Tung Tho Nguyen

CONTACT INFORMATION

Department of Mathematics
The University of Western Ontario
London, ON Canada, N6A 5B7

Mobile: 312-478-7812
E-mail: tungnt@uchicago.edu
*Website:*https://tungprime.github.io/

EMPLOYMENT

Postdoctoral Associate in Mathematics, Western University 2021-

- Mentors: Professor Jan Minac and Professor Lyle Muller.

Research Technologist, University of Chicago 4/2021-6/2021

Intern, Kibo Commerce 6/2020-8/2020

- Mentor: Austin Rochford
- Project: Implemented a novel sequential A/B testing algorithm on historical Kibo's data with more than 4000 campaign groups.

EDUCATION

Doctor of Philosophy in Mathematics, The University of Chicago December 2020

- Advisor: Professor Kazuya Kato
- Thesis: Special values of L-functions over global fields.

Master of Science in Mathematics, The University of Chicago 2016

- Advisor: Professor Kazuya Kato
- Topic proposal: p-adic L-functions of elliptic curves with complex multiplication.

Bachelor of Science in Mathematics, Vietnam National University 2009-2014

- Senior thesis advisor: Professor Ralph Greenberg
- Senior thesis: On the norm of the fundamental units in real quadratic number fields.

RESEARCH INTERESTS

Special values of zeta functions, Galois theory, representation theory, spectral graph theory, dynamical systems, computational neuroscience.

PUBLICATIONS

- L. Muller, J. Minac, and T. T. Nguyen, Algebraic approach to the Kuramoto model. Physical Review E vol. 104 (2021).
- Tung T. Nguyen, Heights and Tamagawa numbers of motives (Accepted to Journal of Pure and Applied Algebra).
- Research experiences for undergraduates at VNU (published as a book)

PREPRINTS

- Roberto Budzinski, **Tung T. Nguyen**, Jacqueline Doan, Jan Minac, Terrence Sejnowski, Lyle Muller, An algebraic approach to nonlinear systems with heterogeneous time delay and the geometry of the dynamics (manuscript available, to be submitted in 1-2 weeks).
- Roberto Budzinski, **Tung T. Nguyen**, Gabriel B. Benigno, Jacqueline Doan, Jan Minac, Terrence J. Sejnowski, Lyle Muller, A simple geometry unites synchrony, chimeras, and waves in nonlinear oscillator networks (submitted), available at https://arxiv.org/abs/2111.02560
- Roberto Budzinski, Jacqueline Doan, Jan Minac, Lyle Muller, **Tung T. Nguyen**, Federico Pasini, Equilibria in Kuramoto oscillator networks: An algebraic approach (submitted), available at https://arxiv.org/abs/2111.02568
- Jacqueline Doan, Jan Minac, Lyle Muller, **Tung T. Nguyen**, Federico W. Pasini, Join of circulant matrices (submitted).
- Anna Krokhine, Chun Hei Lam, Ton Meesena, William Jones, John Merzel, Jan Minac, Lyle Muller, **Tung T. Nguyen**, Spectral graph theory projects, 2021 Fields Undergraduate Summer Research Program.
- Jan Minac, Nguyen Duy Tan, **Tung T. Nguyen**, Further insights into the mysteries of the values of zeta functions at integers (submitted), available at https://arxiv.org/abs/2108.08171
- Jan Minac, Nguyen Duy Tan, **Tung T. Nguyen**, Fekete polynomials, quadratic residues, and arithemtic (submitted), available at https://arxiv.org/abs/2111.05256
- Jon Merzel, Jan Minac, Lyle Muller, Federico Pasini, **Tung T. Nguyen**, Spectral perturbation by rank one matrices, manuscript available.
- Jon Merzel, Jan Minac, Lyle Muller, Federico Pasini, **Tung T. Nguyen**, Spectral perturbation by low rank matrices, manuscript available.

RELEVANT COURSEWORK

Course Design and College Teaching (CCTE 50000). The main goals of this course are.

- Reflect critically on and improve their teaching practice.
- Design an inclusive and well-conceived course based in meaningful learning objectives and conctructed with teaching methods and assessments aligned with those objectives.
- Articulate a meaningful student-centered approach to teaching.

TEACHING EXPERIENCES

- 2013: TA for a course in Galois theory (Professor Le Minh Ha.)
- 2014: Introduction to Statistics (Vietnam National University)
- 2015-2016: College Fellow for IBL Honors Calculus.
- 2016-2017: Lecturer for MATH 13100-13200-13300 (Elementary functions and calculus).
- 2017-2018: Lecturer for MATH 13100-13200-13300 (Elementary functions and calculus).
- 2018-2019: Lecturer for MATH 15200-15300 (Elementary functions and calculus).
- Summer 2019: Lecturer for the CAAP summer program at UChicago.
- 2019-2020: Lecturer for MATH 15100-15200 (Elementary functions and calculus).
- 2020-2021: MATH 15200 (via Zoom)

SERVICES

- Co-supervised an undergraduate student, Lewis Glabush, toward his senior thesis (with Prof. Jan Minac and Prof. Lyle Muller).
- Co-organizer of the Algebra Seminar at Western University (with Prof. Jan Minac).
- Co-supervised four students in the Fields Undergraduate Summer Research Program 2021 (with Prof. Jan Minac and Prof. Lyle Muller).
  - Students: Anna Krokhine, Chun Hei Lam, Ton Meesena, William I Jones.
  - Project: Spectrum of almost complete digraphs.
  - Completing two papers on spectral graph theory and matrix algebra.
- Co-organizer and speaker for the following learning groups at UChicago: etale cohomology (Fall 2015) and p-adic Hodge theory (Winter and Spring 2017).
- Mentored 3 projects for the Directed Reading Program (Spring 2016 and Fall 2017, Spring 2019).
  - Michael Cronin: Modular arithmeitcs.
  - Benjamin Andrew: Elementary number theory.
  - Xingyu Wang: p-adic numbers and applications.
- Mentored three projects during the REU program at UChicago (Summer 2016).
  - Hung Ho: Gaussian integers.
  - Christopher Wilson: A brief introduction to ZFC.
  - Mantas Mazeika: The singular value decomposition and low rank approximation.

SELECTED TALKS

- Undergraduate colloquium, Illinois State University, October 2021.
- First SIBAU-NU Workshop on Matrix Analysis and Linear Algebra, October 2021.
- Mathematics and Statistics Colloqium, Loyola University, October 2021.
- Invited talk at Williams SMALL REU 2021, join of circulant graphs. Also had an open discussion about my experiences in mathematics and shared some personal advice for undergraduate students.
- Young Researchers in Algebraic Number Theory, August 2021, Fekete polynomials, quadratic residues, and arithmetic.
- Hanoi, Chicago, Boston and Western: A panoramic view of absolute Galois groups (joint talk with Jan Minac), joint seminar between
  - Mini-workshop on Algebra and homogeneous spaces
  - Online seminar on quadratic forms, linear algebraic groups and beyond
- Fekete polynomials, quadratic residues, and arithmetic, GTA Philadelphia 2021, May 2021.
- Some arithmetic properties of Fekete polynomials, Lightning talk, Front Range Number Theory Day, April 2021.
- Power sums and special values of L-functions, Algebra Seminar, Western University, March 2021.

- Heights and Tamagawa numbers of motives, Algebra Seminar, Western University, February 2021.
- Hurwitz zeta functions, What is ... a seminar? February 2021.
- Heights and Tamagawa numbers of motives, HUJI-BGU Number Theory Seminar, December 2020.
- Special values of the Riemann zeta function at negative integers, The Trojan Math Seminar 2020.
- Heights and Tamagawa numbers of mixed motives, Interactions between Representation Theory and Algebraic Geometry, Chicago 2017 (poster session).
- Special values of the Riemann zeta function at negative integers, The Trojan Math Seminar.

Conferences and Workshops

- AMS Fall Western Sectional Meeting, October 2021.
- RNT: Rethinking Number Theory, July 2021.
- Western-Fields Seminar Series in Networks, Random Graphs, and Neuroscience 2021.
- PCMI 2021 Graduate Summer School, Number Theory Informed by Computation, July 2021.
- AMS joint meeting 2020, Denver Colorado.
- Arithmetic of low dimensional abelian varieties, ICERM 2019.
- Arizona Winter School 2018: Iwasawa theory.
- Arizona Winter School 2017: Perfectoid spaces.
- Interactions between Representation Theory and Algebraic Geometry, Chicago 2017.

Awards and scholarships

- PI4-IMA fellowship, 2020
- National Program for the Development of Mathematics scholarship, 2014
- Honda Young Engineers and Scientists award for top 10 Vietnamese students in STEM fields, 2013.
- The prominent young students of Vietnam National University, 2013
- Watanabe-Kanda scholarship for outstanding students in the department of mathematics, 2012, 2013
- Second prize in Vietnam Mathematical Olympiad, 2009.
- Second prize in Hanoi Mathematical Olympiad for junior high school students, 2006.

Computer skills

• Python • Machine learning • Probabilistic programming with PyMC3 • Matlab

References

Prof. Kazuya Kato
Department of Mathematics
The University of Chicago
kkato@math.uchicago.edu

Prof. Jan Minac
Department of Mathematics
The University of Western Ontario
minac@uwo.ca

Prof. Lyle Muller
Department of Mathematics
The University of Western Ontario
lmuller2@uwo.ca

Dr. John Boller (teaching)
Department of Mathematics
The University of Chicago
boller@math.uchicago.edu