Mikuláš Zindulka

Curriculum Vitae

Contact information

E-mail	mikulas.zindulka@matfyz.cuni.cz
Website	www2.karlin.mff.cuni.cz/~zindulka

Department of Algebra
Faculty of Mathematics and Physics
Charles University
Sokolovská 83
186 75 Prague 8, Czech Republic

Personal

Date of birth	May 26, 1996
Nationality	Czech Republic

Education

Charles University, Prague, Czech Republic
Faculty of Mathematics and Physics

2021–present	Ph.D., Algebra, number theory, and mathematical logic Supervisor: V. Kala Dissertation: *The Arithmetic of Number Fields: Decompositions and Norms*
2018–2021	Master of Mathematics, Mathematical analysis Supervisor: O. Kalenda Master thesis: *Basic sequences in Banach spaces*
2015–2018	Bachelor of Mathematics, General mathematics Supervisor: M. Cúth Bachelor thesis: *Finitely additive measures and their decompositions*

Research visit abroad

April–July 2024	**University of Hong Kong** Research collaboration with Professor Ben Kane

Research interests

Hurwitz class numbers, families of elliptic curves, and applications of modular forms in number theory

Arithmetics of number fields

Theory of partitions

Questions related to Artin's conjecture for primitive roots

Lattice models in combinatorics

Grants

2024–2025	**Charles University Grant Agency** Principal researcher on the project *Additive structure of integral elements in number fields* Co-researchers: E. Pěchoučková and D. Stern
2021–2025	**Czech Science Foundation GAČR** Team member of *UFOCLAN: Universal quadratic forms and class numbers* Principal researcher: V. Kala
2020–2022	**Primus Research Programme** Team member of the project *Universal quadratic forms: geometry and analysis* Principal researcher: V. Kala

2020–2022 **Charles University Grant Agency**
Co-researcher on the project *Number systems in lattices and number field orders*
Principal researcher: J. Krásenský

2018–2019 **Student Faculty Grant**
Principal researcher on the project *Probabilistic model for Artin's conjecture*

Publications

Partitions in real quadratic fields (with D. Stern), Mathematische Nachrichten, February 2025

Partitions into powers of an algebraic number (with V. Kala), The Ramanujan Journal, April 2024

Artin twin primes (with M. Tinková and E. Waxman), Journal of Number Theory, April 2023

Preprints

Counting principal ideals of small norm in the simplest cubic fields, arXiv:2501.06889, January 2025

Totally positive elements with m partitions exist in almost all real quadratic fields, arXiv:2409.18080, September 2024

No proper generalized quadratic forms are universal over quadratic fields (with O. Chwiedziuk, M. Doležálek, S. Hlavinková, E. Pěchoučková, Z. Pezlar, O. Prakash, and A. Růžičková, arXiv:2409.07941, September 2024

Sums of Hurwitz class numbers, CM modular forms, and primes of the form $x^2 + ny^2$, arXiv:2405.07565, May 2024

Representing rational integers by generalized quadratic forms over quadratic fields (with O. Chwiedziuk, M. Doležálek, E. Pěchoučková, Z. Pezlar, O. Prakash, G. Romeo, and A. Růžičková, arXiv:2403.07171, March 2024

The Six-Vertex Model with a Non-Standard Boundary Condition (with M. Doležálek, M. Raška, E. Sgallová, and E. N. Stucky), arXiv:2310.05281, October 2023

Conferences and talks

November 2024 ICCGNFRT-2024
International Conference on Class Groups of Number Fields and Related Topics
IISER Berhampur, Odisha, India
Talk: *Sums of Hurwitz class numbers, CM modular forms, and primes of the form* $x^2 + ny^2$

September 2024 Algebraic Number Theory
A workshop for young researchers
University of the Bundeswehr Munich, Germany
Talk: *Partitions of algebraic numbers*

August 2024 ELAZ
University of Rostock, Germany
Talk: *Sums of Hurwitz class numbers, CM modular forms, and primes of the form* $x^2 + ny^2$

November 2023 Number Theory Seminar
Charles University, Prague
Talk: *Partitions: beyond the integers*

June 2023 Number Theory Seminar
Jagellonian University, Kraków, Poland
Talk: *Partitions in real quadratic fields*

June 2023	Summer school Quadratic forms and applications in algebraic geometry RWTH Aachen University, Germany
May 2023	Numeration 2023 University of Liège, Belgium Talk: *Partitions into powers of an algebraic number*
September 2022	International Workshop for Young Mathematicians Jagiellonian University, Kraków, Poland Talk: *Number of elements of small norm in the simplest cubic fields*
September 2022	ALGAR summer school University of Antwerp, Belgium
August 2022	ELAZ University of Poznań, Poland Talk: *Number of elements of small norm in the simplest cubic fields*
July 2022	Number Theory Conference University of Debrecen, Hungary Talk: *Number of elements of small norm in the simplest cubic fields*
August 2021	ALGAR summer school University of Antwerp, Belgium
April 2021	Front Range Number Theory Day (online) CSU and UC Boulder, USA
February 2020	Combinatorial and Algebraic Structures Seminar Czech Technical University, Prague Talk: *Hardy-Littlewood conjecture for primes having a prescribed primitive root*
November 2019	Number theory seminar Charles University, Prague Talk: *Hardy-Littlewood conjecture for primes having a prescribed primitive root*
July 2019	2nd French-German Summer School TU Dresden, Germany
July 2014	The Summer Symposium in Real Analysis Czech Technical University, Prague

Teaching experience

Summer 2025	Number theory proseminar Elective course at MFF UK
Winter 2024	Discrete mathematics Practicals at MFF UK
Winter 2023	Linear algebra 1 Practicals at MFF UK
Summer 2023	Number theory proseminar Elective course at MFF UK
Winter 2022	Linear algebra 1 Practicals at MFF UK
Summer 2022	Number theory proseminar Elective course at MFF UK
Winter 2021	Linear algebra 1 Practicals at MFF UK

Summer 2021	Mathematics IV Practicals at FSV UK The *Golden Course* award
Winter 2020	Mathematics III Practicals at FSV UK The *Golden Course* award

Bachelor thesis consultant

D. Stern, *Partitions of totally positive elements in real quadratic fields*, 2023.

F. Couf, *Fourier transform on polytopes and tiling with rectangles*, 2023.

Internship abroad

March–August 2020	Heidelberg University, Germany Erasmus+ mobility

Languages

English (fluent), **Czech** (native), **German** (beginner), **Hindi** (beginner)