

ARNO KRET

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RESEARCH INTERESTS

Number theory and arithmetic geometry: Shimura varieties, the Langlands programme, automorphic forms, Galois representations, and the cohomology of Shimura and Igusa varieties.

ACADEMIC APPOINTMENTS

Assistant Professor (Universitair Docent), University of Amsterdam Aug 2015 – present
Korteweg–de Vries Institute for Mathematics.

Postdoctoral Fellow, Max-Planck-Institut für Mathematik, Bonn Jan – Aug 2015

Postdoctoral Fellow, Mathematical Sciences Research Institute (MSRI), Berkeley Aug – Dec 2014

Member, Institute for Advanced Study, Princeton Sept 2013 – July 2014

EDUCATION

Ph.D. in Mathematics, Université Paris-Sud 11 (Orsay) 2013
Mention très honorable. Thesis directed by Laurent Clozel and Laurent Fargues.

M.Sc. in Mathematics, Leiden University 2009
Cum laude.

M.Sc. in Mathematics, Université Paris-Sud 11 (Orsay) 2009
Mention très bien.

B.Sc. in Mathematics, Leiden University 2007
Cum laude.

GRANTS AND AWARDS

- **Vidi grant**, Dutch Research Council (NWO), 2020 — €800,000. *Shimura varieties modulo p and the Langlands conjecture* (VI.Vidi.193.053).
- **Veni grant**, Dutch Research Council (NWO), 2016 (2017–2020) — €250,000. *The Langlands program and the geometry of Shimura varieties* (639.031.655).
- **NWO Mathematics Clusters (GQT) grant** — *Zeta functions of the Newton strata of Shimura varieties* (613.009.128).
- **NWO Mathematics Clusters (GQT) grant** — *The cohomology of Newton strata in the endoscopic case* (613.009.150).
- **China Scholarship Council (CSC) PhD scholarship** — funded the PhD of Yachen Liu.

PUBLICATIONS AND PREPRINTS

- [1] Laurent Clozel, Arno Kret, and Olivier Taïbi. Invariance galoisienne des zéros centraux de fonctions L . Preprint (submitted), 2026.

- [2] Laurent Clozel and Arno Kret. On the central value of Rankin L -functions for self-dual algebraic representations of linear groups over totally real fields. *Tunisian Journal of Mathematics*, 7(3):637–669, 2025.
- [3] Arno Kret and Rafael von Känel. Integral points on coarse Hilbert moduli schemes. Preprint (submitted), arXiv:2307.06944, 2023.
- [4] Arno Kret and Sug Woo Shin. Galois representations for the general symplectic group. *Journal of the European Mathematical Society (JEMS)*, 25(1):75–152, 2023.
- [5] Arno Kret and Sug Woo Shin. H^0 of Igusa varieties via automorphic forms. *Journal de l'École polytechnique — Mathématiques*, 10:1299–1390, 2023.
- [6] Arno Kret and Sug Woo Shin. Galois representations for even general special orthogonal groups. *Journal of the Institute of Mathematics of Jussieu*, 23(5):1959–2050, 2024.
- [7] Arno Kret and Rafael von Känel. Integral points on Hilbert moduli schemes. Preprint (submitted), arXiv:1904.03503, 2019.
- [8] Anna Cadoret and Arno Kret. Galois-generic points on Shimura varieties. *Algebra & Number Theory*, 10(9):1893–1934, 2016.
- [9] Arno Kret. Equidistribution in supersingular Hecke orbits. *Journal für die reine und angewandte Mathematik (Crelle's Journal)*, 2016.
- [10] Arno Kret. Combinatorics of the basic stratum of some simple Shimura varieties. *Documenta Mathematica*, 20:237–267, 2015.
- [11] Arno Kret. The basic stratum of some simple Shimura varieties. *Mathematische Annalen*, 356(2):487–518, 2013.
- [12] Arno Kret and Erez Lapid. Jacquet modules of ladder representations. *Comptes Rendus Mathématique. Académie des Sciences. Paris*, 350(21–22):937–940, 2012.

INVITED LECTURES AND MINI-COURSES (SELECTED)

- **Mini-course / lecture series**, *Automorphic representations and Galois representations*. School on Hodge Theory and Shimura Varieties, University of Duisburg–Essen, Sep 2024.
- Invited speaker, conference on the occasion of Laurent Clozel's 70th birthday, Université Paris-Saclay (Orsay), Sep 2023.
- *On the H^0 of Igusa varieties*. Mini-workshop on Arithmetic Algebraic Geometry, Stockholm University, May 2024; Number Theory Seminar, Leiden University, Oct 2023; Séminaire GRFA, Jussieu (Paris), May 2021.
- *Galois representations for even general special orthogonal groups*. Journées Arithmétiques du LAGA, Université Sorbonne Paris Nord (Villetaneuse), Jun 2022; SAGA seminar, Université Paris-Saclay (Orsay), Jan 2022; Institut de Mathématiques de Marseille (webinar), Jan 2021; University of Duisburg–Essen, Oct 2020; Stockholm University, Nov 2019.
- *Integral points on Hilbert modular varieties*. Conference “Effective Methods for Diophantine Problems”, Jun 2018.
- *Galois representations for the general symplectic group*. London Number Theory Seminar, Jun 2018; conference “Reductive groups and automorphic forms”, IHES, May 2018; Workshop N-cube Days VII, Oct 2017; joint IAS/Princeton seminar, Mar 2017; University of Cambridge, Feb 2017; Workshop on Shimura varieties, Kyoto, Nov 2016; University of Leiden, Oct 2016; Intercity Number Theory Seminar, Oct 2015; University of Bielefeld, May 2015; University of Mainz, Jun 2015; KIAS, Seoul, Jun 2015.
- *Représentations galoisiennes pour GSp* . Université de Strasbourg, Oct 2017; Université d'Aix-Marseille, Feb 2017; Séminaire Chevalley, Université Paris 6/7, Oct 2015; Université Paris 13, Sep 2015.
- *The Langlands programme*. UvA Faculty Colloquium, Jan 2018; two lectures for non-experts, École Polytechnique, Oct 2015.
- *Wiles' modularity theorem*. University of Leuven, Sep 2016.
- *Integral points on Hilbert–Blumenthal varieties* (with R. von Känel). General Mathematics Colloquium, University of Amsterdam, Sep 2015.

- *The Newton stratification of Shimura varieties and the Arthur–Selberg trace formula*. Invited talks at MPIM Bonn, University of Leiden, MSRI Berkeley, University of Maryland, MIT, IAS Princeton, Duisburg–Essen, University of Paderborn, University of Copenhagen, Université de Bordeaux and Université Paris 6/7/11 (2012–2014).
- *The basic stratum of some simple Shimura varieties*. University of Jerusalem, Jun 2012; *The supersingular locus of the modular curve*, University of Tel Aviv, Jun 2012; Séminaire REGA, Paris, Mar 2012; AGNT seminar, Leiden, Jan 2012.

Invitations declined for family reasons: conference at BIMSA (Beijing Institute of Mathematical Sciences and Applications), 2026; Arithmetic LAGA Days, Paris, 2025.

INTERNATIONAL RESEARCH VISITS

- Korea Institute for Advanced Study (KIAS), Seoul — guest researcher, 2015, 2017, 2018 and 2019.
- École Polytechnique, Paris — *Professeur invité*, Sept–Oct 2015.
- Massachusetts Institute of Technology (MIT), Cambridge (USA), 2014.
- Hebrew University of Jerusalem, 2011.

SUPERVISION OF DOCTORAL CANDIDATES

Current

- Kaan Bilgin (Ph.D., ongoing).
- Dhruva Kelkar (Ph.D., ongoing).
- Reinier Sorgdrager (Ph.D.) — defence on 28 September 2026.

Completed

- Yachen Liu (Ph.D., 2026), as supervisor. *The Langlands–Kottwitz method and the Newton stratification of certain compact unitary Shimura varieties*.
- Jeroen Huijben (Ph.D., 2023), as co-supervisor. *Chromatic polynomials: zeros, algorithms and computational complexity*.

SUPERVISION OF MASTER’S, BACHELOR’S AND SECOND-YEAR PROJECTS

Arno supervised 35 students, of whom 12 wrote a master’s thesis.

TEACHING

- University of Amsterdam (2015 – present): lecturer in the bachelor’s and master’s programmes, including Galois theory, Topics in Number Theory, and linear algebra (Wiskunde 1B/1C).
- **Topics in Number Theory** (local master programma) 2022, 2024, 2026.
- **Mastermath** (national master’s programme): Algebraic Geometry 1, Algebraic Geometry 2, Galois representations and automorphic forms, and Commutative Algebra.
- University Teaching Qualification (Basiskwalificatie Onderwijs, BKO): obtained.

REFEREING AND REVIEWING

Referee for international journals and book series, among others:

- Journal of the European Mathematical Society (JEMS)
- Compositio Mathematica

- Algebra & Number Theory
- Lecture Notes in Mathematics (Springer)
- Annals of Mathematics Studies (Princeton University Press)

Grant assessment. Member of NWO grant assessment committees, including the cluster committee of the NWO Open Competition ENW-M (round 22-1, Cluster A, 2022–2023) and a further NWO committee (2026); evaluator for the Royal Swedish Academy of Sciences (Knut and Alice Wallenberg) mathematics programme (2025).

ACADEMIC SERVICE AND ORGANISATION

- Member of the Examinations Board (Examencommissie), mathematics programme, University of Amsterdam.
- Co-organisier of the UvA Arithmetic and Algebraic Geometry Seminar. The seminar meets weekly during term and runs reading/working groups in which PhD students (and occasionally advanced master's students) study a topic together. It hosts a large number of invited speakers, on the order of 20 talks per year, a substantial share of them from abroad (recent speakers came from, among others, Harvard, Imperial College London, IHÉS, the Hebrew University of Jerusalem, EPFL Lausanne, Bonn, Copenhagen and Beijing).
- Organiser of the *Compositio Mathematica Prize Symposium 2023*, in honour of Colin Bushnell and Guy Henniart, University of Amsterdam, 24 November 2023.
- Local organiser of the Intercity Number Theory Seminar for its Amsterdam (UvA) editions (2019, 2025, 2026).
- Member of thesis juries (e.g. Reinier Sorgdrager, Amsterdam/Lyon, 2026).

Member of doctorate/PhD committees:

- Zekun Ji (University of Amsterdam, 2026); Przemysław Grabowski (University of Amsterdam, 2025); Simon Cooper (Stockholm University, 2024); Stefan Reppen (Stockholm University, 2024); Kees Kok (University of Amsterdam, 2023); Wessel Bindt (University of Amsterdam, 2021); Milan Lopuhaä-Zwakenburg (Radboud University, 2018); Zijian Zhou (University of Amsterdam, 2018); Maxim Mornev (Leiden University, 2018); Qijun Yan (Leiden University, 2017); Francesca Bergamaschi (Leiden University, 2017); Christophe Debry (University of Amsterdam, 2016); Yongqi Feng (University of Amsterdam, 2015).

OUTREACH

- *Andrew Wiles en de Abelprijs* (with Sander Dahmen), popular-science article.

LANGUAGES

Dutch (native), English (fluent), French (fluent).