siam 2023 | Conference on
Applied Algebraic Geometry

July 10–14, 2023 • Eindhoven University of Technology, Eindhoven, The Netherlands

These meetings are being held in hybrid format. In-person events will take place at
the Eindhoven University of Technology, Eindhoven, The Netherlands.

Online Program

Attendees are encouraged to visit
https://www.siam.org/conferences/cm/program/program-and-abstracts/ag23-program-abstracts
to view the Online Program Schedule.

The Online Program Schedule contains the most up-to-date information.
A searchable abstract document is also posted.

Monday, July 10

8:00 a.m. – 8:00 p.m.
Registration Desk Open
Registration Desk

8:45 a.m. – 9:00 a.m.
Welcome Remarks
Blauwe Zaal

9:00 a.m. – 10:00 a.m.
IP1 Why We Decompose Tensors
Jan Draisma, University of Bern, Switzerland
Blauwe Zaal

10:00 a.m. – 10:30 a.m.
Coffee Break

10:30 a.m. – 12:30 p.m.
Concurrent Sessions
MS1 Applications of Algebraic Geometry to Post-Quantum Cryptology - Part I of IV
AUD 1
MS2 Algebraic Coding Theory - Part I of IV
AUD 2
MS3 Network Coding and Codes in the Rank and Subspace Metrics - Part I of IV
AUD 4
MS4 Real Algebraic Geometry and Optimization - Part I of III
AUD 6
MS5 Semialgebraic Geometry Towards Applications in Learning and Transport - Part I of III
AUD 8
MS6 Algebraic Invariants of Data - Part I of III
AUD 7
MS7 Tensors in Algebraic Geometry - Part I of IV
AUD 3
MS8 Geometry in Optimization and Numerical (Multi)Linear Algebra - Part I of II
AUD 5
MS9 Efficient Symbolic and Numerical Algorithms for Polynomial Systems - Part I of III
Atlas -1.715
MS10 Applications of Magnitude and Magnitude Homology to Network Analysis
Alpha 0.98
MS11 Algebraic Curves, Integrable Systems, and Computer Algebra - Part I of II
Flux 1.02
MS12 Matroidal and Tropical Methods in Algebraic and Enumerative Geometry - Part I of III
Gemini GEM- Z COL
MS13 SAGBI/Khovanskii Bases and Applications - Part I of II
Atlas 0.825/0.820
CP1 Combinatorics, Geometry and New Approaches
Atlas 0.710

12:30 p.m. – 2:00 p.m.
Lunch Break *(attendees on their own)*

Monday, July 10

2:00 p.m. – 4:00 p.m.
Concurrent Sessions
MS14 Applications of Algebraic Geometry to Post-Quantum Cryptology - Part II of IV
AUD 1
MS15 Algebraic Coding Theory - Part II of IV
AUD 2
MS16 Network Coding and Codes in the Rank and Subspace Metrics - Part II of IV
AUD 4
MS17 Real Algebraic Geometry and Optimization - Part II of III
AUD 6
MS18 Semialgebraic Geometry Towards Applications in Learning and Transport - Part II of III
AUD 8
MS19 Algebraic Identifiability and its Applications - Part I of II
Atlas 0.710
MS20 Algebraic Invariants of Data - Part II of III
AUD 7
MS21 Tensors in Algebraic Geometry - Part II of IV
AUD 3
MS22 Geometry in Optimization and Numerical (Multi)Linear Algebra - Part II of II
AUD 5
MS23 Efficient Symbolic and Numerical Algorithms for Polynomial Systems - Part II of III
Atlas -1.715
MS24 Applied Algebraic Topology: Theory and Implementation - Part I of II
Alpha 0.98
MS25 Algebraic Curves, Integrable Systems, and Computer Algebra - Part II of II
Flux 1.02
MS26 Matroidal and Tropical Methods in Algebraic and Enumerative Geometry - Part II of III
Gemini GEM- Z COL
MS27 SAGBI/Khovanskii Bases and Applications - Part II of II
Atlas 0.825/0.820

4:00 p.m. – 4:30 p.m.
Coffee Break

4:30 p.m. – 5:30 p.m.
IP2 Hey AI, What's New in Science in 2026?
Ngoc Tran, University of Texas at Austin, U.S.
Blauwe Zaal

5:30 p.m. – 8:00 p.m.
PP1 Welcome Reception and Poster Session

Tuesday, July 11

8:45 a.m. – 9:30 a.m.
Registration Desk Open
Registration Desk

8:55 a.m. – 9:00 a.m.
Remarks
Blauwe Zaal

9:00 a.m. – 10:00 a.m.
IP3 Threshold-linear Networks, Attractors, and Oriented Matroids
Carina Curto, Pennsylvania State University, U.S.
Blauwe Zaal

10:00 a.m. – 10:30 a.m.
Coffee Break

10:30 a.m. – 12:30 p.m.
Concurrent Sessions
MS28 Applications of Algebraic Geometry to Post-Quantum Cryptology - Part III of IV
AUD 1
MS29 Algebraic Coding Theory - Part III of IV
AUD 2
MS30 Network Coding and Codes in the Rank and Subspace Metrics - Part III of IV
AUD 4
MS31 Real Algebraic Geometry and Optimization - Part III of III
AUD 6
MS32 Semialgebraic Geometry Towards Applications in Learning and Transport - Part III of III
AUD 8
MS33 Algebraic Identifiability and its Applications - Part II of II
Atlas 0.710
MS34 Algebraic Invariants of Data - Part III of III
AUD 7
MS35 Tensors in Algebraic Geometry - Part III of IV
AUD 3
MS36 Efficient Symbolic and Numerical Algorithms for Polynomial Systems - Part III of III
Atlas -1.715
MS37 Applied Algebraic Topology: Theory and Implementation - Part II of II
Alpha 0.98
MS38 Reconstruction of Algebraic Curves From Analytic Presentations
Flux 1.02
MS39 Matroidal and Tropical Methods in Algebraic and Enumerative Geometry - Part III of III
Gemini GEM- Z COL
MS40 Aspects of Flag Manifolds with a View Towards Applications
Atlas 0.825/0.820
CP2 Effective Methods in Algebraic Geometry
AUD 5

12:30 p.m. – 2:00 p.m.
Lunch Break *(attendees on their own)*

Tuesday, July 11	Wednesday, July 12	Wednesday, July 12

1:30 p.m. – 2:15 p.m.
Registration Desk Open
Registration Desk

2:00 p.m. – 4:00 p.m.
Concurrent Sessions
MS41 Applications of Algebraic Geometry to Post-Quantum Cryptology - Part IV of IV
AUD 1
MS42 Algebraic Coding Theory - Part IV of IV
AUD 2
MS43 Network Coding and Codes in the Rank and Subspace Metrics - Part IV of IV
AUD 4
MS44 Real Algebraic Geometry
AUD 6
MS45 Moment Problems, Convex Algebraic Geometry, and Semidefinite Relaxations - Part I of IV
AUD 8
MS46 Algebraic Methods in Biological Systems - Part I of III
Atlas 0.710
MS47 Tensors in Algebraic Geometry - Part IV of IV
AUD 3
MS48 Geometric and Algebraic Structures in Quantum Information - Part I of III
AUD 5
MS49 Data and Certificates in Algebra and Geometry - Part I of II
Atlas -1.715
MS50 Recent Developments in Multi-Parameter Persistence - Part I of II
Alpha 0.98
MS51 Castelnuovo-Mumford Regularity and Applications - Part I of II
Flux 1.02
MS52 Computational Tropical Geometry - Part I of III
Gemini GEM- Z COL
CP3 Statistics and Data Science
AUD 7
CP4 Matroids, Geometry and Combinatorics
Atlas 0.825/0.820

4:00 p.m. – 4:30 p.m.
Coffee Break

4:30 p.m. – 5:30 p.m.
IP4 Factorising Data
Anna Seigal, Harvard University, U.S.
Blauwe Zaal

5:30 p.m. – 5:45 p.m.
Intermission

5:45 p.m. – 6:30 p.m.
SP1 SIAM Activity Group on Algebraic Geometry Early Career Prize Lecture: Exact Semidefinite Relaxations for Polynomial Optimization and Applications in Euclidean Distance Problems
Diego Cifuentes, Georgia Institute of Technology, U.S.
Blauwe Zaal

8:45 a.m. – 9:30 a.m.
Registration Desk Open
Registration Desk

8:55 a.m. – 9:00 a.m.
Remarks
Blauwe Zaal

9:00 a.m. – 10:00 a.m.
IP5 Multistationarity and Absolute Concentration Robustness in Biochemical Reaction Networks
Anne Shiu, Texas A&M University, U.S.
Blauwe Zaal

10:00 a.m. – 10:30 a.m.
Coffee Break

10:30 a.m. – 12:30 p.m.
Concurrent Sessions
MS53 Elliptic Curves and Pairings in Cryptography - Part I of III
AUD 1
MS54 Coding Theory and Galois Geometries - Part I of III
AUD 4
MS55 Lorentzian and Hyperbolic Polynomials - Part I of II
AUD 6
MS56 Moment Problems, Convex Algebraic Geometry, and Semidefinite Relaxations - Part II of IV
AUD 8
MS57 Algebraic Methods in Biological Systems - Part II of III
Atlas 0.710
MS58 Applications of Discrete Geometry in Statistics - Part I of III
AUD 7
MS59 Tensors in Applications - Part I of IV
AUD 3
MS60 Geometric and Algebraic Structures in Quantum Information - Part II of III
AUD 5
MS61 Data and Certificates in Algebra and Geometry - Part II of II
Atlas -1.715
MS62 Recent Developments in Multi-Parameter Persistence - Part II of II
Alpha 0.98
MS63 Castelnuovo-Mumford Regularity and Applications - Part II of II
Flux 1.02
MS64 Computational Tropical Geometry - Part II of III
Gemini GEM- Z COL
MS65 Algebraic Vision - Part I of II
Atlas 0.825/0.820
CP5 Coding Theory A
UD 2

12:30 p.m. – 2:00 p.m.
Lunch Break *(attendees on their own)*

1:30 p.m. – 2:15 p.m.
Registration Desk Open
Registration Desk

2:00 p.m. – 4:00 p.m.
Concurrent Sessions
MS66 Elliptic Curves and Pairings in Cryptography - Part II of III
AUD 1
MS67 Advances in Code-Based Signatures
AUD 2
MS68 Coding Theory and Galois Geometries - Part II of III
AUD 4
MS69 Lorentzian and Hyperbolic Polynomials - Part II of II
AUD 6
MS70 Moment Problems, Convex Algebraic Geometry, and Semidefinite Relaxations - Part III of IV
AUD 8
MS71 Algebraic Methods in Biological Systems - Part III of III
Atlas 0.710
MS72 Applications of Discrete Geometry in Statistics - Part II of III
AUD 7
MS73 Tensors in Applications - Part II of IV
AUD 3
MS74 Geometric and Algebraic Structures in Quantum Information - Part III of III
AUD 5
MS75 Numerical Methods in Algebraic Geometry - Part I of II
Atlas -1.715
MS76 Computational Real Algebraic Geometry - I of IV
Alpha 0.98
MS77 Nonlinear Algebra in Particle Physics - Part I of III
Flux 1.02
MS78 Computational Tropical Geometry - Part III of III
Gemini GEM- Z COL
MS79 Algebraic Vision - Part II of II
Atlas 0.825/0.820

4:00 p.m. – 4:30 p.m.
Coffee Break

4:30 p.m. – 5:30 p.m.
IP6 Localization and Mapping from Images
Viktor Larsson, Lund University, Sweden
Blauwe Zaal

5:45 p.m. - 6:45 p.m.
SIAGA Editorial Board Meeting
AUD 12

Thursday, July 13

8:45 a.m. – 9:30 a.m.
Registration Desk Open
Registration Desk

8:55 a.m. – 9:00 a.m.
Remarks
Blauwe Zaal

9:00 a.m. – 10:00 a.m.
IP7 Signal Recovery on an Algebraic Variety from Linear Samples
Zhiqiang Xu, Chinese Academy of Sciences, China
Blauwe Zaal

10:00 a.m. – 10:30 a.m.
Coffee Break

10:30 a.m. – 12:30 p.m.
Concurrent Sessions
MS80 Elliptic Curves and Pairings in Cryptography - Part III of III
AUD 1
MS81 Applications of Finite Fields Theory - Part I of III
AUD 2
MS82 Coding Theory and Galois Geometries - Part III of III
AUD 4
MS83 Moment Problems, Convex Algebraic Geometry, and Semidefinite Relaxations - Part IV of IV
AUD 8
MS84 New Approaches to Analyzing Biological Interaction Networks - Part I of IV
Atlas 0.710
MS85 Applications of Discrete Geometry in Statistics - Part III of III
AUD 7
MS86 Tensors in Applications - Part III of IV
AUD 3
MS87 Numerical Methods in Algebraic Geometry
Atlas -1.715
MS88 Computational Real Algebraic Geometry - II of IV
Alpha 0.98
MS89 Nonlinear Algebra in Particle Physics - Part II of III
Flux 1.02
MS90 Manifestations of the Mixed Volume - Part I of III
Gemini GEM- Z COL
MS91 Algebraic Geometry of Data Sensing
AUD 5
CP6 SDPs and Non-Negativity
AUD 6

12:30 p.m. – 2:00 p.m.
Lunch Break *(attendees on their own)*

Thursday, July 13

1:30 p.m. – 2:15 p.m.
Registration Desk Open
Registration Desk

2:00 p.m. – 4:00 p.m.
Concurrent Sessions
MS92 Applications of Isogenies in Cryptography - Part I of III
AUD 1
MS93 Applications of Finite Fields Theory - Part II of III
AUD 2
MS94 q-Analogues in Combinatorics - Part I of III
AUD 4
MS95 Convexity - Part I of III
AUD 6
MS96 New Approaches to Analyzing Biological Interaction Networks - Part II of IV
Atlas 0.710
MS97 Algebraic Methods in Graphical Models - Part I of III
AUD 7
MS98 Tensors in Applications - Part IV of IV
AUD 3
MS99 Asymptotic Algebra and Geometry - Part I of III
AUD 5
MS100 Multivariate Polynomials, Ideals, and Modules: Algorithms and Applications - Part I of III
Atlas -1.715
MS101 Computational Real Algebraic Geometry - III of IV
Alpha 0.98
MS102 Nonlinear Algebra in Particle Physics - Part III of III
Flux 1.02
MS103 Manifestations of the Mixed Volume - Part II of III
Gemini GEM- Z COL
MS104 Algebraic Spline Geometry
Atlas 0.825/0.820
CP7 Cryptography and Optimization
AUD 8

4:00 p.m. – 4:30 p.m.
Coffee Break

4:30 p.m. – 5:30 p.m.
IP8 Maximal Curves Over Finite Fields
Maria Montanucci, Technical University of Denmark, Denmark
Blauwe Zaal

5:30 p.m. – 5:45 p.m.
Intermission

5:45 p.m. – 7:30 p.m.
SIAG/AG Business Meeting
Blauwe Zaal

Friday, July 14

8:45 a.m. – 9:30 a.m.
Registration Desk Open
Registration Desk

8:55 a.m. – 9:00 a.m.
Remarks
Blauwe Zaal

9:00 a.m. – 10:00 a.m.
IP9 Sums of Squares of Polynomials for Matrix Copositivity and Stable Sets in Graphs
Monique Laurent, Centrum Wiskunde & Informatica (CWI) Amsterdam and Tilburg University, The Netherlands
Blauwe Zaal

10:00 a.m. – 10:30 a.m.
Coffee Break

10:30 a.m. – 12:30 p.m.
Concurrent Sessions
MS105 Applications of Isogenies in Cryptography - Part II of III
AUD 1
MS106 Applications of Finite Fields Theory - Part III of III
AUD 2
MS107 q-Analogues in Combinatorics - Part II of III
AUD 4
MS108 Convexity - Part II of III
AUD 6
MS109 Polynomial Optimization: Approximation Hierarchies and Their Convergence Analysis - Part I of II
AUD 8
MS110 New Approaches to Analyzing Biological Interaction Networks - Part III of IV
Atlas 0.710
MS111 Algebraic Methods in Graphical Models - Part II of III
AUD 7
MS112 Asymptotic Algebra and Geometry - Part II of III
AUD 5
MS113 Multivariate Polynomials, Ideals, and Modules: Algorithms and Applications - Part II of III
Atlas -1.715
MS114 Computational Real Algebraic Geometry - IV of IV
Alpha 0.98
MS115 Tropical Methods for Moduli Spaces - Part I of II
AUD 3
MS116 Manifestations of the Mixed Volume - Part III of III
Gemini GEM- Z COL
MS117 Symbolic Combinatorics - Part I of II
Atlas 0.825/0.820
CP8 Geometry and Topology in Applications
Flux 1.02

12:30 p.m. – 2:00 p.m.
Lunch Break *(attendees on their own)*

Friday, July 14

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1:30 p.m. – 2:15 p.m.
Registration Desk Open
Registration Desk

....
2:00 p.m. – 4:00 p.m.
Concurrent Sessions
MS118 Applications of Isogenies in Cryptography - Part III of III
AUD 1

MS119 Convolutional Codes
AUD 2

MS120 q-Analogues in Combinatorics - Part III of III
AUD 4

MS121 Convexity - Part III of III
AUD 6

MS122 Polynomial Optimization: Approximation Hierarchies and Their Convergence Analysis - Part II of II
AUD 8

MS123 New Approaches to Analyzing Biological Interaction Networks - Part IV of IV
Atlas 0.710

MS124 Algebraic Methods in Graphical Models - Part III of III
AUD 7

MS125 Asymptotic Algebra and Geometry - Part III of III
AUD 5

MS126 Multivariate Polynomials, Ideals, and Modules: Algorithms and Applications - Part III of III
Atlas -1.715

MS127 Tropical Methods for Moduli Spaces - Part II of II
AUD 3

MS128 Symbolic Combinatorics - Part II of II
Atlas 0.825/0.820

....
4:00 p.m. – 4:30 p.m.
Coffee Break

4:30 p.m. – 5:30 p.m.
IP10 Recent Advances in Computational Algebra and Polynomial System Solving Through Gröbner Bases
Mohab Safey El Din, Sorbonne University, France
Blauwe Zaal

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5:30 p.m. – 5:45 p.m.
Closing Remarks
Blauwe Zaal

This conference is in hybrid format. Times listed are Central European Summer Time (UTC+2). Presentations are 25 minutes plus an additional 5 minutes for discussion.

All technical sessions (MS, CP, IP, SP sessions and business meeting) will be accessible to both In-Person and Virtual registrants. Other events are for In-Person registrants.

Key to abbreviations

CP = Contributed Presentation Session
IP = Invited Plenary Speaker
MS = Minisymposium
PP = Poster Session
SP = Special Lecture

SIAM Activity Group on
Applied Algebraic Geometry (SIAG/AG)

SIAM — Society for Industrial and Applied Mathematics
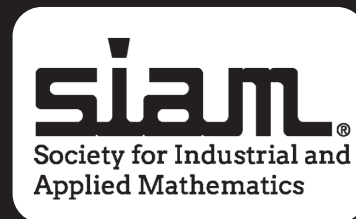
A great way to get involved!

Collaborate and interact with mathematicians and applied scientists whose work involves applied algebraic geometry.

ACTIVITIES INCLUDE

- Special Sessions at SIAM meetings
- Biennial conference
- SIAG/AG Early Career Prize
- SIAG/AG Wiki

BENEFITS OF SIAG/AG MEMBERSHIP

- Listing in the SIAG's online membership directory
- Additional $15 discount on registration at the SIAM Conference on Applied Algebraic Geometry
- Access to **SIAM Engage** online community for SIAG/AG
- Electronic newsletter
- Eligibility for candidacy for SIAG/AG office
- Participation in the selection of SIAG/AG officers

ELIGIBILITY

- Must be a current SIAM member

COST

- $15 per year
- Outreach members can join one SIAM Activity Group for free and student members can join two for free!

2022–2023 SIAG/AG OFFICERS

Chair: **Greg Blekherman,** *Georgia Institute of Technology*
Vice Chair: **Kaie Kubjas,** *Aalto University*
Program Director: **Cynthia Vinzant,** *University of Washington*
Secretary: **Cordian Riener,** *UiT The Arctic University*

SIAM: *www.siam.org/joinsiam* • **SIAG/AG:** *my.siam.org/forms/join_siag.htm*

Eindhoven University of Technology Campus Map and Auditorium Floor Plan

Alpha

Auditorium

Atlas

Gemini

Flux

MAP AUDITORIUM   PARKING   LEVEL 1

INFORMATION & REGISTRATION   CAFETERIA

Voorhof

Senaatszaal

POSTERS

EXHIBITS

CATERING

BLAUWE ZAAL

STAIRS TO AUD 1-8

REGISTRATION DAY 1

CATERING

WALKWAY TO ATLAS

STAIRS TO AUD 1-8