Kaicheng Dong

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Research interests

Arithmetic and Diophantine geometry, Arakelov geometry, adelic line bundles and heights, arithmetic intersection theory, and non-Archimedean geometry. Particular interests include positivity, curves and Jacobians, and Bogomolov-type problems.

Education

ALGANT Master's Programme in Mathematics (120 ECTS) 2024–2026

University of Regensburg, Germany (2024–2025); University of Bordeaux, France (2025–2026)

Completed the programme in 2026. Master's thesis supervised by Professor Pascal Autissier. Bordeaux M2: 60 ECTS, final result 15.85/20.

B.Sc. in Mathematics and Applied Mathematics 2020–2024

Southern University of Science and Technology (SUSTech), Shenzhen, China

Mathematics Honors Programme; GPA **3.72/4.00**; class rank **7/46**.

Academic visit

Peking University, Beijing, China 2026–2027

Non-degree visiting student; host: Professor Xinyi Yuan.

Preprint

One complex metric and geometric adelic nefness November 2026

arXiv:2611.09319.

Research experience

Admissible Pairing and Effective Bogomolov Results 2026

Master's thesis, University of Bordeaux; supervisor: Professor Pascal Autissier. Thesis PDF.

Serre's Conjecture II and Galois Cohomology 2023–2024

Undergraduate research project, SUSTech; supervisor: Professor Hu Yong.

AI for Mathematics and research tools

Founder and maintainer of OpenMath 2026–present

Built an open mathematical research atlas for interconnected definitions, conjectures, proof dependencies, revision histories, and reader feedback; includes non-Archimedean and arithmetic geometry projects.

Creator of three downloadable mathematical research agents 2026

Math Project Maintainer (theorem records and dependency graphs); *Math Research Publisher* (versioned research websites); *Math Writing Editor* (mathematical manuscripts). The tools support source-linked logical diagrams and human review; they do not constitute independent proof certification.

Talk

Arithmetic Bigness and Uniform Bogomolov-type Theory 2025

ALGANT Alumni in China Conference (20 Years of ALGANT), University of Science and Technology of China. Slides.

Selected mathematical coursework

University of Regensburg 2024–2025

Diophantine Geometry I (1.0), Diophantine Geometry II (1.3), Algebraic Number Theory I (1.3), Non-Archimedean Banach Algebras (1.0), Algebraic Topology I (1.0). *German grading scale: 1.0 is the highest grade.*

University of Bordeaux 2025–2026

Algebraic Geometry (17.6/20), Advanced Analysis (16.5/20), Geometry (14.2/20), Advanced Geometry (14.0/20), Research Project (19.0/20).

Southern University of Science and Technology 2020–2024

Algebraic Geometry (95/100), Algebraic Curves (98/100), Complex Analysis (95/100), Real Analysis (94/100), Algebraic Topology (88/100), Elementary Number Theory (81/100).

Seminars

Reading seminar on algebraic fibered surfaces 2026

Organizer. Topics included intersection theory on arithmetic surfaces, regular models, semistable reduction, and stable curves; based on Qing Liu's *Algebraic Geometry and Arithmetic Curves*.

Reading seminar on Berkovich differential forms and currents 2026

Participant and speaker. Seminar organized by Mingchen Xia; presented sections on local properties of Berkovich analytic spaces and morphisms.

Further graduate seminar training 2024–2025

Regensburg: algebraic function fields, class field theory, Galois representations and L-functions, and étale cohomology.

Awards and schools

- Erasmus+ Mobility Grant, European Union (2025–2026).
- Mathematics Honors Programme, SUSTech (2020–2024).
- Summer School on Arithmetic Geometry, Westlake University, China (2024).