

# 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. DISTINCTIONS AND PERSONAL GRANTS

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.**

Mara Belotti (with Marta Panizzut)  
 Andrei Comănesci  
 Holger Eble  
 Dante Luber  
 Manuel Radons  
 Sylvain Spitz (with Max Klimm)

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)

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

## 5. POSTDOCTORAL SCHOLARS MENTORED

5.1. **Current.**

Daniel Corey, Lars Kastner, Jorge Alberto Olarte, Marta Panizzut, Simon Telen, Oğuzhan Yürük

5.2. **Former.**

Andreas Paffenholz (2010–2013), Simon Hampe (2013–2016), Kristin 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 Bunnnett (2019–2021), Taylor Brysiewicz (2020–2021)

## 6. PROJECT GRANTS

## 6.1. Current.

- 2021– Project AA1-9: “Polyhedral geometry of virus capsids”, within EXC 2046 “MATH+”, with Marta Panizzut and Bernd Sturmfels
- 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 B4 “Enumerating tropical curves and hypersurfaces”, within SFB/TRR 195 “Symbolic Tools in Mathematics and their Application” with Hannah Markwig
- 2021– Project AA3-10 “Scattering amplitudes and tropical Grassmannians”, within EXC 2046 “MATH+”
- 2019– Project AA3-5 “Tropical mechanism design”, within EXC 2046 “MATH+”, with Max Klimm
- 2018– Principal Investigator GRK 2434 “Facets of complexity”
- 2017– 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

## 6.2. Past.

- 2019–2020 Project EF1-3 “Approximate convex hulls with bounded complexity”, within EXC 2046 “MATH+,” with Klaus-Robert Müller
- 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
- 2012–2013 Project “Algorithmic methods in combinatorial topology” with Australia Go8, funded by DAAD
- 2010–2013 Project “Decompositions of lattice polytopes” within DFG Priority Program 1489 “Experimental Methods in Algebra, Geometry, and Number Theory”
- 2008–2011 Project “Non-positive curvature and cubical surfaces” within DFG-Research group “Polyhedral Surfaces,” with Günter M. Ziegler
- 2007–2013 Graduate School “Computational Engineering: Beyond Traditional Sciences,” Principal Investigator, TU Darmstadt.
- 2005–2008 Project “Branched coverings and combinatorial holonomy” within DFG-Research group “Polyhedral Surfaces,” with Günter M. Ziegler
- 2002–2004 DFG-Research Center “Mattheon”, Principal Investigator; Project “F4: Visualization algorithms and web based software”, with Alexander Bobenko and Konrad Polthier
- 2001–2003 Project C4 within SFB 288 “Differential Geometry and Quantum Physics,” with Günter M. Ziegler

## 7. ADMINISTRATION

2018–            Research Projects Committee of MATH<sup>+</sup>  
 2016–2021     Deputy Director, Institut für Mathematik, TU Berlin  
 2018–2020     Admissions Committee of the Berlin Mathematical School

## 8. EDITORIAL WORK

2017–            Co-Managing Editor: “Advances in Geometry”  
 2018–            Associate Editor: “SIAM Journal Discrete Mathematics”  
 2011–            Associate Editor: “Beiträge zur Algebra und Geometrie”  
 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)

2021–            Member of the Board: “Fachgruppe Diskrete Mathematik der DMV”  
 2019–            Member of the Research Program Committee of MATH<sup>+</sup>  
 2005–            Member of the Scientific Advisory Board: “Oberwolfach References on Mathematical Software”  
 2019–2021     Scientist in Charge (Application Area 3: Networks) of MATH<sup>+</sup>  
 2021             “Sage/Oscar Days for Combinatorial Algebraic Geometry”, ICERM/Online (co-organized with Anders Buch, Wolfram Decker, Julian Rüth, Benjamin Hutz and Anne Schilling)  
 2020             General Chair: “7th International Congress on Mathematical Software,” TU Braunschweig/Online  
 2018             Member of the Programme Committee: “6th International Congress on Mathematical Software,” South Bend, IN, U.S.A.  
 2018             Einstein Conference “Discrete Geometry and Topology”, (co-organized with Francisco Santos, Jonathan Spreer and Günter M. Ziegler)  
 2018             Member of the Scientific Advisory Board: “Tropical Geometry, Amoebas and Polytopes”, Institut Mittag-Leffler, Djursholm, Sweden  
 2017/2018      BMS/IMPAN Block Course “Convex Geometry and Hamiltonian Group Actions”, (co-organized with Tadeusz Januszkiewicz)  
 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 Stéphane 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.  
 2008             Member of the Programme Committee: “Symposium on Computational Geometry,” College Park, MD, U.S.A.

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