanced
- Macaulay2: advanced
- Python

Teaching experience

09/2017–03/2018 **Tutor for Analysis for engineers I**, Marking of homework and exams; weekly tutoring classes for 20-40 students

03/2018–09/2018 **Tutor for Algebra I** Marking of homework and exams; weekly tutoring classes for ~20 students

Interests

I very much like dancing Salsa and Bachata; cooking and baking.