Niki Myrto Mavraki

CONTACT INFORMATION	Department of Mathematical & Computational Sciences University of Toronto (Mississauga)		
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RESEARCH INTERESTS

Number Theory, Arithmetic Geometry, Dynamical Systems, Arithmetic Dynamics

EMPLOYMENT

University of Toronto
Assistant Professor, 2023- present

Harvard University, Boston, USA
Benjamin Peirce fellow, 2020 - 2023

University of Basel
Postdoctoral researcher, 2019 - 2020

Northwestern University
Boas Assistant Professor of Mathematics, 2018 - 2019

EDUCATION

University of British Columbia
Ph.D. in Mathematics, May 2014 - May 2018
M.Sc. in Mathematics, September 2012 - May 2014

National and Kapodistrian University of Athens
B.Sc. in Mathematics, 2008 - 2012

GRANT

- NSERC Discovery Grant
  2024-2029
- NSERC Discovery Grant Early Career Supplement
  2024-2029
- NSF Grant DMS-2200981
  2022-2024

PREPRINTS AND PUBLICATIONS

Preprints

- The geometry of preperiodic points in families of maps on $\mathbb{P}^N$
  with Laura DeMarco.

- Bounded geometry for PCF-special subvarieties *with Laura De-Marco and Hexi Ye.*
- Multiplier spectrum of maps on $\mathbb{P}^1$: theorems of Ji-Xie and Ji-Xie-Zhang *with Laura DeMarco.*
- Arithmetic dynamics of random polynomials *with Pierre Le Boudec.*

Peer-reviewed, accepted articles
- Geometry of PCF parameters in spaces of quadratic polynomials *with Laura DeMarco*
  Algebra and Number Theory, to appear
- On the dynamical Bogomolov conjecture for families of split rational maps *with Harry Schmidt*
  Duke Mathematical Journal, to appear
- A dynamical Shafarevich theorem for endomorphisms of projective space *with Jamie Juul, Holly Krieger and Nicole Looper,*
  Proceedings of the American Mathematical Society, to appear

Peer-reviewed, published articles
- Dynamics on $\mathbb{P}^1$: preperiodic points and pairwise stability *with Laura DeMarco,*
  Compositio Mathematica, volume 160 (2024), no. 2, 356–387.
- Height coincidences in products of the projective line *with Harry Schmidt and Robert Wilms,*
  Mathematische Zeitschrift 304, 26 (2023)
- Elliptic surfaces and intersections of adelic $\mathbb{R}$-divisors *with Laura DeMarco,*
  Journal of the European Math Society (JEMS)
- Variation of Canonical Height for Fatou points on $\mathbb{P}^1$ *with Laura DeMarco.*
  Journal für die reine und angewandte Mathematik (Crelle)
- Quasi-adelic measures and equidistribution on $\mathbb{P}^1$ *with Hexi Ye,*
  Ergodic Theory and Dynamical Systems, 2022, 1-48.
- Variation of canonical height and equidistribution *with Laura De-Marco,*
  American Journal of Mathematics, 2020, vol. 142, no. 2, 443–473
- Algebraic approximations to linear combinations of powers: an extension of results by Mahler and Corvaja-Zannier *with Avinash Kulkarni and Khoa D. Nguyen*
  Transactions of the AMS, 2019, vol. 371, 3787-3804
- Impossible intersections in a Weierstrass family of elliptic curves,
  Journal of Number Theory, 2016, vol. 169, 21-40
- Variation of the canonical height in a family of rational maps *with Dragos Ghioca*
  New York Journal of Mathematics, 2013, vol. 19, 873-907

- Governor General's Gold Medal *for the graduate student who has achieved most outstanding academic record as a Master's student completing a thesis*
  University of British Columbia, Vancouver, Canada, 2015.
- Faculty of Science Graduate Prize
  University of British Columbia, Vancouver, Canada, 2015.
- Four Year Doctoral Fellowship
  University of British Columbia, Vancouver, Canada, 2014 - 2018.
- Faculty of Science Graduate Fellowship
  University of British Columbia, Vancouver, Canada, 2012 - 2014.
- Onassis Foundation Fellowship
  Onassis Foundation, Athens, Greece, 2012 - 2014.
- Amongst top 3 students in the Mathematics department
  National and Kapodistrian University of Athens, Athens, Greece, 2008- 2012.

INVITED TALKS

- MIT-BC number theory seminar
  Boston, USA, December 2024
- Québec-Maine Number Theory Conference
  Université Laval, Canada, October 2024
- Third JNT Biennial Conference in Number Theory
  Cetraro, Italy, August 2024
- Dynamics days in Montreal
  Montreal, Canada, June 2024
- Workshop on the Frontiers in Arithmetic Dynamics 2024
  Beijing International center for Mathematical Research, Peking University
  Peking, China, May 2024
- Göttingen Diophantine Geometry Seminar
  Göttingen University
  Zoom to Germany, April, 2024
- The Quebec-Vermont number theory seminar
  Concordia University
  Montreal, Canada, March 2024
- Dynamics and Asymptotics in Algebra and Number Theory
  Bielefeld, Germany, September 2023
- Workshop on Degeneracy of algebraic points
  MSRI, California, USA, April 2023
- Women in Arithmetic Geometry
  Heidelberg, Germany, September 2022
- Simons Symposium on Algebraic, Complex and Arithmetic Dynamics
  Schloss Elmau, Germany, August 2022
- Equidistribution and Arithmetic Dynamics (Plenary talk)
  Oklahoma State University, USA, June 2022
- Berkeley Arithmetic Geometry and Number Theory Seminar

Zoom, April 2022

- Harvard Number Theory Seminar
  MA, USA, March 2022.
- Number Theory Web Seminar
  Zoom, November 2021.
- Banff Workshop: Algebraic Dynamics and its Connections to Difference and Differential Equations
  Zoom, November 2021.
- Joint Columbia-CUNY-NYU Number Theory Seminar
  Zoom, November 2021.
- Five College Number Theory Seminar
  Zoom, November 2021.
- MIT Number Theory Seminar
  October 2021.
- Arithmetic Dynamics International Online Seminar (ADIOS)
  Zoom, October 2021.
- Harvard Algebraic Dynamics Seminar
  MA, USA, September 2021.
- University of Rochester Number Theory Seminar
  Zoom, May 2021.
- Oklahoma State University Number Theory Seminar
  Zoom, .
- Harvard Number Theory Seminar
  Zoom, January 2020.
- MAGIC Michigan – Arithmetic Geometry Initiative – Columbia
  Zoom, October 2020.
- $\mathbb{N}^3$-days XII
  DTU Copenhagen, May 2020.
- Adios Arithmetic Dynamics International Online Seminar
  Zoom, April 2020.
- *University of Michigan Complex Analysis, Dynamics and Geometry Seminar*
  Michigan, USA, February 2020.
- 9th swiss-french workshop in Algebraic Geometry
  Charmey, Switzerland, January 2020.
- Complex Dynamics in the Southern Hemisphere
  Santiago, Chile, January 2020.
- *Scuola Normale Superiore Number Theory Seminar*
  Pisa, Italy, November 2019.
- 2019 Midwest dynamical systems early career conference
  Ohio State University, USA, May 2019.
- 2019 AMS Joint Sectional Meeting
  Hawaii, USA, March 2019.
- *Northwestern University Dynamics Seminar*
  Northwestern University, Evanston, USA, November 2018.

- *Conference on Diophantine Approximation and Transcendence*
  CIRM , France, September 2018.
- *University of Basel Number Theory Seminar*
  Basel, Switzerland, June 2018.
- *2018 Joint Mathematics Meetings*
  San Diego, USA, January 2018.
- *2017 CMS Winter Meeting*
  Waterloo, Canada, December 2017.
- *University of Washington Number Theory Seminar*
  Seattle, USA, October 2017.
- *Mathematical Congress of the Americas 2017*
  Centre Mont-Royal and McGill University, Canada, July 2017.
- *Northwestern University Dynamics Seminar*
  Northwestern University, Evanston, USA, January 2017.
- *Workshop on Interactions between Model Theory and Arithmetic Dynamics*
  The Fields Institute, Canada, July 2016.
- *2016 Canadian Mathematical Society (CMS) Summer meeting*
  University of Alberta, Canada, June 2016.
- *Pacific Northwest Number Theory Conference*
  Oregon State University, USA, May 2016.
- *UBC Number Theory Seminar*
  University of British Columbia, Vancouver, Canada, January 2016.
- *RTG Workshop on Arithmetic Dynamics*
  University of Michigan, USA, December 2015.
- *11th PIMS Young Researchers Conference*
  University of British Columbia, Vancouver, Canada, June 2014.
- *Graduate Student Seminar*
  University of British Columbia, Vancouver, Canada, March 2014.
- *UBC Number Theory Seminar*
  University of British Columbia, Vancouver, Canada, November 2013.

ACADEMIC VISITS
- Thematic Program on Unlikely Intersections, Heights, and Efficient Congruencing
  The Fields Institute, Canada, 8-28 February 2017.

TEACHING EXPERIENCE

University of Toronto, Toronto, Canada
- Instructor for Math 1845: Topics in Arithmetic Dynamics (graduate course), *Winter, 2025*
- Instructor for Math 402: Classical Geometries, *Winter, 2024*
- Instructor for Math 236: Vector calculus, *Fall, 2023*

Harvard University, Boston, USA
- Instructor for Math 112: Introductory real analysis, *Spring, 2023*
- Instructor for Math 122: Algebra 1, *Fall, 2022* (links lead to our Canvas

page)

- Instructor for Math 254R: Topics in arithmetic dynamics, *(graduate course) Spring, 2022*
- Instructor for Math 101: Sets, Groups and Topology, *Spring, 2022*
- Instructor for Math 122: Algebra 1, *Fall, 2021*
- Instructor for Math 21b: Linear Algebra and Differential Equations, *Spring, 2021* (taught 2 sections, over Zoom)
- Instructor for Math 122: Algebra 1, *Fall, 2020* (over Zoom)

University of Basel, Basel, Switzerland
- Exercise classes: *Linear Algebra, Spring, 2020*
- Exercise classes: *Complex analysis, Fall, 2019*

Northwestern University, Evanston, USA
- Instructor for Math 230: Differential Calculus of Multivariable Functions, *Winter Quarter, 2019* (taught 2 sections)
- Instructor for Math 224: Integral Calculus in One-Variable, *Fall Quarter, 2018* (taught 2 sections)

University of British Columbia, Vancouver, Canada
- Instructor for Math 110: Differential Calculus, *Winter Term 1, 2016*
  Math 110 course webpage.
- Instructor for Math 102: Differential Calculus with Applications to Life Sciences, *Winter Term 1, 2014*
  Math 102 course webpage.
- Teaching Assistant: Tutor in Math Learning Center (*2012-2014*) as well as grader for various undergraduate courses (*2012-2018*).

SERVICE

Organizing

- Organizing a workshop in Arithmetic Dynamics at Harvard University (Spring 2025)

- Organizing the dynamics seminar at the University of Toronto

- Organizing a semester-long minicourse in Arithmetic Dynamics at the University of Toronto (Fall 2023)

- Co-organizing CNTA XVI, Fields Institute, Toronto, June, 2024

- Co-organizing a special session at Complex and Arithmetic Dynamical Systems in Joint Mathematics Meetings in Boston, MA, January, 2023

- Co-organized the Math Table, a colloquium for undergraduate students at Harvard, 2021-2022.

- Ran an open problem session for the session at Algebraic Geometry in dynamics in AMS Spring Eastern Sectional meeting, March, 2021.

Committee work at Harvard University

- Admissions Committee, 2022-2023.

- Undergraduate Events Committee, 2021-2022.

- Colloquium Committee, 2021-2022.

- 2:1 Advisor Committe, 2020-2021.

Committee work at the University of Toronto

- Search committee, 2023-2024.

Other service at the University of Toronto

- Mentoring two first year grad students, 2023.

- Ran Putnam problem session, 2023.

Selected conferences attended/ upcoming

- Workshop on Degeneracy of algebraic points
MSRI, California, USA, April 2023
- Simons Foundation Symposium in Algebraic, Complex and Arithmetic Dynamics
Elmau, Germany, August 2022
- Workshop - Diophantische Approximationen
Oberwolfach, Germany, April 2022.
- Moduli spaces for algebraic dynamical systems
American Institute of Mathematics, San Jose, California, USA, September 2021.
- 9th swiss-french workshop in Algebraic Geometry
Charmey, Switzerland, February 2020.
- Complex Dynamics in the Southern Hemisphere
Santiago, Chile, January 2020.
- Women in Numbers Europe 3
Renness, France, August 2019.
- Simons Foundation Symposium in Algebraic, Complex and Arithmetic Dynamics
Elmau, Germany, May 2019
- Conference on Diophantine Approximation and Transcendence
CIRM , France, September 2018.
- Workshop on Arithmetic and Complex Dynamics
Casa Matemática Oaxaca, Mexico, 12-17 November 2017.
- Families of algebraic dynamical systems
Rennes, France, 12-16 June 2017.
- Workshop on Interactions between Model Theory and Arithmetic Dynamics
The Fields Institute, Canada, 25-29 July 2016.
- RTG Workshop on Arithmetic Dynamics
University of Michigan, Ann Arbor, USA, 3-6 December 2015.

- Non-Archimedean Geometry and its Applications
  University of Michigan, Ann Arbor, USA, 1-5 June 2015.
- Arizona Winter School 2015: Arithmetic and Higher-Dimensional Varieties
  University of Arizona, Tucson, USA, 14-18 March 2015.
- Model Theory and its Interactions with Number Theory and Arithmetic Geometry
  MSRI, Berkeley, USA, 10-11 February 2014.
- Introductory Workshop: Model Theory, Arithmetic Geometry and Number Theory
  MSRI, Berkeley, USA, 3-7 February 2014.

LANGUAGES   Greek (native), English (fluent), German (basic)