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
	Adivsor: 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, 2 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**.
preprint 2021
with F. Brumley and D. Milićević

Subconvexity for mixed GL(3) **L-functions**.
Acta Arithmetica 2022, to appear
with M. Kıral and C. I. Kuan

Sums of even ascending powers.
J. Théorie des Nombres de Bordeaux 2020, to appear
with C. I. Kuan and X. Xiao

The volumes of Miyauchi subgroups.
Arkiv der Mathematik 2022
with I. Petrow

Quadratric Twists of central values for GL(3).
Quarterly J. of Math 2021, to appear
with C. I. Kuan

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

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

Talks

Invited speaker in conferences

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 automorphis 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

Invited speaker in seminars

Dec 2021   **Representations of Reductive Groups seminar**, *Aix-Marseille Université*.
Counting automorphic forms: conductor zeta and local newforms

Nov 2021   **Laboratoire Paul Painlevé Day**, *La Piscine museum, Roubaix*.
From sums of squares to automorphic representations

Sep 2021   **Number Theory seminar**, *Université de Lille*.
Counting automorphic forms and local newforms

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 Alegbraic 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

Participant and speaker in workgroups

2021 –	**Workgroup on automorphic forms**, *Université de Lille*, France. talks on representations models and integral representations of L-functions
2021 –	**Reading group on analytic number theory**, *Université de Lille*, France. talks on Shao's L-function free proof of Vinogradov's theorem
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

Details of local talks

Nov 2021	**Reading group on analytic number theory**, *Université de Lille*. Sieve theory: Eratosthenes, Brun and Selberg (2 talks)
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.

Teaching

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2021 – 2022 **Mathematics and didactics**, *Université de Lille, INSPÉ (160h)*.
Teaching mathematics and didactics of mathematics to future teacher of primary school

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

2021 – 2022 **Supervising of students**, *Université de Lille*.

Student	Level	Topic
Ivan Doubovic	M1	Tate's thesis
Alexis Marissaël	L3	Optimal sphere packing
Théophile Cailleau	L3	Sums of four squares

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

Languages

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

General audience and service

Scientific dissemination

2021 – 2022   **MATh.en.JEANS**, *Lycée Le Corbusier*, Aubervilliers.
mentoring of high school students for introductory research projects, on two different campuses

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**, *SYSU*.

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*, *Algebra Number Theory*, *Acta Mathematica Hungarica*, *Journal of Number Theory* (9 papers); *Mathematical Reviews* and *Zentralblatt Math* (8 papers).