

# RADU TOMA

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<https://radustoma.github.io>

## EMPLOYMENT

**Sorbonne Université, IMJ-PRG, CNRS, Paris**      **October 2024 – September 2026**  
Postdoc - Cofund MathInGreaterParis, advised by Prof. Dr. Farrell Brumley

## EDUCATION

Rheinische Friedrichs-Wilhelm-Universität Bonn      October 2020 – September 2024

Doctor rerum naturalium

- *The sup-norm problem for automorphic forms in higher rank* - Summa cum laude, best dissertation award
- Advisor: Prof. Dr. Valentin Blomer
- Research stay at EPFL from September to December 2022

University of Cambridge

October 2019 – June 2020

## Master of Advanced Studies in Pure Mathematics

- Part III essay “The spectral theory of automorphic forms”, advised by Prof. Dr. Anthony J. Scholl

Georg-August-Universität Göttingen

October 2016 – August 2019

## Bachelor of Science, Mathematics

- Finished with highest overall grade of 1,0
- Class rank: 1st of 85
- Bachelor's thesis with title "The Arithmetic of Binary Quadratic Forms", supervised by Prof. Dr. Valentin Blomer and Prof. Dr. Preda Mihăilescu, grade 1,0
- Minor in Philosophy

## PUBLICATIONS

- R. Toma. *Hybrid bounds for the sup-norm of automorphic forms in higher rank*. Trans. Amer. Math. Soc. 376 (2023)
- R. Toma. *Estimates for representation numbers of binary quadratic forms and Apollonian circle packings*. Journal of Number Theory 214 (2020)

PREPRINTS

- K. de Boer, A. Page, R. Toma, B. Wesolowski, Average hardness of SIVP for module lattices of fixed rank, arXiv:2511.13659 (2025)

- A.C. Nordentoft, R. Toma. *Joint equidistribution of newforms*. arXiv:2509.01602 (2025)
- E. Assing, R. Toma. *The orbit method in number theory through the sup-norm problem for  $GL(2)$* . arXiv:2503.06224 (2025)
- R. Toma. *The sup-norm problem for newforms of large level on  $PGL(n)$* . arXiv:2401.02741 (2024)

### **INVITED TALKS**

- “Refined equidistribution of Hecke points and cryptography”, International Workshop on Automorphic Forms, Online, November 2025
- “Hecke equidistribution in cryptography”, Swissmap International Workshop on Automorphic Forms, Les Diablerets, September 2025
- “Archimedean and nonarchimedean microlocal analysis in the sup-norm problem”, ANTAF conference, Lille, September 2025
- “Random self-reducibility of SIVP for module lattices of fixed rank”, CHARM Lattice-based Cryptography Workshop, Bordeaux, June 2025
- “Automorphic forms and cryptography”, Heilbronn Number Theory Seminar, Bristol, June 2025
- “The sup-norm problem in higher rank”, London Number Theory Seminar, UCL, February 2025
- “Effective equidistribution in analysing algorithmic hardness”, N Cube XXI, Kiel, November 2024
- “The size of automorphic forms”, Séminaire Formes Automorphes, IMJ-PRG, Paris, November 2024
- “The size of automorphic forms”, Séminaire d'Arithmétique Lyon, November 2024
- “The sup-norm problem for newforms in higher rank”, Texas A&M number theory seminar, online, March 2024
- “The sup-norm problem for newforms in higher rank”, Rényi automorphic forms seminar, Budapest, March 2024
- “Integer points on spheres throughout the centuries”, Bonn Graduate Colloquium, November 2023
- “On the sup-norm of automorphic forms in higher rank”, ETH Zürich Number Theory Seminar, Zürich, October 2022
- “Hybrid bounds for the sup-norm of automorphic forms in higher rank”, Rényi automorphic forms seminar, online, May 2022
- “On the sup-norm of automorphic forms”, ENTR Seminar Darmstadt/Köln, online, April 2022

- “How loud is an arithmetic drum?”, Cambridge Junior Algebra/Number Theory seminar, online, February 2022
- “Binary quadratic forms and Apollonian circle packings”, Seminaire d’Arithmétique, Laboratoire Paul Painlevé, Lille, October 2021
- “Binary quadratic forms and Apollonian circle packings”, Number theory lunch seminar, Max-Planck-Institut für Mathematik, Bonn, February 2020

### **CONTRIBUTED TALKS**

- “On the size of newforms of large level on  $\mathrm{PGL}(n)$ ”, Y-RANT Conference, Cambridge, September 2023
- “On the size of newforms of large level on  $\mathrm{PGL}(n)$ ”, ArStAFANT Workshop, Lausanne, June 2023
- “On the sup-norm of automorphic forms in higher rank”, Building Bridges 5, Sarajevo, August 2022
- “Binary quadratic forms and Apollonian circle packings”, Jahrestagung der Deutschen Mathematiker-Vereinigung, Studierendenkonferenz, Karlsruhe, September 2019

### **CONFERENCES & SEMINARS ORGANISED**

- Reading seminar: *Equidistribution, the modern ergodic method*, Winter semester 23/24, University of Bonn
- Conference: *Young Scholars in the Analytic Theory of Numbers and Automorphic Forms*, 28-29 March 2022, Bonn

### **TEACHING EXPERIENCE**

**Algebra & Complex Analysis tutor** **October 2021 – September 2022**

Rheinische Friedrichs-Wilhelm-Universität Bonn

- Presented solutions each week for the Algebra/Complex Analysis exercise sheets, marked student submissions, and reviewed topics from the lecture

**Algebra tutor** **October 2018 – March 2019**

Georg-August-Universität Göttingen

**Tutor for the preliminary course in mathematics** **September 2017**

Georg-August-Universität Göttingen

- Organised an additional workshop on Combinatorics, wrote lecture notes, selected and adapted exercises

### **AWARDS AND SCHOLARSHIPS**

**Hausdorff Memorial Prize for best dissertation in mathematics**

Awarded by University of Bonn Mathematics, 15th January 2025

**Scholarship from the Studienstiftung des deutschen Volkes**

October 2018 – September 2020

- Awarded for exceptional academic performance
- Obtained funding for pursuing Master's degree in Cambridge, UK

**International Mathematics Competition**

- 2nd Prize 2018 and 3rd Prize 2017

**Scholarship Deutschlandstipendium**

October 2016 – September 2018

- Awarded for academic performance and social engagement

**COMMUNITY SERVICE****Referee work**For Essential Number Theory, *Journal de Théorie des Nombres de Bordeaux***Member of scholarship selection committee** April 2025

Studienstiftung des deutschen Volkes

**Organiser of event on academic careers for PhDs and postdocs** April 2024

Mathematisches Institut, Rheinische Friedrichs-Wilhelm-Universität Bonn

**Reporter for Oberwolfach workshop** May 2023

Group actions and harmonic analysis in number theory, Report no. 22/2023

**Founder of Mathematics Graduate Students Association** April 2023

Mathematisches Institut, Rheinische Friedrichs-Wilhelm-Universität Bonn

- Organised social events for PhD students, improved communications infrastructure, organised career event

**Student representative in institute's council** October 2021 - September 2022

Mathematisches Institut, Rheinische Friedrichs-Wilhelm-Universität Bonn

**Science communication: Mathematics YouTube channel** August 2021

- Created videos explaining mathematical ideas to a large audience with minimal background

**Tutor at How-To-Prove-It Weekend** November 2017 & October 2018

With the Mathematics &amp; Computer Science Student Association in Göttingen

- Taught strategies for writing and understanding mathematical proofs to a group of beginning students and supervised them for the weekend on an organised trip to another city

**Volunteer at the Mathematics Olympiad in Lower Saxony** February 2017

Göttingen

- Marked papers of high-school students

## **LANGUAGES**

- **Romanian:** native, **English:** fluent, **German:** fluent, **French:** intermediate

Updated: November 2025