

# Yasemin Kara

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## Contact Information

Department of Mathematics  
Bogazici University  
TR-34342, Bebek  
Istanbul, TURKEY

Phone: 90-212-359-7330  
Fax: 90-212-287-7173  
E-mail: yasemin.kara[at]boun.edu.tr

## Education

**Ph.D. in Mathematics**, Cornell University, NY, USA, August 2015  
Advisor: Professor John H. Hubbard

**Visiting Student**, University of Aix-Marseille I, Marseille, France and University of Toulouse III - Pual Sabtier, Toulouse, France, from January 2010 to December 2010

**M.S. in Mathematics**, Bogazici University, Istanbul, Turkey, June 2006

**B.S. in Mathematics**, Bogazici University, Istanbul, Turkey, June 2004  
2nd rank with the highest honors

## Positions

**Assistant Professor**, Bogazici University, Istanbul, Turkey, October 2020-present

**Postdoctoral Researcher**, Bogazici University, Istanbul, Turkey, January 2018 to September 2020

**Summer School Instructor**, Department of Mathematics, Bogazici University, Istanbul, Turkey, Summer 2017

**Part Time Instructor**, Faculty of Engineering and Natural Sciences, Bahcesehir University, Istanbul, Turkey, September 2015 to December 2017

**Teaching Assistant**, Cornell University, NY, USA, 2006-2009 and 2011-2014

**Teaching Assistant**, Bogazici University, Istanbul, Turkey, 2004-2006

## Research Interests

Geometry and spectra of hyperbolic manifolds, Laplacian on hyperbolic manifolds, automorphic forms, number theory, arithmetic geometry

## Publications Preprints

### Published

- *On ternary Diophantine equations of signature  $(p,p,3)$  over number fields*, with E.Isik and E.Ozman, to appear in Canadian Journal of Mathematics, (2022)
- *Construction of Poincaré-type Series by Generating Kernels* with M.Kumari, J.Marzec, K.Maurischat, A.Mocanu and L.Smajlović, Women in Numbers Europe III (2021), Association for Women in Mathematics Series, vol 24, Springer Cham.
- *On Ternary Diophantine Equations of Signature  $(p,p,2)$  over Number Fields*, with E.Isik and E.Ozman, Turkish Journal of Mathematics, 44 (2020), 1197-1211.
- *Asymptotic Generalized Fermat's Last Theorem over Number Fields*, with E.Ozman, International Journal of Number Theory, 16 (2020), no. 5, 907-924.

## Preprint

- *Monodromy Groups of a PCF Quadratic Non-polynomial Map*, with O.Ejder and E.Ozman, preprint
- *Dual Sequences for Monomial Maps*, with J.Hubbard, preprint

## Research Grants

### Project Principal Investigator:

On the solutions of the generalized Fermat equations over number fields, Funded by Bogazici University Scientific Research Projects, April 2022-October 2024

### Postdoctoral Researcher:

Solving Diophantine Equations: A Modular Approach Funded by The Scientific and Technological Research Council of Turkey (TUBITAK 1001) (Project PI: Ekin Ozman), January 2018-September 2020

## Honors and Awards

**College of Art and Sciences Graduate Student Travel Abroad Award**, Bogazici University, 2006

### Graduate Research Fellowship,

TUBITAK(The Scientific and Technological Research Council of Turkey), 2005-2006

## Invited Talks, Conferences and Seminars

- Building Bridges: 5th EU/US Workshop on Automorphic Forms and Related Topics, University of Sarajevo, 8-13 August 2022, invited speaker
- 33rd National Mathematics Symposium of Turkey, Istanbul University, Istanbul, Turkey, September 1, 2021, invited speaker as "Young Researcher"
- FGC-IPM Joint Number Theory Webinar, Feza Gursey Center, May 25, 2021, invited speaker
- IMBM, IMBM Mathematics Days IV, Istanbul, Turkey, October 2020, invited speaker
- IMBM, The fourth Women and Mathematics meeting, Istanbul, Turkey, March 2020, invited speaker
- Isik University, Colloquium, Istanbul, Turkey, February 2020, invited speaker
- Yeditepe University, Colloquium, Istanbul, Turkey, November 2019, invited speaker
- Bogazici University, Colloquium, Istanbul, Turkey, October 2019, invited speaker
- Istanbul University, Colloquium, Istanbul, Turkey, October 2019, invited speaker
- 32nd National Mathematics Symposium of Turkey, Ondokuz Mayıs University, Samsun, Turkey, September 2019, invited speaker
- Women in Numbers Europe Workshop 3, Rennes, France, 26-30 August 2019, selected participant
- Journées Arithmétiques XXXI, Istanbul, Turkey, July 2019, invited speaker
- Colloquium, Gebze Technical University, Kocaeli, Turkey, March 2019, invited speaker
- Topology and Geometry Seminar, Bogazici University, Istanbul, Turkey, December 2018, invited speaker
- Colloquium, Mimar Sinan University, Istanbul, Turkey, November 2018, invited speaker
- Antalya Algebra Days XX, Sirince, Izmir, Turkey, May 2018
- SAGE Days 50: Women in Sage 4, Seattle, Washington, USA, July 2013, selected participant
- Third Annual Upstate New York Number Theory Conference, Binghamton, NY, USA, April 2013
- Conference, Institut de Mathématiques de Toulouse, Hyperbolic geometry and arithmetic: a crossview, November 2012

- IAS/PCMI Summer School, Utah, USA, Moduli Spaces of Riemann Surfaces, July 2011, selected participant
- Dynamics Seminar, Université Paul Sabatier, Toulouse, France, November 2010, invited speaker
- CODY Fourth Year Conference: Conformal Methods in Analysis and Dynamics, Seillac, France, May 2010, invited speaker
- Dynamics Seminar, Université Paul Sabatier, Toulouse, France, May 2010, invited speaker
- Dynamics Seminar, Université Paul Sabatier, Toulouse, France, March 2010, invited speaker
- Ph.D. Students Seminar, Centre de Mathématiques et Informatique, Marseille, France, February 2010, invited speaker
- Colloquium, Technological Educational Institute of West Macedonia, Greece, February 2010, invited speaker
- Olivetti Club, Cornell University, Ithaca, USA, March 2009, invited speaker
- Discrete Geometry and Combinatorics Seminar, Cornell University, Ithaca, USA, January 2009, invited speaker

## Advising and Mentoring

**Academic Advisor:** Class of 2021 (52 students)

### Undergraduate Projects:

Ibrahim Kaan Aslan, *Theory of Divisors on Curves and Riemann-Roch Theorem*, Spring 2021  
 Mahir Dursunoğlu, *Degree-Genus Formula for nonsingular Projective Curves*, Spring 2021

### MSc. committee member of:

Kaan Salih Bilgin, *Langlands Functoriality Principle*, Galatasaray University (2021)  
 Pınar Değirmenci, *Monogenic Number Fields*, Bogazici University (2022)

## Activities

### Referee

- The Proceedings of the American Mathematical Society
- Hacettepe Journal of Mathematics and Statistics (quick opinion)

### Co-organizer

- Geometry&Topology Workshop Turkey I,II,III,IV, November 2020, January 2021, March 2021, December 2021 respectively
- IBM Number Theory Seminars, Spring 2021

## Teaching Experience

### Instructor

#### Bogazici University, Istanbul, Turkey

- Course Instructor

Math 533, Complex Analysis (Graduate) (Fall 2021)

Math 490, Project (x2) (Spring 2021)

Math 477, Projective Geometry (Fall 2020)

Math 475, Differential Geometry (Fall 2022)

Math 338, Complex Analysis (Spring 2022)

Math 202, Differential Equations (x3) (Fall 2020, Spring 2021, Spring 2022)

Math 201, Matrix Theory (Fall 2022)

Math 111, Introduction to Mathematical Structures (x2) (Spring 2021, Fall 2021)

Math 106, Introduction to Calculus for Social Sciences (Summer 2017)

**Bahcesehir University, Istanbul, Turkey**

- Course Instructor

Math 1002, Analysis II for Mathematics and Computer Science Students

Math 1005, Mathematics for Social Sciences

Math 1051, Calculus I for Engineering Students

Math 1052, Calculus II for Engineering Students

**Teaching Assistant**

**Cornell University, Ithaca, NY, USA**

- Recitation instructor and the grader for the undergraduate courses:

Math 1106, Calculus for the Life and Social Sciences

Math 1350, The Art of Secret Writing

Math 1710, Statistical Theory and Application in the Real World

Math 1910, Calculus for Engineers

Math 1920, Multivariable Calculus for Engineers

Math 2930, Differential Equations for Engineers

Math 2940, Linear Algebra for Engineers

Math 2230, Theoretical Linear Algebra and Calculus I

Math 2240, Theoretical Linear Algebra and Calculus II

- Grader for the upper level undergraduate courses:

Math 3320, Introduction to Number Theory

Math 3560, Groups and Geometries

- Grader for the graduate courses:

Math 6120, Complex Analysis

**Bogazici University, Istanbul, Turkey**

- Recitation instructor and the grader for the undergraduate courses:

Math 101, Calculus for Engineers I

- Recitation instructor and the grader for the upper level undergraduate courses:

Math 331, Real Analysis I

Math 476, Differential Geometry

Math 334, Calculus on Manifolds

**Languages**

- Turkish (native language)
- English (fluent)
- French (reading comprehension skills)
- German (reading comprehension skills)