

Kostas Psaromiligkos

Research Interests

Representation Theory, Algebraic Geometry.

Education

- 2018-present **Ph.D in Mathematics**, *University of Chicago*, Advisor: Ngô Bao Châu.
2017-2018 **M.S in Mathematics**, *University of Chicago*.
2014-2017 **B.A in Mathematics**, *National and Kapodistrian University of Athens*, GPA: 10.0/10.0.

Publications and Preprints

Lafforgue's variety and irreducibility of induced representations.

arXiv:2211.11834 (2022) (23 pages)

Character sheaves in characteristic p have nilpotent singular support.

arXiv:2211.11126 (2022) (10 pages)

Directed Lovász Local Lemma and Shearer's Lemma, joint with L. Kirousis, J. Livieratos.

Annals of Mathematics and Artificial Intelligence 81, (2020) p. 133-155

Acyclic Edge Coloring through the Lovász Local Lemma, joint with I. Giotis, L. Kirousis and D. M. Thilikos.

Theoretical Computer Science 665, (2017) p. 50-60

Awards/Fellowships/Scholarships

- 2018 **Onassis fellowship for Doctoral studies**, \$20,800.
2014-2017 **Award for excellence in Undergraduate Studies**, *National Science Foundation of Greece*.
2014-2017 **International Mathematical Competition for University Students**, *Medals: Gold, Silver, Silver*.
2014-2015 **Southern Eastern European Mathematical Olympiad for University Students**, *Medals: Gold, Gold*.

Talks

- Jan 2023 **Geometry Seminar**, *University of Florence, Italy*.
Jan 2023 **Algebraic Geometry Seminar**, *University of Pisa, Italy*.
Dec 2022 **Junior Number Theory Days**, *Johns Hopkins University, USA*.
Nov 2022 **Student seminar on Character Sheaves**, *University of Chicago, USA*.
Jul 2022 **2nd Congress of Greek Mathematicians**, *National Technical University of Athens, Greece*.
Feb 2022 **Arizona Winter School: Automorphic forms beyond GL_2** , *University of Arizona, USA*.
Dec 2021 **Student seminar on Representation Theory**, *University of Chicago, USA*.
Jul 2020 **Student seminar on Algebraic Geometry**, *Online*.
Jun 2019 **1st Congress of Greek mathematicians**, *National Technical University of Athens, Greece*.
Feb 2019 **Student seminar on Representation Theory**, *University of Chicago, USA*.

Selected Workshops and Conferences

- Feb 2022 **Arizona Winter School: Automorphic forms beyond GL_2** , *Tucson, USA*.

- Jul 2022 **Summer school on the Langlands program**, *Online participation*, France.
- Feb 2020 **Perverse Sheaves in Enumerative Geometry**, *Bonn*, Germany.
- Jul 2019 **L-Functions and Geometric Representation Theory**, *Nisyros*, Greece.

Teaching Experience

- 2018-present **University of Chicago, Graduate Student Lecturer.**
 - Autumn 2022: Calculus II (Math 152)
 - Winter 2022: Calculus III (Math 153)
 - Autumn 2021: Calculus III (Math 153)
 - Spring 2021: Mathematical Methods for Social Sciences (Math 195)
 - Autumn 2020: Linear Algebra (Math 196)
 - Winter 2020: Elementary Calculus II (Math 132)
 - Autumn 2019: Elementary Calculus I (Math 131)
- 2018-present **University of Chicago, Teaching assistant.**
 - Autumn 2022: Graduate Algebra I (Math 351)
 - Winter 2022: Graduate Algebra II (Math 352)
 - Spring 2021: Honors Analysis in \mathbb{R}^n III (Math 209)
 - Spring 2020: Mathematical Methods for Physical Sciences I (Math 200)
 - Winter 2020: Graduate Algebra II (Math 352)
 - Autumn 2019: Graduate Algebra I (Math 351)
 - Spring 2019: Honors Calculus III (Math 163) (Inquired Based Learning style)
 - Winter 2018: Honors Calculus II (Math 162) (Inquired Based Learning style)
 - Autumn 2018: Honors Calculus I (Math 161) (Inquired Based Learning style)

Service and Outreach

Refereeing

I have served as a referee for Discrete Applied Mathematics.

Other

- 2022 **Student seminar on Character Sheaves**, *University of Chicago*, Organizer.
- 2021-2022 **Directed Reading Program**, *University of Chicago*, Co-organizer.
Managed a program pairing undergraduate and graduate students for quarter-long reading projects.
- 2018-2021 **Directed Reading Program**, *University of Chicago*, Mentor.
Projects: Basics of Algebraic Number Theory, Arithmetic of Elliptic Curves, Spectral Graph Theory.
- 2020 **Student seminar on Algebraic Geometry**, *Online*, Co-organizer.
- 2017 **Southern Eastern European Mathematical Olympiad for University Students**, *Romania*, Team Leader.