

Didier Lesesvre

Associate Professor

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Cursus Studiorum

- since 2021 **Associate Professor**, *Université de Lille*, France.
- 2018 – 2021 **Postdoctoral fellow**, *Sun Yat-Sen University*, Zhuhai, China.
- 2014 – 2018 **PhD in Mathematics**, *Université Paris 13*.
Arithmetic Statistics for Quaternion Algebras
Advisor: Farrell Brumley
Committee: V. Blomer, F. Brumley, G. Chenevier, G. Harcos, P. Michel, J. Tilouine
- 2011 – 2014 **MSc in Mathematics**, *ENS Cachan and Université Pierre-et-Marie Curie*.
- 2011 – 2017 **MA in History and Philosophy of Sciences**, *Université Paris 7*.
- 2012 – 2013 **Agrégation in Mathematics (ranked 10th)**.

Research Stays

- June 2021 **Hausdorff Research Institute for Mathematics**, Bonn, 1 month.
funded by Hausdorff Research Institute for Mathematics
- March 2021 **Chinese University of Hong Kong**, Hong Kong, 1 month.
invited scholar, funded by CUHK
- March 2018 **Institute for Advanced Studies**, Princeton, 1 month.
funded by École doctorale Galilée
- 2017 – 2018 **Georg-August Universität**, Göttingen, 1 year.
local advisor: Valentin Blomer
funded by Deutscher Akademischer Austauschdienst (DAAD)
- Winter 16-17 **École Polytechnique Fédérale**, Lausanne, 4 months.
local advisor: Philippe Michel
funded by Fondation Sciences Mathématiques de Paris (FSMP)

Distinctions

- 2021 **Seal of Excellence**, European Commission.
distinguished research project ANTAForge
Analytic Number Theory of Automorphic Forms on Reductive Groups

Publications

Publications and preprints

Conductor zeta function for the $GL(2)$ universal family.

with F. Brumley and D. Milićević
preprint 2021

Subconvexity for mixed $GL(3)$ L-functions.

with M. Kiral and C. I. Kuan
preprint 2021

Quadratic Twists of central values for $GL(3)$.

with C. I. Kuan
submitted for publication 2020

Sums of even ascending powers.

with C. I. Kuan and X. Xiao
submitted for publication 2020

The volumes of Miyauchi subgroups.

with I. Petrow
submitted for publication (modifications requested) 2019

Low-lying zeros of L-functions for Quaternion Algebras.

Ann. Institut Fourier 2021, to appear

Counting and Equidistribution for Quaternion Algebras.

Math. Z. 2020 (295) 129–159

Optimal Transportation with an Oscillation-Type Cost: the 1D case.

with P. Pegon and F. Santambrogio
Set-Valued and Var. Anal. J. 2013 (21) 541–556

PhD thesis

Arithmetic Statistics for Quaternion Algebras.

Thesis of Université Paris 13, 2018

Books and contributions

131 Développements pour l'oral.

editor with P. Montagnon, author of the part "Algebra"
topics in general mathematics for the French Agrégation national exam (Master)
Dunod Edition, 2020, 944 pages

Annales corrigées des concours MP.

redaction and reviewing of universities entrance exam
H&K Edition 2012

Publications in didactics

Pour un enseignement par la recherche.

Repères IREM 2020 (121) 45–76

L'algèbre, ou l'école de la raison.

Repères IREM 2013 (93) 5–36

Communications orales

Orateur invité en conférences

- Sept 2019 **Rencontres de Théorie Analytique des Nombres**, *IHP*, Paris.
Quadratic twists of central L-values of automorphic representations
- Aug 2019 **Explicit Methods in Number Theory**, *HIT*, Harbin, China.
Counting and finding automorphisms forms
- July 2019 **Journées Arithmétiques XXXI**, Istanbul, Turkey.
Quadratic twists of central L-values of automorphic representations
- Jul 2018 **EU/US Building Bridges in Automorphic forms**, Budapest.
Arithmetic Statistics for quaternion algebras
- Jul 2017 **Journée Arithmétiques**, Caen.
Type of symmetry of totally definite quaternion algebras
- May 2016 **EJCTN**, Clermont-Ferrand.
Counting automorphic representations of totally definite quaternion algebras

Orateur invité en séminaires ou groupes de travail

- Mar 2021 **Automorphic forms seminar**, *Alfréd Renyi Institute*, Budapest.
The Weyl law for $GL(2)$ with power savings
- Mar 2021 **Algebra seminar**, *University of Littoral Côte d'Opale*, Calais.
Counting automorphic forms and trace formulas
- Feb 2021 **Group, Algebra and Geometry seminar**, *University of Poitiers*.
Counting automorphic forms and trace formulas
- Nov 2020 **Number theory seminar**, *University of Copenhagen*.
Quadratic twists of central L-values of automorphic representations
- Oct 2020 **Number theory seminar**, *Hong Kong University*.
Subconvexity and circle method for GL_3 in the (t, χ) -aspect
- Fev 2020 **Number theory seminar**, *RIKEN Institute*, Tokyo.
Even ascending powers
- Nov 2019 **Number theory seminar**, *Hong Kong University*.
Arithmetic statistics for quaternion algebras
- May 2019 **Number Theory seminar**, *Tsinghua University*, Beijing.
Quadratic twists of central L-values of automorphic representations
- Jul 2018 **Representations and Algebraic geometry seminar**, *Mainz University*.
Plancherel and Sato-Tate theorems for quaternion algebras
- May 2018 **Number theory seminar**, *Max Planck Institute*, Bonn.
Type of symmetry of quaternion algebras
- Jan 2016 **Spectral theory workgroup**, *Université d'Aix-Marseille*.
Conductors and the automorphic representation counting problem

Participation régulière avec exposés

- 2021 – **Workgroup on arithmetic and algebraic geometry**, *Université de Lille*, France.
talks on Artin L-functions
- 2020 – 2021 **Workgroup on automorphic forms**, *SYSU*, Zhuhai.
talks on automorphic forms and Langlands correspondences
- 2019 – 2020 **Groupe de lecture sur les représentations automorphes**, *SYSU*, Zhuhai.
étude du livre en préparation de Getz et Hahn

- 2018 – 2020 **Groupe de travail sur la méthode du cercle**, *SYSU*, Zhuhai.
étude de la littérature sur les puissances croissantes et Waring-Goldbach
- 2018 – 2021 **Séminaire de théorie des nombres**, *SYSU*, Zhuhai.
- 2017 – 2018 **Vinogradov Mean-value theorem workgroup**, Göttingen.
étude des notes du séminaire Bourbaki par L. Pierce, organisé par H. Helfgott
- 2017 – 2018 **Number theory learning seminar**, Göttingen.
étude des notes d'Arthur sur la formule des traces
- 2016 – 2017 **Groupe de lecture de théorie analytique des nombres**, *IHP*, Paris.
étude du livre de Iwaniec et Kowalski
- 2015 – 2016 **Groupe de travail sur les formules des traces**, *UPMC*, Paris.
organisé par F. Brumley
- 2014 – 2017 **Groupe de travail Théorie analytique des nombres**, *Université Paris Sud*.
organisé par É. Fouvry puis L. Devin

— Détail des exposés locaux

- Feb 2021 **Number Theory seminar**, *Sun Yat-Sen University*.
Weyl law with power savings for GL_3
- Jan 2021 **Automorphic forms workshop**, *Sheffield University-SYSU*.
Series of lectures on Tate's thesis
- Oct 2020 **Number Theory seminar**, *Sun Yat-Sen University*.
Subconvexity and circle method for $GL_3 \times GL_2$ in the t -aspect
- Apr 2019 **Number Theory seminar**, *Sun Yat-Sen University*.
Quadratic twists of central L-values of automorphic representations
- Mar 2019 **Circle method workgroup**, *Sun Yat-Sen University*.
Various talks on the ascending power problem
- Dec 2018 **Number theory seminar**, *Sun Yat-Sen University*.
Relative and Kuznetsov trace formulas
- Nov 2018 **Number theory seminar**, *Sun Yat-Sen University*.
Low-lying zeros of L-functions
- Sep 2018 **Number theory seminar**, *Sun Yat-Sen University*.
Arithmetic Statistics for quaternion algebras
- Jun 2018 **Number theory seminar**, *Université Paris 13*.
Type of symmetry of the quaternion algebras
- May 2018 **PhD Defense**, *Université Paris 13*.
Arithmetic Statistics for quaternion algebras
- Apr 2018 **Number Theory Oberseminar**, Göttingen.
Low-lying zeros of L-functions
- Nov 2017 **Number Theory Oberseminar**, Göttingen.
Arithmetic Statistics for quaternion algebras
- Nov 2017 **Number theory learning seminar**, Göttingen.
Maass forms and spherical dual of $SL_2(\mathbf{R})$
- Nov 2017 **Graduate seminar**, *Université Paris-Est*.
Poincaré and its disk
- Oct 2017 **Number theory learning seminar**, Göttingen.
First steps towards the coarse trace formula
- Oct 2017 **Junior Colloquium**, Göttingen.
Modular forms and the sums of four square problem

- Sep 2017 **Number theory learning seminar**, Göttingen.
Selection of the archimedean spectrum, following Duistermaat-Kolk-Varadarajan
- May 2017 **Analytic Number Theory Workgroup**, *IHP*, Paris.
Low-lying zeroes of L-functions
- May 2017 **Number Theory Workgroup**, *Université d'Aix-Marseille*.
Trace formula through the modular surfaces
- Apr 2017 **Graduate Seminar**, *Université Paris 13*.
The Linnik problem about sums of three squares
- Nov 2016 **Algebraic Geometry and Number Theory Seminar**, *EPFL*, Lausanne.
Equidistribution of the universal family of quaternion algebras
- Oct 2016 **Analytic Number Theory Workgroup**, *IHP*, Paris.
Symmetry type of algebraic groups
- Jun 2016 **Reading group on Iwaniec-Kowalski**, *IHP*, Paris.
Modular and automorphic forms
- Jun 2016 **Doctoral School Day**, *Université Paris 13*.
Groups, representations and the Langlands Program
- Apr 2016 **Junior seminar**, *Université Paris 13*.
A swift tour of number theory, from elliptic curves to automorphic forms
- Mar 2016 **Reading group on Iwaniec-Kowalski**, *IHP*, Paris.
Two lectures about sums of characters
- Feb 2016 **Analytic Number Theory Workgroup**, *Université Paris 11*.
Two lectures on Sato-Tate conjectures for low-lying zeroes of zeta functions
- Dec 2015 **Trace Formula Workgroup**, *UPMC*, Paris.
Athur-Selberg Trace Formula and geometric orbital integral estimations
- Fall 2014 **Analytic Number Theory Workgroup**, *Université Paris 11*.
Three lectures on covolumes of fuchsians groups and Tamagawa numbers

Attended Conferences and Schools

- June 2020 **Automorphic forms in Budapest**, online conference.
- Feb 2020 **CIMPA School: Group Actions in Arithmetic and Geometry**, Indonesia.
- July 2019 **Symposium in Analytic Number Theory**, Cetraro, Italy.
- July 2019 **Journées Arithmétiques**, Istanbul, Turkey.
- Mar 2019 **Value Distribution of Zeta and L-functions**, *Riken Institute*, Tokyo.
- Dec 2018 **On The Langlands program: Endoscopy and beyond**, *NUS*, Singapore.
- Aug 2018 **Automorphic forms, L-functions and moments**, Nesin, Turkey.
- July 2018 **Building Bridges in Automorphic forms**, *Alfréd Rényi Institute*, Budapest.
- June 2018 **L-functions: Open Problems and Current Methods**, *HCM*, Bonn.
- Mar 2018 **Locally symmetric spaces**, *IAS*, Princeton.
- Sept 2017 **Automorphic Forms and Arithmetic**, *MFO*, Oberwolfach.
- July 2017 **Journées Arithmétiques**, Caen, France.
- Feb 2017 **Analytic Number Theory**, *MSRI*, Berkeley.
- June 2016 **EJCTN**, *Université Blaise Pascal*, Clermont-Ferrand, France.
- May 2016 **Relative Trace Formula, L-functions, Harmonic Analysis**, *CIRM*, Luminy.
- Mar 2016 **Geometrization and Algebraization of the Langlands Program**, Bristol.
- July 2015 **Quantum Ergodicity and Harmonic Analysis**, Marburg, Germany.
- April 2015 **Analytic Aspects of Number Theory**, *ETH*, Zürich.
- July 2014 **Analytic Number Theory**, *IHÉS*, Bures-sur-Yvettes, France.

Enseignement

Teaching

- 2018 – 2020 **Khôlles in mathematics**, *Franco-Chinese Institute (144h)*, Zhuhai.
Weekly oral examination of CPGE's students (third year of university)
- 2018 – 2019 **Learning seminar and workgroup**, *Sun Yat-Sen University (50h)*.
One semester reading group for undergraduate students, aimed at learning the circle method through a specific research problem
- 2018 – 2019 **Analytic Number Theory**, *Franco-Chinese Institute (24h)*, Zhuhai.
open lectures for the institute's teachers
- 2014 – 2017 **Teaching assistant**, *Université Paris 13 (192h)*.
in charge of exercise sessions for the following courses:

Course	Level	Professor
Differential calculus and optimization	L3	Linda El Alaoui
Analysis	L2	Francis Nier
Linear algebra	L2	Didier Gamblin
Analysis	L1	Francis Nier
Linear algebra	L1	Didier Gamblin
Arithmetics	L1	Eric Hoffbeck
Mathematical structures	L1	Didier Gamblin

- 2011 – 2014 **Khôlles in mathematics**, *Lycées Lakanal and Janson de Sailly (180h)*, Paris.
Weekly oral examination of CPGE's students (first and second year of university)

Supervision

- 2020 – 2021 **Co-supervising one Bachelor student**, *Sun Yat-Sen University*.
Second moment of central values of modular L-functions for number fields
with Chan Ieong Kuan

Diffusion et responsabilités

Scientific dissemination

- July 2021 **Mathematical Summer in Paris.**
problem instructor
- 2020 – 2021 **MATH.en.JEANS**, *French International High School*, Hong Kong.
mentoring of high school students for introductory research projects, on two different campuses
- 2019 – 2020 **Reviewer for *Images des Mathématiques*.**
website led by French CNRS for the promotion and dissemination of mathematics
- 2010 – 2018 **GICS (Groupe pour l'Initiative et la Culture Scientifiques)**, www.gics.fr.
Founder and President (2010-2017), then administration board member (2017-)
Association aiming at promoting intellectual activity and science culture among high schools students, giving lectures on topics which are not presented at their level, and coordinating graduates, engineers and doctors in order to do so
- 2014 **Researcher's Night**, *École polytechnique*, Palaiseau, France.
animation of econometric simulations by computer around risk aversion
- 2012 **"One text, one researcher" : conference of Jean-Benoît Bost**, *BNF*, Paris.
redaction of a booklet of activities, event organized by BNF and SMF
- 2012 **Science Festival**, *ENS Cachan*.
animation of activities around congruences and invariants in games
- 2011 **Two centuries of Galois**, *IHP*, Paris.
animation of an activity about the notion of symmetry and indistinguishability

Organization of conferences

- 2018 **"Les deux révolutions quantiques"** by **Alain Aspect**, *ENS de Cachan*.
- 2017 **"Les sciences transformées par Fourier"** by **Jean-Pierre Kahane**, *IHP*.
- 2016 **"Le logarithme dans les sciences"** by **Gilles Dowek**, *ENS*, Paris.
- 2014 **"Faisons de la science avec la science-fiction"** by **Roland Lehoucq**, *IHP*.

Responsibilities

- 2019 – 2020 **Organizer of the automorphic representations reading group**, *Sun Yat-Sen University*.
- 2018 – 2020 **Organizer of the circle method workgroup**, *Sun Yat-Sen University*.
- 2017 – 2018 **Organizer of the number theory learning seminar**, *Göttingen*.
- 2016 – 2017 **Organizer of the graduate seminar**, *Université Paris 13*.
- 2015 – 2017 **Graduate representative at the LAGA Council**, *Université Paris 13*.
- 2015 – 2016 **Organizer of a workgroup on Iwaniec and Kowalski's book**, *IHP*, Paris.
- 2014 – 2016 **Graduate representative at the Doctoral School Council**, *Univ. Paris 13*.
- 2013 – 2014 **Students representative at the Scientific Council**, *ENS Cachan*.

Research reviews

I reviewed submissions for *Advances in Mathematics*, *Journal of Number Theory* and *Mathematical Reviews* (6 papers).

— Languages

French, Brazilian	native languages
English, Spanish	fluent
Chinese	learning (est. HSK 4)
Italian, German	basics