DAMIEN SIMON

damien.simon@universite-paris-saclay.fr

EDUCATION

University Paris-Sud/Paris-Saclay, Orsay *2018 - present*
– PhD student, Laboratoire de Mathématiques d'Orsay
Thesis: *Vertex algebras of chiral differential operators on a reductive group and representation theory.*
Advisor: Anne Moreau.
– M2 Arithmétique, Analyse, Géométrie (Supported by a Sophie Germain scholarship)
Master's thesis: *The geometric Satake equivalence.*
Advisors: Gérard Laumon and Anne Moreau.
– Préparation à l'agrégation de Mathématiques
French recruiting competitive examination for high school and undergrad teachers, ranked: 15/327.
Thesis : *How to use finite fields for problems concerning infinite fields.*
Advisor: Gérard Laumon.
– M1 Program Jacques Hadamard (Supported by a Sophie Germain scholarship)
Thesis: *La représentation de Weil.*
Advisor: Gérard Laumon.
– L3 Mathématiques fondamentales et appliquées
Thesis: *Le théorème de Hasse-Minkowsky.*
Advisor: Pierre Lorenzon.

Lycée du Parc, Lyon *2016-2018*
– MP*
– MPSI

MATHEMATICAL WRITING

Preprints
– *Representation theory of the principal equivariant $\mathcal{W}$-algebra and Langlands duality*, arXiv:2510.06990.
Books
– (with Yves Laszlo, Laurent Moonens and Thomas Mordant) *A path to advanced algebra*, volume I, in preparation, draft available here.

TALKS

2026
– University of Dijon – Séminaire Mathématiques-Physique: *Representation theory of the principal equivariant $\mathcal{W}$-algebra and Langlands duality.*
2025
– University of Angers – Séminaire de topologie et géométrie algébriques: *Representation theory of the principal equivariant $\mathcal{W}$-algebra and Langlands duality.*
– University of Erlangen: *Representation theory of the vertex algebra of chiral differential operators on a reductive group.*
– University of Lille – Algebraic geometry, integrable systems and automorphic forms: *Chiral differential operators on a reductive group and representation theory.*
– Inter-University center, Dubrovnik, Croatia – Representation theory XIX: *Representation theory of the vertex algebra of chiral differential operators on a reductive group*.
– University of Roma Tor Vergata – ARTS seminar: *Chiral differential operators on a reductive group and representation theory*.
– Institut des Hautes Etudes Scientifiques (IHES) – Rencontres MathTech: *When is a problem solved ?*.

2024

– Laboratoire de Mathématiques d'Orsay – D-modules learning seminar: *D-modules, integrable connections and coherence*.

– Laboratoire de Mathématiques d'Orsay – D-modules learning seminar: *The sheaf of differential operators*.

– Laboratoire de Mathématiques d'Orsay – PhD students day: *Quantum geometric Langlands program in the language of vertex algebras*.

– Laboratoire de Mathématiques d'Orsay – Good moduli spaces and GIT learning seminar: *Stable vector bundles over projective curves*.

2023

– Institut Henry Poincaré (IHP) – RéGA: *Classifying reductive algebraic groups*.

– Laboratoire de Mathématiques d'Orsay – P=W conjecture learning seminar: *Springer theory*.

INVITATIONS

– Research stay at the University of Erlangen, invited by Thomas Creutzig, 05 July 2025 – 17 July 2025.

– Research stay at the Sapienza University of Rome, invited by Alberto De Sole, 17 February 2025 – 28 February 2025.

TEACHING

University Paris-Sud/Paris-Saclay, Orsay

– Representation theory of Lie algebras, M2 Analyse, Arithmétique, Géométrie, 2025-2026.
Exercice sessions on the representation theory of semisimple Lie algebras.

– Oral examinations, L2 et L3, 2025-2026.
Oral examinations of undergraduate students on various topics.

– Intégration, L3 double diplôme, 2025-2026
Exercice sessions on the theory of Lebesgue integration and measure theory.

– Fonctions holomorphes, L3 Mathématiques fondamentales et appliquées, 2025-2026
Exercice sessions on the theory of holomorphic functions in one variable.

– Algèbre 2, L3 Mathématiques fondamentales et appliquées, 2023-2026.
Exercise sessions on the theory of modules over a commutative ring and its application to linear algebra.

– Calcul formel, L3 Mathématiques fondamentales et appliquées, 2023-2024.
An introductory class to the use of SageMath with applications to cryptography.

– Analyse et topologie, L2 Mathématiques et Physique, 2023.
Exercise sessions for a course of basic functional analysis.

LANGUAGES

French (native), English (fluent), Spanish (beginner).