Léonard Guetta

Postdoc in mathematics

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Academic positions

2023–2026 **Postdoctoral Researcher**, *Universiteit Utrecht*
Under the supervision of Paige North and then Ieke Moerdijk.

2021–2023 **Postdoctoral Researcher**, *Max-Planck-Institut für Mathematik*, Bonn
In Viktoriya Ozornova's group.

2019–2021 **A.T.E.R.**, *Université Paris-Cité*
Temporary teaching assistant in computer science and mathematics.

Education

2016–2020 **PhD in mathematics**, *Université Paris-Cité*, IRIF laboratory, Paris
"Homology of strict ω-categories" under the supervision of François Métayer (Université Paris-Cité) and Clemens Berger (Université de Nice-Sophia Antipolis). Defense held in January 2021.

2014–2016 **Master's degree in fundamental mathematics**, *Université Paris-Cité*, Paris
Homotopy Theory, Algebraic Topology, Differential Geometry, Algebra, Functional Analysis, Mathematical Logic, etc.

2011–2014 **Engineering school**, *ENSTA Paristech*, Paris
Specialization in applied Mathematics.

Publications

Published papers

2025 **Lax functorialities of the comma construction for ω-categories**, *Accepted for publication in Advances of Mathematics*
joint work with Dimitri Ara

2025 **Presheaves of groupoids as models for homotopy types**, *Algebraic and Geometric Topology*, Vol. 25, No. 7

2024 **Homologie polygraphique des systèmes locaux**, *Advances in Mathematics*, Vol. 448
joint work with Georges Maltsiniotis

2021 **Homology of categories via polygraphic resolutions**, *Journal of Pure and Applied Algebra*, Vol. 225, No. 10

2020 **Polygraphs and discrete Conduché ω-functors**, *Higher Structures*, Vol. 4, No. 2

2017 **A unifying approach to the acyclic models method and other lifting lemmas**, *Theory and Applications of Categories*, Vol. 32, No. 25

Preprints

2024 **Double categorical model of $(\infty, 1)$-categories**, *arXiv:2412.15715*
joint work with Lyne Moser

2023 **Fibrantly induced model structures**, *arXiv:2301.07801*
joint work with Lyne Moser, Maru Sarazola and Paula Verdugo

Talks

Mar. 2026 TBD, *Séminaire Groupe, Algèbre et Topologie*, Université de Picardie Jules Verne

Feb. 2026 Introduction to Category Theory, *National Mathematics Symposium*, Radboud Universiteit, Nijmegen, **Invited speaker**

Nov. 2025 Lax Functoriality of the higher Grothendieck construction and Gray ω-categories, *First meeting of the network Higher Structures in Category Theory, Homotopy Theory and Type Theory*, University of Nottingham, **Invited speaker**

Apr. 2025 Double categorical model of $(\infty, 1)$-categories, *Algebraic Topology seminar*, Université de Lille

Jan. 2025 On the functoriality of the lax comma construction for ω-categories, Cambridge University

Jan. 2025 Double categorical model of $(\infty, 1)$-categories, *Algebraic Topology seminar*, EPFL

Dec. 2024 Homotopical theories and algebraic models: a general framework, *Algebraic Topology seminar*, Université Sorbonne Paris Nord

Oct. 2024 Double categories as a model for $(\infty, 1)$-categories, *RT topologie algébrique*, Université Paul Sabatier, Toulouse

Jul. 2024 On the functoriality of the lax comma construction for ω-categories, *seminar talk*, Universität Regensburg

Feb. 2024 An introduction to polygraphic homology, *Mathematical Institute talks*, Universiteit Utrecht

Jan. 2024 Grothendieck construction for ω-categories, *Seminar on Logic and interactions*, Université Aix-Marseille

Jun. 2023 Polygraphic homology of local systems, *Conference in honor of François Métayer's retirement*, Université Paris-Cité, **Invited speaker**

Nov. 2022 Groupoid-valued presheaves as models for homotopy types, *Seminar on higher categories, polygraphs and homotopy*, Université Paris-Cité

Mar. 2022 Homotopy types as ∞-groupoids, *Part of a miniseries "An introduction to homotopy type theory and univalent foundations"*, MPIM Bonn, **Invited speaker**

Sep. 2021 Homology of strict ω-categories and the bubble-free conjecture, *Workshop "Homotopical Algebra and Higher Structures"*, Oberwolfach, **Invited speaker**

Nov. 2019 Homology of strict ω-categories, *Seminar on Logic and interactions*, Université Aix-Marseille

Oct. 2019 Homotopy colimits and slices of small categories, *Seminar on higher categories, polygraphs and homotopy*, Université Paris-Cité

Mar. 2018 Non-universality of colimits in the category of strict ω-categories, *Seminar on higher categories, polygraphs and homotopy*, Université Paris-Cité

Feb. 2018 Homology of (1-)categories, *Seminar on higher categories, polygraphs and homotopy*, Université Paris-Cité

Jun. 2017 A few remarks on the acyclic models method, after M. Barr, *Seminar on higher categories, polygraphs and homotopy*, Université Paris-Cité

Teaching experience

2025–2026 **Lecturer**, *Advanced Mathematics*, 2nd year Bachelor, University College Utrecht
Linear Algebra, Multivariable Analysis

2025–2026 **Lecturer**, *Foundations of Mathematics*, 3rd year Bachelor, Universiteit Utrecht
Set Theory, First-Order Logic

2025–2026 **Lecturer**, *Calculus and Linear Algebra*, 1st year Bachelor, University College Utrecht

2024–2025 **Supervisor**, *Master's seminar: Topos Theory and Sheaf Cohomology*, Master level, Universiteit Utrecht

2023–2024 **Lecturer**, *Advanced Mathematics*, 2nd/3rd year Bachelor, University College Utrecht
Linear Algebra, Multivariable Analysis

2023–2024 **Teaching Assistant**, *Logic for Computer Science*, Bachelor level, Universiteit Utrecht

2016–2021 **Teaching Assistant**, *Computer Science courses*, Bachelor level, Université Paris-Cité
Introduction to Java, C programming, OOP, Binary machines

2019–2021 **Teaching Assistant**, *Mathematics courses*, Bachelor level, Université Paris-Cité
Analysis, Algebra

Supervision experience

2024–2025 **Master's thesis "On the pro-homotopy type and the shape of toposes"**, *Universiteit Utrecht*, Student: Arthur van Ooijen

2023–2024 **Bachelor's thesis "Coherence theorems for monoidal categories"**, *Universiteit Utrecht*, Student: Max van Gent

Languages

Native French

Fluent English

Basic Spanish, German, Dutch