

Aurélien Sagnier

Curriculum vitae

Personal data

Name	Aurélien
Surname	Sagnier
Place and date of birth	L'Isle-Adam, France, 29 th october 1989
Nationality	French
Languages	French, English (fluent, Toeic : 930/990), German (intermediate, Level B1)

Career-Studies

2019–now	J.J.Sylvester Assitant Professor at Johns Hopkins University, Baltimore
2017–2019	Postdoctoral fellow at École Polytechnique (CMAP (applied mathematics laboratory) and LIX (informatics laboratory)) in the teams of Stéphane Gaubert and Eric Goubault
2016–2017	Demi-ATER at University Paris 7
2012–2017	PhD in mathematics at University Paris 7, advisors : Eric Leichtnam and Christopher Deninger
2011–2012	Agrégation de mathématiques (french competitive exam to become teacher in junior high and highschool)
2009–2012	Normalien, License and two Masters of mathematics (one for Research: speciality algebra and geometry, the other to prepare to teaching) at the ENS of Rennes and University Rennes 1
2007–2009	Classe préparatoire at Louis Le Grand highschool, Paris
2006–2007	Classe préparatoire at Clémenceau highschool, Reims
2006	Bac scientifique mention Très bien, Lycée Léon Bourgeois Épernay

Research

Themes topos, characteristic one, zeta function, arithmetic geometry, non-commutative geometry, tropical algebra, directed algebraic topology, zeta function

PhD title "An arithmetic site of Connes-Consani type for imaginary quadratic fields with class number 1"

Articles

- PhD published on ArXiv : ArXiv 1703.10521, updated and accepted in the *Journal of Number Theory* under the title "An arithmetic site at the complex place"

- "Directed topological complexity and control" published in *Journal of Applied and Computational Topology* in collaboration with Eric Goubault and Michael Farber
- Articles in preparation with the results of the postdoctoral fellowship (to appear soon on the Arxiv):
 - * "Tropical tensor products" with Stéphane Gaubert
 - * "Duality between tropical modules and congruences" with Stéphane Gaubert and Eric Goubault
 - * "A topos-theoretic view on directed topology" with Eric Goubault
 - * "An arithmetic site of Connes-Consani type for $\mathbb{Z}[\sqrt{2}]$ "
- Other research projects related to topos theory, arithmetic geometry, number theory, directed algebraic geometry, tropical algebra and geometry, homological and homotopical algebra (see research statement)

Conferences

- April 2017 Invited speaker to the *international conference "Noncommutative Geometry 2017-Number Theory : A celebration of Alain Connes'70th birthday"* (Shanghai, China)
- June 2017 Talk at *Ecole Polytechnique* (Palaiseau, France) for "Tropical days" on Connes and Consani approach of the Riemann zeta function through arithmetic sites
- January 2018 Talk at *Ohio State University* (Columbus, US) at number theory seminar on "An arithmetic site of Connes-Consani type for $\mathbb{Z}[\iota]$ "
- January 2018 Talk at *Rutgers University* (Piscataway, US) at number theory seminar on "An arithmetic site of Connes-Consani type for $\mathbb{Z}[\iota]$ "
- January 2018 Talk at *Johns Hopkins University* (Baltimore, US) at number theory seminar on "An arithmetic site of Connes-Consani type for $\mathbb{Z}[\iota]$ "
- June 2018 Short communication at the *international conference "Toposes in Como"* (Como, Italy) on "An arithmetic site of Connes-Consani type for $\mathbb{Z}[\sqrt{2}]$ "
- August 2018 Short communication at the *International Congress of Mathematicians (ICM 2018)* (Rio, Brazil) on "An arithmetic site of Connes-Consani type for $\mathbb{Z}[\iota]$ "
- September 2018 Short communication at the *international conference "Tensors"* (Turin, Italy) on "Tropical tensor products"
- November 2018 Two talks at *University of Oslo* (Oslo, Norway) at number theory seminar on "An arithmetic site of Connes-Consani type for $\mathbb{Z}[\iota]$ " and "Connes-Consani's way to zeta"
- March 2019 Talk at *University of Strasbourg* (Strasbourg, France) at number theory seminar on "An arithmetic site at the complex place"
- April 2019 Talk at *University of Antwerp* (Antwerp, Belgium) at number theory seminar on "An arithmetic site at the complex place"
- October 2019 Short communication at the *international conference JAMI 2019 "Riemann-Roch in characteristic one and related topics"* (Baltimore, US) on "An arithmetic site at the complex place"

Administrative duties

- Early 2018 Organizer of a learning seminar on topos theory at *Ecole Polytechnique* (Palaiseau, France)
- End 2018 Review of an article for *Journal of Number Theory*

October 2019 Member of the organizing committee of the international conference "Riemann-Roch in characteristic one and related topics" in Johns Hopkins University (Baltimore, US)

Referees to contact for my research work

- *Alain Connes*, Professor at IHES (Bures sur Yvette, France) and at Ohio State University (Columbus, US); president of the jury at my PhD defense; alain@connes.org,
- *Caterina Consani*, Professor at Johns Hopkins University (Baltimore, US); reviewer of my PhD; kc@chow.mat.jhu.edu,
- *Stéphane Gaubert*, Directeur de recherche at INRIA, Head of Tropical research team joint to INRIA and Centre de Mathématiques Appliquées (CMAP) of École Polytechnique (Palaiseau, France); member of the jury at my PhD defense and supervisor of my postdoctoral fellowship; stephane.gaubert@inria.fr,
- *Eric Goubault*, Professor of Computer Science at École Polytechnique (Palaiseau, France) ; supervisor of my postdoctoral fellowship ; goubault@lix.polytechnique.fr,
- *Eric Leichtnam*, Directeur de recherche at CNRS in Université Paris 7 Diderot; my PhD advisor ; eric.leichtnam@imj-prg.fr,

Teaching duties

- 2019–2020 Working on a project of creation of graduate course named "Spectral side of arithmetic sites : functional analysis for algebraists"
 - Feb–Aug 2019 Associated (with Eric Goubault) to the supervision of the M1 Internship of Roman Kniazev on the subject "Topos of a trace category"
- 2019–2020 At Johns Hopkins University : 110.401 "Introduction to abstract algebra" (in Fall and Spring) and 110.106 "Calculus 1 for Biology and Social Sciences"
- 2016–2017 At University Paris 7 : L1 "Mathematical Project" and L2 Mathematics "Fundamental analysis and linear algebra 2"
- 2015–2016 At University Paris 6 : M1 Mathematics "Functional analysis"
- 2014–2015 At University Paris 6 : L2 Mathematics "Differential and integral calculus" and L2 Physics "Differential and integral calculus"
- 2013–2014 At University Paris 6 : L1 Mathematics "Sequences, integrals and linear algebra" and L1 Physics "Matrix calculus"