

# FIRTINA KÜÇÜK

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## Education

### University College Dublin, Dublin, Ireland

September 2019 – 2023

*Ph.D. in Mathematics - Passed the viva and will graduate before September.*

### Koç University, İstanbul, Turkey

September 2017 – August 2019

*M.Sc. in Mathematics*

*GPA: 3.92/4.00*

### Koç University, İstanbul, Turkey

September 2012 – June 2017

*B.Sc. in Mathematics & B.Sc. in Computer Engineering (Double Major)*

*GPA: 3.33/4.00*

### İstanbul University State Conservatory, İstanbul, Turkey

2004 – 2013 & 2014 – 2016

*Part-Time Piano Department, Advance Level & Two-year Masterclass*

## Teaching Experience

### University College Dublin

September 2019 – May 2023

*Tutor (Tutorials & Grading)*

*Dublin, Ireland*

- **Spring 2023:** MATH10240 (Mathematics for Agriculture II)
- **Autumn 2022:** MATH00010 (Introduction to Mathematics)
- **Spring 2022:** MATH10240 (Mathematics for Agriculture II)
- **Autumn 2021:** MST00050 (Mathematics: An Introduction) / MATH00010 (Introduction to Mathematics)
- **Spring 2021:** MATH10240 (Mathematics for Agriculture II)
- **Autumn 2020:** MST00050 (Mathematics: An Introduction)
- **Spring 2020:** MATH10240 (Mathematics for Agriculture II) & MATH10210 (Foundations of Maths for Computer Science I)
- **Autumn 2019:** MST00050 (Mathematics: An Introduction) & MATH10130 (Intro to Analysis for Economics and Finance)

### Koç University

Spring 2017 – Spring 2019

*Teaching Assistant (Problem Sessions & Grading & Invigilation)*

*İstanbul, Turkey*

- **Spring 2019:** Math 401 (Complex Analysis) & Math 104 (Discrete Mathematics)
- **Autumn 2018:** Math 204 (Differential Equations) & Math 103 (Introduction to Abstract Mathematics)
- **Spring 2018:** Math 204 (Differential Equations) & Math 401 (Complex Analysis)
- **Autumn 2017:** Math 204 (Differential Equations) & Math 301 (Real Analysis I)
- **Spring 2017:** Math 203 (Multivariable Calculus)

### Koç University & Stanford University

Summer 2017

*Section Leader at CS-Bridge Program*

*İstanbul, Turkey*

- CS-Bridge was a two-week summer school for programming aimed for high school students. The summer school was organized by Stanford University (Prof. Nick McKeown and colleagues) and it took place at Koç University.
- Section leaders held discussion & lab sessions, provided mentoring to a section of 8 students.

### Koç University Office of Learning and Teaching (KOLT)

Spring 2017

*Tutor at KOLT (individual tutorials)*

*İstanbul, Turkey*

- KOLT Tutoring Center provides free individual tutorials to the Koç University students.
- Tutored Math 206 (Abstract Algebra II – Galois Theory) module.

## Research Experience

### University College Dublin

Autumn 2019 – Summer 2023

*Doctoral Thesis, Mathematics*

*Dublin, Ireland*

- Supervised by Assoc. Prof. Kâzım Büyükboduk
- Thesis Title: Iwasawa Theory of Symmetric Rankin-Selberg Product of Modular Forms and Applications
- Passed the viva on 10 July 2023.

### Koç University

Autumn 2017 – Summer 2019

*Master Thesis*

*İstanbul, Turkey*

- Supervised by Prof. Varga Kalantarov
- Thesis Title: Global Behaviour of Solutions to Nonlinear Damped Wave Equations

## Koç University

*Senior Design Project, Computer Engineering*

- Supervised by Prof. Deniz Yüret and Erenay Dayanık
- A web interface was built with NodeJS & React for the VQA (Visual Question Answering) models trained by Erenay Dayanık.

**Spring 2017**

*İstanbul, Turkey*

## Koç University

*Independent Study, Mathematics*

- Supervised by Prof. Varga Kalantarov
- The article of H. A. Levine about blow-up of solutions to nonlinear parabolic equations was investigated.

**Autumn 2016**

*İstanbul, Turkey*

## Other Work Experience

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### Vertigo Games LTD.

**Summer 2016**

*Intern at Game Development Department*

*İstanbul*

- Compulsory internship for Computer Engineering degree (20 workdays)
- Tasks: Simple mobile game with Unity Game Engine

### Betek Color Industry Co.

**Summer 2015**

*Intern at IT Department*

*İstanbul*

- Compulsory internship for Computer Engineering degree (20 workdays)
- Tasks: Mini projects with SAP's ABAP programming language

## Skills and Interests

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**Research Interests:** Algebraic Number Theory, Arithmetic Geometry, Iwasawa Theory

**Languages:** Turkish (mother tongue), English (fluent), German (beginner level)

**Computer & Programming Skills:** Holding a Double Major Degree in Computer Engineering. Special interest in Front End Web Development with React & Backend Development with NodeJS.

**Music Skills:** Playing piano since 2002. Graduated from İstanbul University State Conservatory – Piano Department (Part Time – Advanced Level) in 2013. Also graduated from two-year masterclass of the same conservatory (2014-2016).

## Talks, Summer Schools, Conferences

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- Talk at Koç University (December 2022)
- Talk at UCD Algebra and Number Theory Seminars (March 2022)
- Mini Workshop: “Set Theory and Ordinal Numbers” (December 2016)
- Mini Workshop: “Constructing Numbers: From Natural Numbers to Real Numbers” (March 2017)
- Iwasawa 2023: in memory of John Coates (2023, University of Cambridge, Cambridge/UK, as attendee)
- Explicit methods in automorphic forms and arithmetic geometry (2023, Trinity College Dublin, Dublin/Ireland, as attendee)
- Arithmetic of L-functions (2023, ICMAT, Madrid/Spain, as attendee)
- Introductory Workshop: Algebraic Cycles, L-Values, and Euler Systems (2023, MSRI, Berkeley/CA, as attendee)
- Elliptic Curves and Modular Forms in Arithmetic Geometry (2022, Università degli Studi di Milano, Milan/Italy, as attendee)
- School of Arithmetic Geometry (2022, University of Duisburg-Essen, Essen/Germany, as attendee)
- Arizona Winter School on Modular Forms (2021, Online, as attendee)
- Isaac Newton Institute for Mathematical Science, Swinnerton-Dyer Memorial (2021, Online, as attendee)
- UCD Algebra and Number Theory Seminars (2020-2023, UCD, Dublin/Ireland, as attendee)
- The 31st Journées Arithmétiques (2019, İstanbul University, İstanbul/Turkey, as attendee)

## Honors and Awards

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**Vehbi Koç High Honors Award :** Awarded for attaining an outstanding academic performance and GPA/SPA over 3.50 (2014, 2015, 2017)

**Bronze Medal in National Mathematics Olympiads in Turkey** (2011)

**Silver Medal in Antalya Mathematics Olympiads** (2011)

**MEB İstanbul Science Olympiads Bronze Medal** (2011)

**Sabancı University Mathematics Competition 3rd prize** (2011)

**Bilgi University Cahit Arf Mathematics Days Honorable mention** (2010)

## Scholarships

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**UCD Ph.D. Advance Core Scheme** 2019-2023

**TUBITAK – Bideb 2210** : Given during the master's study, as a continuation of Bideb 2205 (2017-2019)

**TUBITAK – Bideb 2205** : Given to the science major students who was in top 5000 nationwide in the university entrance exams (2012-2017)

**TEV (Turkish Education Foundation) High Success Scholarship** (2012-2017)

**Koç University Semahat Arsel Scholarship** : Given to the students who entered Koç University in the top 30 (2012-2017)