Nicolas Garrel

Post-doctoral fellow in mathematics

3 rue Henri Dunant
37550 Saint-Avertin
France
📱 *+33 7 60 58 97 07*
✉ *math.g@rrel.fr*
🌐 *nicolas.garrel.me*
Born June 19, 1990

Curriculum

2022–2024	**ATER**, *Université de Tours*, Tours
2021–2022	**Postdoc**, *TU Dresden*, Dresden, with Arno Fehm
2020–2021	**Postdoc**, *Universiteit Antwerpen*, Antwerp, with Karim Becher
2018–2019	**Postdoc**, *University of Alberta*, Edmonton, with Nikita Karpenko
2015–2018	**PhD Thesis**, *Université Paris-Nord*, Villetaneuse, with Anne Quéguiner "Cohomological invariants of algebraic groups and algebras with involution"
2013	**Master**, *Université Paris-Sud*, Orsay Number theory and Algebraic geometry
2011	**Licence**, *Université Paris-Sud*, Orsay
2010–2015	**École Normale Supérieure**, *Mathematics department*, Paris, ranked 16th
2008–2010	**Preparatory classes**, *Lycée Louis-le-Grand*, Paris

Research interests

Main	Algebras with involution, Galois cohomology, Witt rings, Hermitian forms, Hermitian Morita theory, K-theory
Secondary	Algebraic groups, λ-rings, Crossed-products, Higher categories, Ordered fields, Valuations

Published articles

2020	**Cohomomogical and Witt invariants of Witt classes**, *Annals of K-Theory 5-2, 213–248*, DOI 10.2140/akt.2020.5.213
2020	**Mixed Witt rings of algebras with involution of the first kind**, *Canadian Journal of Mathematics, 75(2), 608-644*, DOI 10.4153/S0008414X22000104

Prepublications

An Artin-Schreier-type theory for signatures of hermitian forms over involutions of the first kind

Lambda-operations for hermitian forms over algebras with involution of the first kind

Even Stiefel-Whitney invariants for quaternionic anti-hermitian forms

Teaching

2022–2024	**Statistics**, *Université de Tours*, (exercise classes, L1 in biology)
2022–2024	**Reasoning**, *Université de Tours*, (exercise classes, L1)
2022–2024	**Arithmetic**, *Université de Tours*, (exercise classes, L2)
2022–2024	**Analysis**, *Polytech Tours*, (exercise classes, ingineering school)
2022–2024	**Linear algebra**, *Université de Tours*, (exercise classes, L2)
2021–2022	**Discrete structures**, *TU Dresden*, (exercise classes, freshman, in German)
2021	**Algebraic function fields**, *TU Dresden*, (exercise classes, master, in English)

2020–2021	**Central simple algebras and involutions**, *Universiteit Antwerpen*, (masters course, in English)
2019	**Biocalculus**, *University of Alberta*, (freshman course, inverted classroom)
2017–2018	**Mathematical methods for engineers**, *Université Paris-Nord*, (TA only, third year course for engineers)
2017–2018	**Analysis 1**, *Université Paris-Nord*, (first year course for science students, 30 students)
2015–2018	**Introduction to mathematical structures**, *Université Paris-Nord*, (first year course for science students)
2011–2015	**Weekly oral interrogations**, *Lycée Louis-le-Grand*, (interrogations for preparatory classes)

International conferences

2018	**Affine Algebraic Groups, Motives and Cohomological Invariants**, *BIRS*, Banff, Speaker
	"Mixed Witt rings and cohomological invariants of algebras with involution"
2018	**Quadratic Forms and Related Structures**, *MFO*, Oberwolfach, Speaker
	"Cohomological invariants of Witt classes and algebras with involution"
2017	**Higher Obstructions to Rational Points**, *Emory University*, Atlanta, Attended
2015	**Cohomological Methods in Algebraic Groups**, *CIRM*, Luminy, Attended

Visits

2020	**Research programme participant**, *Isaac Newton Institute*, Cambridge
	Programme "K-theory, algebraic cycles and motivic homotopy"
2019	**Research visit**, *Universiteit Antwerpen*, Anvers, with Karim Becher
	On mixed Witt rings of algebras with involution
2018	**Research visit**, *Universiteit Antwerpen*, Antwerp, with Karim Becher
	On cohomological invariants of quadratic forms
2014	**Exchange program**, *Chennai Mathematical Institute*, Chennai
	Organization of a seminar on Galois cohomology
2013	**Master's internship**, *University of Pennsylvania*, Philadelphia, with David Harbater
	Around patching methods for torsors

Seminar talks, workshops, summer schools and workgroups

2020	**KAH Programme seminar**, *Isaac Newton Institute*, Cambridge
	Mixed graded structures for the K-theory of Azumaya algebras
2020	**Séminaire "Variétés Rationnelles"**, *Jussieu*, Paris
	Morita lifting of Brauer subgroups, and mixed K-theory rings
2019	**ALGAR: Algebras with involution**, *Universiteit Antwerpen*, Anvers
	"Mixed Witt rings of algebras with involution"
2019	**Algebra team seminar**, *Universiteit Antwerpen*, Anvers
	"Hermitian Brauer 2-groups and mixed Witt rings of algebras with involution"
2019	**Mini-course: Quadratic forms and axial algebras**, *Université d'Artois*, Lens
	"Signatures of hermitian forms and the spectrum of mixed Witt rings"
2019	**Workshop: Forms, flags, graphs and beyond**, *University of Ottawa*, Ottawa
	"Exterior powers of hermitian forms over algebras with involution"
2019	**Workgroup**, *University of Alberta*, Edmonton
	Around motives
2018	**Algebra team seminar**, *Université d'Artois*, Lens
	"Cohomological invariants and operations on Witt classes"

2018   **Topology team seminar**, *Université Paris-Nord*, Villetaneuse
"The hermitian Brauer 3-group and mixed Witt rings of algebras with involution"

2017   **Topology team seminar**, *Université Paris-Nord*, Villetaneuse
"Cohomological and Witt invariants of Witt classes"

2016   **Mini-course: Commutative Algebraic Groups, Hermitian K-Theory and Quadratic Forms**, *Université d'Artois*, Lens

2016   **PhD students seminar**, *Université Paris-Nord*, Villetaneuse
"Numbers are ordinary functions"

2016   **Workgroup**, *IHP*, Paris
Around Merkurjev's work on cohomological invariants

2015   **PhD students seminar**, *Université Paris-Nord*, Villetaneuse
"Non-abelian Galois cohomology and Galois descent"

2015   **Workgroup**, *Université Paris-Nord*, Villetaneuse
Around Suslin's conjecture

Other skills

Languages	French (native), English (fluent), Spanish (intermediary)
Software	Linux, Windows, LaTeX, Sage, Emacs
Web	HMTL, CSS, Javascript, PHP, SQL (all moderately)
Programming	Rust, OCaml, Python, Haskell, Idris, Lisp, Bash, Pascal Objet (all moderately)