

Angelica Babei

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EDUCATION

- Dartmouth College**, Hanover, NH
Ph.D. in Mathematics (Advisor: Thomas R. Shemanske) 2019
Thesis: *On the Arithmetic of Tiled Orders*
A.M. in Mathematics 2015
- Colgate University**, Hamilton, NY
B.A. in Mathematics and German 2014

EMPLOYMENT

- Université de Montréal CRM**, Montréal, QC
Postdoctoral Fellow Fall 2020
- Vanderbilt University**, Nashville, TN
Postdoctoral Scholar (Mentor: Larry Rolen) 2019 - 2020

RESEARCH INTERESTS

A blend of algebraic number theory, combinatorial and computational methods. More specifically, classical and Hilbert modular forms, quaternionic orders and orders in central simple algebras, and Bruhat-Tits buildings.

PUBLICATIONS

1. *Computing normalizers of tiled orders in $M_n(k)$* , Proceedings of the Thirteenth Algorithmic Number Theory Symposium, edited by Renate Scheidler and Jonathan Sorenson, Open Book Series 2, Mathematical Sciences Publishers, Berkeley, 2019, 55-68. ([PDF](#))
2. *Metacommutation of primes in Eichler orders* (with Sara Chari). Acta Arithmetica. 2020, 10.4064/aa191031-23-5. ([preprint](#))
3. *The Riemann Hypothesis for period polynomials of Hilbert modular forms* (with Larry Rolen and Ian Wagner). Journal of Number Theory. 2020, 10.1016/j.jnt.2020.07.004. ([preprint](#))
4. *Type numbers of orders in central simple algebras*. In preparation.

COMPUTATIONAL PROJECTS

1. Implementing a new environment for Hilbert modular forms in Magma ([github repository](#))
2. Contributor to the [LMFDB](#)

TEACHING EXPERIENCE

- Instructor*, Vanderbilt University
Math 2420 - Methods of Ordinary Differential Equations Spring 2020
Math 1300 - Accelerated Single Variable Calculus I (2 sections) Fall 2019

Instructor, Dartmouth College

Math 22 - Linear Algebra with Applications	Fall 2018
Math 8 - Calculus of Functions of One and Several Variables	Fall 2017
Math 1 - Calculus with Algebra	Fall 2016

Ethics Seminar Facilitator, Dartmouth College

Topics: Professionalism, Mentoring, Authorship and Peer Review, Data Collection	Fall 2018
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Teaching Assistant, Dartmouth College

Math 13 - Calculus of Vector Valued Functions	Spring 2016
Math 22 - Linear Algebra with Applications	Fall 2015
Math 23 - Differential Equations	Winter 2015
Math 3 - Calculus	Fall 2014

TALKS

- *Counting ideals in Eichler orders: a combinatorial approach* March 2020
Bates College, ME.
- *Metacommutation in quaternion orders and actions on the Bruhat-Tits tree* January 2020
Joint Mathematics Meetings 2020, Denver, CO.
- *Metacommutation in Eichler orders* September 2019
PANTS 2019, University of North Carolina at Charlotte, Charlotte, NC.
- *Hilbert modular forms in Magma* August 2019
Number Theory Seminar, Vanderbilt University, Nashville, TN.
- *Type numbers of orders in central simple algebras* January 2019
Joint Mathematics Meetings 2019, Baltimore, MD.
- *Type numbers of orders in central simple algebras* November 2018
Five College Number Theory Seminar, Amherst College, Amherst, MA.
- *Class and type numbers of orders in central simple algebras* October 2018
Québec-Maine Number Theory Conference, Université Laval, Québec.
- *Computing normalizers of tiled orders in $M_n(\mathbb{Q}_p)$* July 2018
Algorithmic Number Theory Symposium XIII, University of Wisconsin, Madison, WI.
- *Type numbers of orders in central simple algebras* May 2018
Number Theory Seminar, Dartmouth College, NH.
- *Tiled orders and the building for $SL_n(\mathbb{Q}_p)$* September 2017
Maine-Québec Number Theory Conference, University of Maine, ME.
- Graduate Student Seminar: multiple talks, Dartmouth College, NH. 2016-2019
- Number Theory Graduate Student Seminar: multiple talks, Dartmouth College, NH. 2016-2018

PROFESSIONAL ACTIVITIES

- **Vanderbilt University Online Course Design Institute** June - July 2020
Participated in a 2-week workshop to prepare for planning and teaching an online course. Topics include building sample learning modules, online teaching tools and issues of access, and planning strategies to provide a thriving online learning experience.
- **Vanderbilt Center for Teaching - The Open Classroom** September 2019
Participated in discussion sessions on *Teaching Creativity* and *Active Learning*
- **Dartmouth Algebra and Number Theory Seminar - Organizer** 2015 - 2019

- **Dartmouth Mathematics Women's Tea** - Organizer Fall 2018
- **Dartmouth Center for the Advancement of Learning** August 2018
Participated in a workshop on *Creating an Inclusive Learning Environment*
- **Sage Days 95 : Women in Sage** July 2018
- **Dartmouth Ethics Facilitator Training** Spring 2018
- **Sage Days 87 : p-adics in Sage and the LMFDB** July 2017
Computed Galois splitting models for the LMFDB.
- **UNCG Summer School in Computational Number Theory: Modular Forms** May 2017
- **2016 NES MAA Vermont Workshop** October 2016
Teaching Calculus Now - Current Trends and Best Practices
- **CTNT: Elliptic Curves and Modular Forms** August 2016
- **Dartmouth College Mathematics Teaching Seminar** Summer 2016
Participated in an 8-week course focused on the discussion and implementation of pedagogical materials and philosophies. Topics included planning lessons and courses, student assessments and collaborative learning assignments.

OUTREACH

- **Nashville Math Club** - Workshop Co-leader 2019 - 2020
Knot Theory (September 2019)
Set Theory and the Inclusion-Exclusion Principle (February 2020)
- **Nebraska Conference for Undergraduate Women in Mathematics** - Panelist January 2019
- **Dartmouth Sonia Kovalevesky Day** - Panelist May 2019
- **Dartmouth Sonia Kovalevesky Day** - Workshop Co-leader 2015 - 2018
Cryptography: The Mathematics of Secrets (April 2018)
The Number Games: Survival of the Brainiacs (May 2017)
Complex Networks (April 2016)
Ramsey's Three Friends and Three Strangers (May 2015)
- **Johns Hopkins University : Center for Talented Youth** - Workshop Co-leader 2016 - 2017
The Number Games: Survival of the Brainiacs (May 2017)
Complex Networks (April 2016)
- **Exploring Mathematics Camp at Dartmouth** - Workshop Co-leader August 2016
Developed two week-long workshops for middle and high school students.
Probability and *Knot Theory*

OTHER SKILLS

- Programming skills: Magma, SageMath, Python, MATLAB, Git
- Language skills: native Romanian, fluent English, proficient German, Russian