RADU TOMA

IMJ-PRG, Sorbonne Université, Campus Pierre et Marie Curie, 4 Place Jussieu, Paris
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https://radustoma.github.io

EMPLOYMENT

Sorbonne Université, IMJ-PRG, 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

- 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

- Toma, R. *Hybrid bounds for the sup-norm of automorphic forms in higher rank.* Trans. Amer. Math. Soc. *376* (2023)

- Toma, R. *Estimates for representation numbers of binary quadratic forms and Apollonian circle packings.* Journal of Number Theory *214* (2020)

PREPRINTS

- Toma, R. *The sup-norm problem for newforms of large level on* PGL(n). Arxiv:2401.02741 (2024)

INVITED TALKS

- "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 PGL(n)", Y-RANT Conference, Cambridge, September 2023

- "On the size of newforms of large level on 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

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

Founded Mathematics Graduate Students Association   **April 2023**

Mathematisches Institut, Rheinische Friedrichs-Wilhelm-Universität Bonn

– Organised social events for PhD students, improved communications infrastructure

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 video explaining mathematical ideas (in particular related to number theory) to a large audience with minimal background

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

With the Mathematics & 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

COMPUTER SKILLS

– Programming languages: C++, Latex, Python

Updated: January 2025