Bastien Lecluse

PhD Student in Mathematics

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Education

– **2024–present** PhD in Mathematics, *Université Paris-Saclay, Orsay.* Supervisor: Laurent Moonens.
Title: Geometric maximal operators, Zygmund program and applications.

– **2023–2024** Master 2 in Fundamental Mathematics, *Université Sorbonne Paris Nord.*
With highest honors.

– **2023** Laureate of the French National Mathematics Teaching Competition (Agrégation, Option B: Scientific Computing).
Rank: 66.

– **2022–2023** Master 2 Preparatory Program for the Agrégation, *ENS Rennes and Université de Rennes 1.*
With honors.

– **2021–2022** Master 1 in Fundamental Mathematics, *ENS Rennes and Université de Rennes 1.*

– **2020–2022** Bachelor 3 in Physics, *ENS Rennes and Université de Rennes 1.*
With merit.

– **2020–2021** Bachelor 3 in Mathematics, *ENS Rennes and Université de Rennes 1.*
With honors.

– **2018–2020** Preparatory classes for the Grandes Écoles, MPSI / MP option Engineering Sciences, *Lycée François 1er, Fontainebleau.*

– **2018** Scientific Baccalaureate, Mathematics specialization, *Lycée Sonia Delaunay, Cesson.*
With honors.

Internships and Theses

– **March–July 2024** Master 2 Internship, *Laboratoire de Mathématiques d'Orsay*. Supervisor: Laurent Moonens.
Title: Study of maximal functions.

– **May–June 2022** Master 1 Internship, *University of Edinburgh*. Supervisor: Jonathan Hickman.
Title: Bourgain's circular maximal theorem.

– **May 2021** Bachelor 3 Internship, *Université Aix-Marseille*. Supervisor: Sary Drappeau.
Title: Counting integers with a fixed number of prime factors: the Erdös-Kac theorem.

– **April 2021** Directed Reading, *ENS Rennes*, with Samuel Chan-Ashing. Supervisor: Jérémy Martin.
Title: Proofs of Heisenberg's uncertainty principle, the uncertainty principle for annihilating pairs, and the Logvinenko-Sereda theorem.

Teaching Experience

– **2026–2027** *Université Paris-Saclay* — 60h.

  * Calculus (L1) — 36h.
  * Integration (L3) — 24h.

– **2025–2026** *Université Paris-Saclay* — 66h.

  * Algebra and Geometry (L1) — 24h.
  * Integration (L3) — 24h.
  * Hilbert Space Analysis (L3) — 18h.

– **2024–2025** *Université Paris-Saclay* — 66h.

  * Algebra and Geometry (L1) — 24h.
  * Integration (L3) — 24h.
  * Hilbert Space Analysis (L3) — 18h.

– **2023–2024** Teaching Assistant in CPGE D2, *ENC Bessières, Paris*.

– **2023–2024** Tutor in CPGE ECG2, Applied Mathematics, *ENC Bessières, Paris*.

– **2019–2024** Private tutoring — High School and Preparatory Classes.

Research Activities

4.1 Preprints and Publications

– **January 2026** *Necessary conditions for the boundedness of directional maximal operators*, to appear in the *CRM Proceedings - AMS Contemporary Mathematics series* (2026).

– **June 2025** *On the almost everywhere convergence of two-parameter ergodic averages along directional rectangles*, to appear in *Studia Mathematica* (2026).

4.2 Conferences and Talks

– **September 2026** *Poster session*, Laboratoire de Mathématiques d'Orsay, France.
The analogy between the differentiation of integrals and the almost everywhere convergence of ergodic averages

– **April 2026** *Analysis Seminar*, Università degli Studi della Campania Luigi Vanvitelli, Italy.
The differentiation of integrals and the almost everywhere convergence of ergodic averages

– **April 2026** *ANH ANEDP PhD Students Seminar*, Laboratoire de Mathématiques d'Orsay, France.
The analogy between the differentiation of integrals and the almost everywhere convergence of ergodic averages

– **October 2025** *ANH Team Kick-off Meeting*, Laboratoire de Mathématiques d'Orsay, France.
The differentiation of integrals and the almost everywhere convergence of ergodic averages

– **June 2025** *47th Summer Symposium in Real Analysis*, Universidad Complutense de Madrid, Spain.
On the almost everywhere convergence of two-parameter ergodic averages along directional rectangles

Skills

– **Languages**: French (native), English (fluent).

– **Computing**:

  * Advanced: LaTeX, Python.
  * Basic: SQL, HTML.