KONSTANTINOS MARONIKOLAKIS

+30 6933373235 ⋄ conmaron@gmail.com ⋄ `https://conmaro.github.io/`

EDUCATION

University College Dublin   *2020 - present*
PhD in Mathematics and Statistics
Thesis Title: Universality and Boundary Behaviour of Holomorphic Functions
Supervisor: Dr Myrto Manolaki

National and Kapodistrian University of Athens   *2015 - 2019*
BSc in Mathematics
Grade 8.93/10 (Excellent)

RESEARCH INTERESTS AND BACKGROUND

My research interests lie mostly in Complex Analysis. More specifically, I have studied the generic behaviour of holomorphic functions with respect to their partial sums and boundary properties using methods from Approximation Theory in one and several variables. I am also interested in Functional Analysis and Potential Theory.

I graduated with a Bachelor's degree in Mathematics with focus on Pure Mathematics from the National and Kapodistrian University of Athens in 2019. During my doctoral studies at University College Dublin, I have developed my mathematical knowledge by attending Master's level courses and studying advanced textbooks. More specifically, I have attended the following modules:

- Advanced Topics in Complex Function Theory (**MATH40680**), Fall 2020

- Elliptic Curves and Modular Forms (**MATH40700**), Fall 2020

- Special Topics III: Operator Theory and Operator Algebras (**MATH40570**), Spring 2021

- Special Topics II: Introduction to Complex Dynamics (**MATH40540**), Spring 2022

- Introduction to Descriptive Set Theory (**MATH40350**), Spring 2022

Also I have studied extensively the following standard textbooks in potential theory and complex analysis:

- D. H. Armitage and S. J. Gardiner. *Classical Potential Theory*. Springer Monographs in Mathematics. Springer-Verlag, London, 2001

- T. Ransford. *Potential Theory in the Complex Plane*. Number 28 in London Mathematical Society Student Texts. Cambridge University Press, Cambridge, 1995

- Ch. Pommerenke. *Boundary Behaviour of Conformal Maps*. Number 299 in Grundlehren der mathematischen Wissenschaften [Fundamental Principles of Mathematical Sciences]. Springer-Verlag, Berlin, 1992

GRANTS AND ACADEMIC DISTINCTIONS

1. Irish Research Council Government of Ireland Postgraduate Scholarship, 2020 - 2024: *funding for doctoral studies in Ireland, 93,400 €*

2. Irish Research Council Ulysses Award 2022 (with Stéphane Charpentier and Myrto Manolaki): *the aim of the Ulysses scheme is to foster new collaborations between Ireland and France-based researchers by providing seed funding for reciprocal travel visits, 5,000 €*

3. 2024 France Excellence Research Residency grant: *this grant is for international researchers in Ireland who want to do a short mobility in France, from two to four weeks*

4. Kovalevskaya travel grant, July 2022: *the Kovalevskaya travel grant was established to support graduate students to attend the International Congress of Mathematicians 2022, 300 € (eventually held virtually)*

5. Invitation to attend the RIA Hamilton Masterclass with Professor Terence Tao, Royal Irish Academy, Ireland (held virtually), October 2020

RESEARCH ARTICLES

7. S. Charpentier, M. Manolaki, and K. Maronikolakis. Invariance of Abel universality under composition and applications. *Submitted, arXiv:2401.02367*, 2024

6. S. Charpentier, M. Manolaki, and K. Maronikolakis. Abel universal functions: Boundary behaviour and Taylor polynomials. *Submitted, arXiv:2310.05611*, 2023

5. K. Maronikolakis. Universal radial approximation in spaces of analytic functions. *J. Math. Anal. Appl.*, 512(1):126102, 2022

4. G. Gavrilopoulos, K. Maronikolakis, and V. Nestoridis. Universal Taylor series in several variables depending on parameters. *Comput. Methods Funct. Theory*, 22(2):261–275, 2022

3. K. Maronikolakis and G. Stamatiou. Universal power series of Seleznev with parameters in several variables. *Monatsh. Math.*, 195(3):477–488, 2021

2. M. Manolaki, K. Maronikolakis, and V. Nestoridis. One-sided extendability of bounded functions. *Complex Anal. Synerg.*, 7(15), 2021

1. K. Maronikolakis and V. Nestoridis. An extension of the universal power series of Seleznev. *Results Math*, 75(151), 2020

CONFERENCE/SEMINAR TALKS

11. "Holomorphic functions with chaotic radial behaviour", Analysis Seminar, Indiana University Bloomington, USA, March 2024 (**invited speaker**)

10. "Composition problems of Abel universal functions", Analysis Winter Meeting, Aristotle University of Thessaloniki, Greece, December 2023 (**invited speaker**)

9. "Abel universal functions: properties and variations", Functional Analysis Seminar, University of Lille, France, December 2023 (**invited speaker**)

8. "Holomorphic functions with chaotic radial behaviour", Complex Analysis Seminar - Bench Math Session, Jagiellonian University, Poland, December 2023 (**invited speaker**)

7. "Properties of Abel universal functions", Universality, Zeta-Functions, and Chaotic Operators Workshop, Centre International de Rencontres Mathématiques, France, August 2023 (**invited speaker**)

6. "Properties of Abel universal functions", Advanced Courses in Operator Theory and Complex Analysis, Aristotle University of Thessaloniki, Greece, June 2023

5. "Properties of Abel universal functions", Key Lemmas in Analysis and Dynamics, University College Dublin, Ireland, January 2023 (**invited speaker**)

4. "Properties of Abel universal functions", Journée d'Analyse Harmonique, Aix - Marseille University, France, December 2022 (**invited speaker**)

3. "Holomorphic functions with universal radial limits", One Day Function Theory Meeting, De Morgan House, UK, September 2022 (**invited speaker**)

2. "Universal radial approximation in spaces of analytic functions", Computational Methods and Function Theory, Federico Santa María Technical University, Chile (held virtually), January 2022 (**invited speaker**)

1. "Universal radial approximation in spaces of analytic functions", ComPlane: the next generation (held virtually), June 2021 (**invited speaker**)

Departmental talks:

7. "Properties of Abel universal functions III: invariance under composition", Analysis seminar, University College Dublin, Ireland, November 2023

6. "Properties of Abel universal functions II: boundary behaviour", Analysis seminar, University College Dublin, Ireland, October 2023

5. "Properties of Abel universal functions", Analysis seminar, University College Dublin, Ireland, April 2023

4. "Universality in analysis", Mathematics and Statistics Postgraduate Workshop, University College Dublin, Ireland, May 2022

3. "Universal radial approximation in spaces of analytic functions", Analysis seminar, University College Dublin, Ireland, April 2022

2. "Universality in analysis", Postgraduate Seminar Series, University College Dublin, Ireland (held virtually), April 2021

1. "Seleznev universal series", Complex and Harmonic Analysis Seminar, National and Kapodistrian University of Athens, Greece, May 2019

CONFERENCE/SEMINAR PARTICIPATION

12. One Day Function Theory Meeting, De Morgan House, UK, September 2023

11. 34th International Workshop on Operator Theory and is Applications, University of Helsinki, Finland, July 2023

10. Topics in Complex Dynamics, Institute of Mathematics at the Universitat de Barcelona, Spain, June 2023

9. Second Congress of Greek Mathematicians, National Technical University of Athens, Greece, July 2022

8. Workshop in memory of Dimitris Gatzouras, National and Kapodistrian University of Athens, Greece, March 2022

7. Transcendental dynamics and beyond: Topics in Complex Dynamics, Centre de Recerca Matematica (held virtually), April 2021

6. AMS/MAA Joint Mathematics Meetings, Washington, D.C., USA (held virtually), January 2021

5. LMS lectures on Holomorphic Dynamics, London Mathematical Society, UK (held virtually), October - December 2020

4. AMS Fall Southeastern Sectional Meeting, University of Tennessee at Chattanooga, USA (held virtually), October 2020

3. Analysis seminar, University College Dublin, Ireland, 2020 - present

2. Complex Analysis video seminars, University College London, UK (held virtually), 2020 - present

1. Seventh Summer School in Operator Theory, National and Kapodistrian University of Athens, Greece, July 2018

CONFERENCE/SEMINAR ORGANIZING

1. Mathematics and Statistics Postgraduate Workshop, University College Dublin, Ireland, May 2023

TEACHING

- I will present a week-long course on "Linear Dynamics" at the Nesin Mathematics Village, Turkey, August 2024

- Tutor at University College Dublin:

   10. Linear Algebra for Science (**MATH10290**), Spring 2024

   9. Group Theory and Applications (**MST30010**), Fall 2023

   8. Metric Spaces (**MATH30090**), Fall 2023

   7. Linear Algebra for Engineers (**MATH10260**), Spring 2023

   6. Group Theory and Applications (**MST30010**), Fall 2022

   5. Metric Spaces (**MATH30090**), Fall 2022

   4. Linear Algebra for Engineers (**MATH10260**), Spring 2022

   3. Group Theory and Applications (**MST30010**), Fall 2021

   2. Metric Spaces (**MATH30090**), Fall 2021

   1. Linear Algebra in the Mathematical and Physical Sciences (**MATH10340**), Spring 2021

- Private tutoring of high school students in Greece from 2015 to 2020

OUTREACH

- Tutor for Junior Mathematical Enrichment, University College Dublin, Ireland, Fall 2022, Fall 2023 and Spring 2024: *The Junior Mathematical Enrichment program provides advanced mathematics classes for secondary school students. I participated as a tutor where I had to interact with the students during problem-solving sessions and also present material on various topics in geometry, algebra and analysis.*

- Outreach Activity as part of Maths Week 2022, University College Dublin, Ireland, October 2022: *As part of the Maths Week, the Museum of Mathematics from Catalonia visited University College Dublin with mathematics exhibitions and interactive puzzles with the goal of outreach to secondary school students. I volunteered as a presenter during the event.*

REFEREE WORK

I have refereed for the journal Complex Analysis and Operator Theory.