# Jason Kountouridis

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## Research Interests

Arithmetic and algebraic geometry in positive and mixed characteristic

Singularities, monodromy and $p$-adic invariants related to birational geometry and number theory

## Employment

2024–present **Simons postdoctoral fellow**, *Sorbonne Université, Institut de Mathématiques de Jussieu–Paris Rive Gauche (2024–2026: based at Université Paris-Saclay)*, Mentor: Kęstutis Česnavičius

## Education

2018–2024 **PhD in Pure Mathematics**, *University of Chicago*, USA; advisor: Matthew Emerton

2017–2018 **Master of Advanced Study**, *University of Cambridge* (Part III), UK

2013–2017 **B.A. in Pure Mathematics**, *Princeton University*, USA

## Publications

1. **Geometrically del Pezzo fibrations and canonical bundle formulas.** (with M. Benozzo) *In preparation (draft available on request).*
2. **Relative perversity of nearby cycles over general bases.** *Preprint. Available online.*
3. **Higher $F$-singularities for cones.** (with J. J. Garzella, V. Jagathese, R. Kurama and J. Witaszek) *Preprint. Available online.*
4. **Monodromy of rational singularities on surfaces in mixed characteristic.** arXiv:2312.09175. *Latest version. Submitted.*
5. **Smoothness of components of the Emerton–Gee stack for $\mathrm{GL}_2$.** (with A. Guzman, K. Kansal, B. Savoie and X. Wang) *Transactions of the American Mathematical Society* **378** (2025), 67–115.

## Invited Talks

Jun 2027 University of Athens, 11th Greek Conference on Algebra & Number Theory (upcoming)

Dec 2026 Université Sorbonne Paris Nord, Arithmetic Geometry Seminar (upcoming)

Sep 2026 Kaunas University of Technology, Conference dedicated to H. Minkowski

Sep 2026 Universität Wuppertal, Summer School "Recent Developments in Arithmetic and Algebraic Geometry in Positive Characteristic"

Jun 2026 University of Athens, 3rd Congress of Greek Mathematicians TCGM 2026
Mar 2026 Institut de mathématiques de Jussieu, Number Theory Seminar
Mar 2026 Northwestern University, Algebraic Geometry Seminar
Jan 2025 CNRS, RéGA Seminar
Oct 2024 Université Paris-Saclay, SAGA Seminar (Séminaire Arithmétique et Géométrie Algébrique)
Feb 2024 University of Chicago, Number Theory Seminar
Feb 2024 Columbia University, Automorphic Forms and Arithmetic Seminar
Jan 2024 University of Wisconsin-Madison, Number Theory Seminar
Jan 2024 Northwestern University, Number Theory Seminar

## Service

May 2027 **Université Paris-Saclay**, Co-organizer of the conference "Interactions between arithmetic and geometry in characteristic $p$" (upcoming)
2025–2026 **Université Paris-Saclay**, Co-organizer of a year-long seminar in birational geometry
2025 **Simons Collaboration**, Organizer of the postdoctoral learning seminar
2025 **Simons Collaboration**, Co-organizer of a reading group on prismatic $F$-gauges
2024–present **Université Paris-Saclay & Jussieu**, Speaker in the Jussieu preprint seminar, a postdoctoral learning group at Paris-Saclay and other informal seminars
2020–2024 **University of Chicago**, Organizer of the Graduate Number Theory Seminar (2020–2021) and seminars on the arithmetic of K3 surfaces, Shimura varieties and Deligne–Mumford stacks

## Conferences Attended

Sep 2026 **Conference dedicated to H. Minkowski**, Kaunas University of Technology
Sep 2026 **Summer School "Recent Developments in Arithmetic and Algebraic Geometry in Positive Characteristic"**, Universität Wuppertal
Jul 2026 **Summer School on $p$-adic cohomology and explicit arithmetic**, Università di Genova
Jun 2026 **3rd Congress of Greek Mathematicians TCGM 2026**, University of Athens
Mar 2026 **Simons Collaboration Annual Meeting 2026**, New York
Oct 2025 **New structures and techniques in $p$-adic geometry**, IHÉS
Jul 2025 **2025 Summer Research Institute in Algebraic Geometry**, Colorado State University
Jun 2025 **Singularities in Plovdiv**, Plovdiv
Jun 2025 **$p$-adic and characteristic $p$ methods in Algebraic Geometry**, EPFL, Lausanne
May 2025 **RGAS Summer School on Perfectoid Techniques**, La Cristalera
Mar 2025 **The Legacy of John Tate Memorial Conference**, Harvard University
Mar 2025 **Simons Collaboration Annual Meeting 2025**, New York
Oct 2024 **Methods in Mixed Characteristic Geometry**, Johannes Gutenberg University of Mainz
May 2024 **Singularities in Ann Arbor (poster presentation)**, University of Michigan
Mar 2024 **Spring Workshop on $p$-adic Arithmetic Geometry**, Institute for Advanced Study, Princeton
Aug 2023 **Stacks Project Workshop**, University of Michigan

May 2023 **Algebraic Geometry and Cohomology in Mixed Characteristic**, Northwestern University

Oct 2022 **Midwest Arithmetic Geometry and Number Theory Seminar**, University of Illinois Chicago

Sep 2022 **Recent Perspectives in Hodge Theory**, Scuola Normale Superiore, Pisa

Mar 2022 **AWS 2022: Automorphic Forms Beyond** $\mathrm{GL}_2$, University of Arizona

Mar 2020 **AWS 2020: Nonabelian Chabauty**, University of Arizona

Oct 2019 **Midwest Arithmetic Geometry and Number Theory Seminar**, Ohio State University

Aug 2019 **Conference in Arithmetic and Algebraic Geometry**, University of Michigan

## Awards & Scholarships

2017–2018 A. G. Leventis Foundation Fellowship

2017 Middleton Miller Prize for Best Independent Work in Mathematics, Princeton University

2016 Peter A. Greenberg '77 Prize for Outstanding Accomplishments in Mathematics, Princeton University

## Teaching Experience

Spring 2027 **École Polytechnique**, Teaching Assistant for an L3 course in Differential Geometry

Spring 2026 **École Polytechnique**, Teaching Assistant for an L3 course in Differential Geometry

Fall 2025 **Université Paris-Saclay**, Supervised an algebra project for L2 students

Winter 2024 **University of Chicago**, **Instructor**: Math 15250 *Math Methods for Economic Analysis*

Fall 2023 **University of Chicago**, **Instructor**: Math 15250 *Math Methods for Economic Analysis*

Winter 2023 **University of Chicago**, **Instructor**: Math 15300 *Calculus III*

Fall 2022 **University of Chicago**, **Instructor**: Math 15250 *Math Methods for Economic Analysis*

Winter 2022 **University of Chicago**, **Instructor**: Math 15200 *Calculus II*

Fall 2021 **University of Chicago**, **Instructor**: Math 15100 *Calculus I*

2020–2021 **University of Chicago**, **Instructor**: Math 13100-300 *Elem. Functions and Calculus I, II, III*

2019–2020 **University of Chicago**, **College Fellow** (Teaching Assistant): Linear Algebra, Introduction to Proofs, Algebraic Number Theory

2015–2017 **Princeton University**, Grader and Teaching Assistant for undergraduate courses in Complex Analysis and Algebra

## Languages

English (fluent), German (B2), French (beginner), Greek (native)