

CURRICULUM VITAE

MICHAEL JOSWIG

Citizenship: Germany.

1. PROFESSIONAL CAREER

2013– Professor (W3) “Discrete Mathematics/Geometry”, TU Berlin
2004–2013 Professor (C3) “Algorithmic Discrete Mathematics”, TU Darmstadt.
2008/2009 Visiting Professor “Discrete Geometry”, TU Berlin and Berlin Mathematical School.
2000–2004 Assistant Professor (C2), TU Berlin.
2003 Visiting Professor “Algebra”, U Magdeburg.
1999/2000 Visiting Professor “Computer Oriented Mathematics”, U Frankfurt/Main.
1996–1999 Postdoctoral Researcher, TU Berlin.
1995/1996 Postdoctoral Researcher, Research Institute for Symbolic Computation, Linz, Austria.

2. AWARDS AND DISTINCTIONS

2023 MATH⁺ Distinguished Fellow, Berlin
2019– Max Planck Fellow, Max-Planck-Institute for Mathematics in the Sciences, Leipzig
2021 Article “[Log-Barrier interior point methods are not strongly polynomial](#)”, co-authored with X. Allamigeon, P. Benchmol and S. Gaubert, selected for *SIAM Review/SIGEST*
2017 General Member of the Mathematical Sciences Research Institute, Berkeley, CA, U.S.A.
2015 CNRS-INSMI Research Professor, Centre de Mathématique Appliquées (École Polytechnique) and Institut de Mathématiques de Jussieu (Université Pierre et Marie Curie, Paris)
2013 Appointed Einstein Professor, Berlin
2006 Research Professor, Mathematical Sciences Research Institute, Berkeley, CA, U.S.A
2003 General Member of the Mathematical Sciences Research Institute, Berkeley, CA, U.S.A.
2002 Invited Visitor of the Center for Discrete Mathematics and Theoretical Computer Science, Rutgers, NJ, U.S.A.
1995/1996 Lise-Meitner-Grant, Austria
1990–1994 Studienstiftung des deutschen Volkes

3. EDUCATION

2000 Habilitation in Mathematics, TU Berlin. Title of thesis: “Contributions to polytope theory and incidence geometry.”
1994 PhD (Dr. rer. nat.) in Mathematics, U Tübingen. Title of thesis: “Translation generalized quadrangles,” supervised by Theo Grundhöfer.
1991 Diploma in Mathematics, U Tübingen. Title of thesis: “Projectivities of generalized polygons and Moufang octagons,” supervised by Theo Grundhöfer.

4. PHD STUDENTS SUPERVISED

4.1. **Current.**

Laura Casabella (with Marta Panizzut)
 Dante Luber
 Sylvain Spitz (with Max Klimm)
 Marcel Wack
 Lena Weis

4.2. **Former.**

Nikolaus Witte *Foldable triangulations*, TU Darmstadt, 2007
 Sven Herrmann *Splits and tight spans of convex polytopes*, TU Darmstadt, 2009
 Katja Kulas *Combinatorics of tropical polytopes*, TU Darmstadt, 2012
 Silke Horn, née Möser *Tropical oriented matroids and cubical complexes*, TU Darmstadt, 2012
 Katrin Herr *Core sets and symmetric convex optimization*, TU Darmstadt, 2013
 Benjamin Assarf *Fano polytopes*, TU Berlin, 2015
 Georg Loho *Combinatorics of tropical linear programming*, TU Berlin, 2017
 Benjamin Schröter *Matroidal subdivisions, Dressians and tropical Grassmannians*, TU Berlin, 2017
 André Wagner *Computer vision and computer algebra*, TU Berlin, 2017
 Robert Löwe *Triangulations, discriminants, and Teichmüller theory*, TU Berlin, 2020 (with Boris Springborn)
 Francisco Criado Gallart *Tropical bisectors and diameters of simplicial complexes*, TU Berlin, 2020 (with Francisco Santos)
 Ayush Kumar Tewari *Realizability of tropical plane curves and tropical incidence geometry*, TU Berlin, 2020 (with Hannah Markwig)
 Sascha Timme *Numerical nonlinear algebra*, TU Berlin, 2021 (with Bernd Sturmfels)
 Manuel Radons *Discrete geometry and optimization*, TU Berlin, 2022
 Holger Eble *Epistasis, regular subdivisions and spanning trees*, TU Berlin, 2022
 Mara Belotti *Tangency and point constraints in computational geometry*, TU Berlin, 2023 (with Marta Panizzut)
 Andrei Comănesci *Tropical consensus trees*, TU Berlin, 2024

4.3. **Students of the Berlin Mathematical School Mentored.**

Sarah Brodsky, Andrei Comănesci, Jan Hofmann, Sandra Keiper, Hector Andrade Loarca, Jorge Alberto Olarte, Kevin Schewior, Nicolas Weiss, Peiran Wu, Berk Yıldız

5. POSTDOCTORAL SCHOLARS MENTORED

5.1. **Current.**

George Balla, Shelby Cox, Alheydis Geiger, Lars Kastner, Fabian Lenzen, Igor Makhlin.

5.2. **Former.**

Andreas Paffenholz (2010–2013), Simon Hampe (2013–2016), Kris Shaw (2015–2017, Alexander-von-Humboldt Fellow), Christian Stump (2017–2018, Heisenberg Fellow), Timo de Wolff (2017–2019, Emmy-Noether Fellow), Felipe Rincón (2018), Andrew Newman (2018–2020), Laura Brustenga (2019), Roser Homs Pons (2019), Marek Kaluba (2019–2021), Dominic Bunnett (2019–2021), Taylor Brysiewicz (2020–2021), Jorge Alberto Olarte (2021–2022), Simon Telen (2021–2022), Marta Panizzut (2017–2022), Oğuzhan Yürük (2021–2022), Katharina Jochemko (2022, Hanna-Neumann-Fellow), Daniel Corey (2021–2023), Claudia He Yun (2022–2023).

6. PROJECT GRANTS

6.1. Current.

- 2021– Task Area 1: “Computer Algebra” of “Mathematical Research Data Initiative (MaR-DI)”
- 2021– Project A24 “Lattice polytopes, partially ordered sets, spherical varieties”, within SFB/TRR 195 “Symbolic Tools in Mathematics and their Application,” with Ghislain Fourier
- 2021– Project B1 “Central software project”, within SFB/TRR 195 “Symbolic Tools in Mathematics and their Application,” with Wolfram Decker, Claus Fieker and Max Horn
- 2021– Project B4 “Enumerating tropical curves and hypersurfaces”, within SFB/TRR 195 “Symbolic Tools in Mathematics and their Application” with Hannah Markwig
- 2019– Principal Investigator EXC 2046 “MATH+”

6.2. Past (Selection).

- 2018–2023 Principal Investigator GRK 2434 “Facets of complexity”
- 2021–2022 Project AA1-9: “Polyhedral geometry of virus capsids”, within EXC 2046 “MATH+”, with Marta Panizzut and Bernd Sturmfels
- 2019–2022 Project AA3-5 “Tropical mechanism design”, within EXC 2046 “MATH+”, with Max Klimm
- 2021 Project AA3-10 “Scattering amplitudes and tropical Grassmannians”, within EXC 2046 “MATH+”
- 2019–2020 Project EF1-3 “Approximate convex hulls with bounded complexity”, within EXC 2046 “MATH+”, with Klaus-Robert Müller
- 2017–2020 Project B1–II.1 “Central software project”, within SFB/TRR 195 “Symbolic Tools in Mathematics and their Application,” with Mohamed Barakat, Wolfram Decker, Claus Fieker and Frank Lübeck
- 2017–2020 Project A11–I.9 “Moduli spaces of tropical varieties, modifications and compactifications”, within SFB/TRR 195 “Symbolic Tools in Mathematics and their Application,” with Hannah Markwig
- 2017–2020 Project B4–I.4 “`polymake`: polyhedral data, quotients and stacks”, within SFB/TRR 195 “Symbolic Tools in Mathematics and their Application”
- 2016–2020 Project A11 “Secondary fans of Riemann surfaces”, within SFB/TRR 109 “Discretization in Geometry and Dynamics,” with Boris Springborn
- 2016–2020 Project “Information infrastructure”, within SFB/TRR 109 “Discretization in Geometry and Dynamics,” with Alexander I. Bobenko
- 2017–2018 Project MI6 “Geometry of equilibria for shortest paths”, within Einstein Center for Mathematics Berlin/Mattheon
- 2013–2017 Project “Polyhedral fan structures”, within DFG Priority Program 1489 “Experimental Methods in Algebra, Geometry, and Number Theory”
- 2014–2017 Project “Multiview geometry for ophthalmic surgery simulation”, within Einstein Center for Mathematics Berlin/Mattheon
- 2007–2013 Principal Investigator Graduate School “Computational Engineering: Beyond Traditional Sciences,” TU Darmstadt.
- 2002–2004 DFG-Research Center “Matheon”, Principal Investigator; Project “F4: Visualization algorithms and web based software”, with Alexander Bobenko and Konrad Polthier

7. ADMINISTRATION AND ADVISORY BOARDS (SELECTION)

2022–	Member of the MaRDI Council
2022–	Spokesperson: “Fachgruppe Diskrete Mathematik der DMV”
2021–	Member of the Board: “Fachgruppe Diskrete Mathematik der DMV”
2021–	Co-Spokesperson and Member of the Board: “Mathematical Research Data Initiative (MaRDI)”
2019–	Member of the MATH ⁺ Council
2005–	Member of the Scientific Advisory Board: “Oberwolfach References on Mathematical Software”
2019–2021	Member of the MATH ⁺ Research Projects Committee
2019–2021	Scientist in Charge (Application Area 3: Networks) of MATH ⁺
2016–2021	Deputy Director, Institut für Mathematik, TU Berlin

8. EDITORIAL WORK

2017–	Co-Managing Editor: “Advances in Geometry”
2011–	Associate Editor: “Beiträge zur Algebra und Geometrie”
2018–2023	Associate Editor: “SIAM Journal Discrete Mathematics”
2017–2020	Associate Editor: “Mitteilungen der Deutschen Mathematiker-Vereinigung”
2016–2017	Associate Editor: “Linear Algebra and Applications”
2013–2016	Editor-in-Chief: “Mitteilungen der Deutschen Mathematiker-Vereinigung”
2011–2016	Associate Editor: “Advances in Geometry”
2001–2013	Co-Managing Editor: “Electronic Geometry Models”, http://www.eg-models.de

9. ORGANIZATION (SELECTION)

2023	Member of the Programme Committee: “SIAM Conference on Applied Algebraic Geometry”, Eindhoven, Netherlands
2021	“Sage/Oscar Days for Combinatorial Algebraic Geometry”, ICERM/Online (co-organized with Anders Buch, Wolfram Decker, Julian R�uth, Benjamin Hutz and Anne Schilling)
2020	General Chair: “7th International Congress on Mathematical Software,” TU Braunschweig/Online
2018	Einstein Conference “Discrete Geometry and Topology”, (co-organized with Francisco Santos, Jonathan Spreer and G�nter M. Ziegler)
2018	Member of the Scientific Advisory Board: “Tropical Geometry, Amoebas and Polytopes”, Institut Mittag-Leffler, Djursholm, Sweden
2013–2016	Member of the Executive Board of the Society of German Mathematicians (DMV)
2016	Dagstuhl Seminar “Algorithms and Effectivity in Tropical Mathematics and Beyond” (12-0116), (co-organized with St�phane Gaubert, Dima Grigoriev and Thorsten Theobald)
2014	Representative for Germany at the General Assembly of the International Mathematical Union, Seoul, Korea
2010	Programme Committee Co-chair: “3rd International Congress on Mathematical Software,” Kobe, Japan

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CHAIR OF DISCRETE MATHEMATICS/GEOMETRY, TECHNISCHE UNIVERSIT T BERLIN & MAX-PLANCK INSTITUTE FOR MATHEMATICS IN THE SCIENCES, LEIPZIG