

Curriculum Vitæ

Oskar Henriksson

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PROFILE	I am interested in applied, combinatorial and computational aspects of algebraic geometry. Among other things, this includes the use of numerical, toric and tropical techniques in the study of parametric polynomial models appearing in biology and statistics.																										
EDUCATION	<table><tr><td>Ph.D. in Mathematics at the University of Copenhagen Advisor: Elisenda Feliu.</td><td>Jan 2022–</td></tr><tr><td>M.Sc. in Mathematics at the University of Copenhagen Advisors: Nathalie Wahl and Andrea Bianchi.</td><td>Sep 2018–Jan 2021</td></tr><tr><td>B.Sc. in Mathematics at Lund University Advisor: Arne Meurman.</td><td>Sep 2013–Aug 2018</td></tr></table>	Ph.D. in Mathematics at the University of Copenhagen Advisor: Elisenda Feliu.	Jan 2022–	M.Sc. in Mathematics at the University of Copenhagen Advisors: Nathalie Wahl and Andrea Bianchi.	Sep 2018–Jan 2021	B.Sc. in Mathematics at Lund University Advisor: Arne Meurman.	Sep 2013–Aug 2018																				
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PAPERS	<p>Moment varieties from inverse Gaussian and gamma distributions with Lisa Seccia, and Teresa Yu. Preprint: 2312.10433 [math.AG].</p> <p>Dimension and degeneracy of solutions of parametric polynomial systems arising from reaction networks with Elisenda Feliu, and Beatriz Pascual Escudero. Preprint: 2304.02302 [math.AG].</p> <p>3D genome reconstruction from partially phased Hi-C data with Diego Cifuentes, Jan Draisma, Annachiara Korchmaros, and Kaie Kubjas. <i>Bulletin of Mathematical Biology</i> 86, 33 (2024).</p>																										
RESEARCH TALKS	<table><tr><td>Tropical root bounds and generalized polyhedral start systems Software demo. Graduate Student Meeting in Applied Algebra and Combinatorics in Berlin.</td><td>Apr 2024</td></tr><tr><td>Secant varieties in statistics: identifiability of mixture distributions Applied Algebra and Geometry Seminar at the University of Copenhagen.</td><td>Mar 2024</td></tr><tr><td>Finding all steady states with tropical geometry Seminar on the Mathematics of Reaction Network, online.</td><td>Nov 2023</td></tr><tr><td>Tropical computation of the steady state degree Lightning talk at IMSI, Chicago.</td><td>Oct 2023</td></tr><tr><td>Moment varieties of classical distributions “Varieties from statistics” at IMSI, Chicago.</td><td>Oct 2023</td></tr><tr><td>Generic dimension and optimal start systems for reaction networks Seminar on Nonlinear Algebra at MPI Leipzig.</td><td>Sep 2023</td></tr><tr><td>Generic dimension of varieties arising in reaction network theory and 3D genome reconstruction. Applications of Computer Algebra 2023 in Warsaw.</td><td>Jul 2023</td></tr><tr><td>Improved steady state bounds with tropical and toric methods “New Approaches to Analyzing Biological Interaction Networks” at SIAM AG23.</td><td>Jul 2023</td></tr><tr><td>The tropical geometry of parametric polynomial systems Queer and Trans Mathematicians in Combinatorics in London.</td><td>Jul 2023</td></tr><tr><td>Detecting and precluding toricity in reaction network theory 28th Nordic Congress of Mathematicians at Aalto University.</td><td>Aug 2022</td></tr><tr><td>Detecting and precluding toricity in reaction network theory Applications of Computer Algebra 2022 in Gebze-Istanbul.</td><td>Aug 2022</td></tr><tr><td>Geometric perspectives on the steady states of reaction networks Statistics, Algebra, and Geometry Seminar at Aalto University.</td><td>Nov 2021</td></tr><tr><td>Toricity in reaction network theory “Algebraic-Geometric Methods for Reaction Networks” at SIAM AG21.</td><td>Aug 2021</td></tr></table>	Tropical root bounds and generalized polyhedral start systems Software demo. Graduate Student Meeting in Applied Algebra and Combinatorics in Berlin.	Apr 2024	Secant varieties in statistics: identifiability of mixture distributions Applied Algebra and Geometry Seminar at the University of Copenhagen.	Mar 2024	Finding all steady states with tropical geometry Seminar on the Mathematics of Reaction Network, online.	Nov 2023	Tropical computation of the steady state degree Lightning talk at IMSI, Chicago.	Oct 2023	Moment varieties of classical distributions “Varieties from statistics” at IMSI, Chicago.	Oct 2023	Generic dimension and optimal start systems for reaction networks Seminar on Nonlinear Algebra at MPI Leipzig.	Sep 2023	Generic dimension of varieties arising in reaction network theory and 3D genome reconstruction. Applications of Computer Algebra 2023 in Warsaw.	Jul 2023	Improved steady state bounds with tropical and toric methods “New Approaches to Analyzing Biological Interaction Networks” at SIAM AG23.	Jul 2023	The tropical geometry of parametric polynomial systems Queer and Trans Mathematicians in Combinatorics in London.	Jul 2023	Detecting and precluding toricity in reaction network theory 28th Nordic Congress of Mathematicians at Aalto University.	Aug 2022	Detecting and precluding toricity in reaction network theory Applications of Computer Algebra 2022 in Gebze-Istanbul.	Aug 2022	Geometric perspectives on the steady states of reaction networks Statistics, Algebra, and Geometry Seminar at Aalto University.	Nov 2021	Toricity in reaction network theory “Algebraic-Geometric Methods for Reaction Networks” at SIAM AG21.	Aug 2021
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POSTERS	Parametric toricity in the positive orthant for steady state varieties Oct 2022 Workshop on Solving Polynomial Equations and Applications at CWI.
	Parametric positive toricity of steady state varieties Jul 2023 SIAM AG23.
EXPOSITORY TALKS	The real spectrum and prime cones Apr 2022 Reading Seminar on Real Algebraic Geometry at Ghent University.
	From lattice fans to normal toric varieties Apr 2021 Toric Geometry Reading Seminar at Ghent University.
	Unions of tropical hypersurfaces and the Cayley trick Mar 2021 Reading Seminar in Tropical Combinatorics at the University of Copenhagen.
TEACHING EXPERIENCE	Applied algebra and geometry, Teacher (Univ. of Copenhagen) Fall 2023
	Experimental mathematics, Teaching Assistant (Univ. of Copenhagen) Fall 2023
	Commutative Algebra, Teaching Assistant (Univ. of Copenhagen) Spring 2023
	Applied Algebra and Geometry, Guest Lecturer (Univ. of Copenhagen) Fall 2022
	General Topology, Teaching Assistant (University of Copenhagen) Spring 2022
	Organic Chemistry, Teaching Assistant (Lund University) Fall 2015
	Organic Chemistry, Teaching Assistant (Lund University) Spring 2014
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SUPERVISION	MSc thesis: Ignacio Gonzalez Mantecon (Spring 2024, joint with Elisenda Feliu).
TEACHER TRAINING	Introduction to University Pedagogy (Univ. of Copenhagen, 3 ECTS) Summer 2023
	Teaching mentorship for early-career scientists (Univ. of Copenhagen) Spring 2023
OUTREACH	Gröbner bases in the study of chemical reaction networks Sep 2020 Part of a popular science lecture series by the xRays network in Unga Forskare.
ORGANIZATION	Copenhagen Applied Algebra and Geometry Seminar Spring 2024
	Algebraic Methods for Biochemical Reaction Networks Jun 2023 MSRI Summer School at MPI MiS Leipzig. Teaching assistant.
	Grad Student Meeting on Applied Algebra and Combinatorics Apr 2023 Stockholm University and KTH. Joint with Xiangying Chen, Danai Deligeorgaki, Filip Jonsson Kling, Felix Rydell and Mariel Supina.
SERVICE	Refereeing 2022– Journal of Mathematical Chemistry; SIAM Journal on Applied Mathematics; MEGA 2024.
	Recruitment committee at Lund University 2020–2021 Student representative for appointment of two associate professorships in algebra.
LANGUAGES	Swedish (native speaker), English (fluent), German (intermediate) and Danish (intermediate). Experience from computational algebra work in Julia/OSCAR, Sage, Macaulay2 and Maple, as well as numerical analysis projects in Python/NumPy and MATLAB.