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Selvi Kara | CV

⟫⟫ Employment

August 2023 - present	**Bryn Mawr College**	**Department of Mathematics** **Assistant Professor**
August 2022 - August 2023	**University of Utah**	**Science Research Initiative** **Postdoctoral Fellow**
July 2021 - July 2022	**University of Utah**	**Department of Mathematics** **Research Associate**
August 2017 - May 2021	**University of South Alabama**	**Department of Math and Stats** **(TT) Assistant Professor**

⟫⟫ Research Interests

Commutative algebra, algebraic and geometric combinatorics, computational algebra

⟫⟫ Fellowships

2021 - 2022	**Mathematical Association of America**	**Gold '21 Project NExT Fellow**

⟫⟫ Education

May 2017   **Tulane University -** **Ph.D. in Mathematics**

> ❱ **Thesis:** *Castelnuovo-Mumford Regularity of Powers of Edge Ideals*
> ❱ **Advisor:** Tai Huy Ha, Ph.D

January 2012   **Istanbul Technical University -** **M.Sc. in Mathematics Engineering**

> ❱ **Thesis:** *Hilbert Functions, Free Resolutions and Betti Numbers*
> ❱ **Advisors:** Vahap Erdogdu, Ph.D, and Sefa Feza Arslan, Ph.D.

June 2008   **Istanbul University -** **B.Sc. in Mathematics**

⟫⟫ Publications

> ❱ **Degree of h-polynomials of edge ideals**, with Jennifer Biermann, Augustine O'Keefe, Joseph Skelton and Gabriel Sosa (2025) *to appear in Journal of Algebraic Combinatorics* arXiv version

> ❱ **A three regime theorem for flow-firing**, with Sarah Brauner, Galen Dorpalen-Barry, Caroline Klivans, and Lisa Schneider (2025) *The Electronic Journal of Combinatorics* journal version arXiv version

> ❱ **Stirling permutations and the lucky statistic**, with Aleyah Dawkins, Jennifer Elder, Pamela E. Harris, Kimberly Harry, Dorian Smith, and Bridget Eileen Tenner (2024) *Journal of Integer Sequences* journal version arXiv version

> ❱ **Barile-Macchia resolutions**, with Trung Chau (2024) *Journal of Algebraic Combinatorics* journal version arXiv version

> ❱ **Multi-Rees algebras of strongly stable ideals**, with Kuei-Nuan Lin and Gabriel Sosa. (2022) *Collectanea Mathematica* journal version arXiv version

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❱ **Toric ideals of weighted oriented graphs**, with Jennifer Biermann, Kuei-Nuan Lin, and Augustine O'Keefe. (2022) *International Journal of Algebra and Computation* journal version arXiv version

❱ **Rigid Gorenstein toric Fano varieties arising from directed graphs**, with Irem Portakal and Akiyoshi Tsuchiya. (2022) *Collectanea Mathematica* journal version arXiv version

❱ **Betti numbers of weighted oriented graphs**, with Beata Casiday. *The Electronic Journal of Combinatorics* 28(2) (2021), #P2.33. journal version arXiv version

❱ **Algebraic properties of weighted oriented graphs**, with Jennifer Biermann, Kuei-Nuan Lin, and Augustine O'Keefe. (2021) *Journal of Algebraic Combinatorics* journal version arXiv version

❱ **Regularity of powers of edge ideals: from local properties to global bounds**, with Arindam Banerjee and Huy Tài Hà. *Algebraic Combinatorics*, Volume 3 (2020) no. 4, pp. 839-854. journal version, arXiv version

❱ **Algebraic properties of toric rings of graphs**, with Huy Tài Hà and Augustine O'Keefe. *Communications in Algebra*, 47:1, 1-16, (2019). journal version, arXiv version

❱ **Regularity of powers of unicyclic graphs**, with Ali Alilooee and Selvaraja S. *Rocky Mountain J. Math.*, Volume 49, Number 3, 699-728, (2019). journal version, arXiv version

❱ **Regularity of edge ideals and their powers**, with Arindam Banerjee and Huy Tài Hà. *Advances in Algebra*. SRAC 2017. Springer Proceedings in Mathematics & Statistics, vol 277. Springer, Cham, (2018). journal version, arXiv version

❱ **Regularity of powers of forests and cycles**, with Huy Tài Hà, and Trân Nam Trung. *Journal of Algebraic Combinatorics*, 42: 1077, (2015). journal version, arXiv version

❱❱❱ Submitted Papers

❱ **Computation of dominant ideals**, with Anna Maria Bigatti, Nursel Erey, Augustine O'Keefe, Sonja Petrović, Pierpaola Santarsiero, and Janet Striuli (2025)arXiv version

❱ **Gapfree graphs and powers of edge ideals with linear resolutions**, with Nursel Erey, Sara Faridi, Tài Huy Hà, Takayuki Hibi and Susan Morey (2024) arXiv version

❱ **Minimal cellular resolutions of path ideals**, with Trung Chau and Kyle Wang (2024) arXiv version

❱ **Macaulay2 package: Morse resolutions**, with Trung Chau and Augustine O'Keefe (2023) arXiv version

❱❱❱ Other Publications

❱ **Storytelling: making a human connection at a mathematics conference,** with silviana amethyst, Padi Fuster, Allison Henrich and Aaron Wootton (2024) MAA FOCUS

❱ **A Conversation on Meet a Mathematician and Math For All,** with Padi Fuster (2021) in Practices and Policies: Advocating For Students of Color in Mathematics, Pamela E. Harris and Aris Winger. CreateSpace 2021.

❱❱❱ Research Visits

June 2025	Fields Institute	Visiting Researcher
November 2023	American Institute of Mathematics, SQuaRE	Visiting Researcher
June 2022	Collaborate @ICERM	Visiting Researcher
Aug 2021, Feb 2022	ICERM Research Community in Algebraic Combinatorics (RCAC)	Fellow
July 2019	Mathematical Sciences and Research Institute	Visiting Researcher
June 2016	Vietnam Institute of Advanced Study in Mathematics	Visiting Researcher

⫸ Grants

2026 - 2027	**NSF Conference Grants for CAAC 2026-2027**
2024 - 2026	**NSF LEAPS Grant (PI, $250,000)**
2022 - 2023	**NSF, Fields Institute, and AARMS, Conference Grants for CAAC 2023**
2021 - 2023	**AMS-Simons Travel Grant**
2021 - 2022	**ICERM, Fellowships for RCAC**
2021 - 2022	**COMMIT Four Corners, Conference Grant for WITP**
2019 - 2022	**MAA Tensor Grant for Girls in Math Program**
May 2021	**TPSE Math Funding for Meet a Mathematician**
2019 - 2020	**MSRI, Summer Research in Mathematics Collaboration Grant**
Nov 2019	**University of South Alabama, Faculty Development and Support Award**

⫸ Advising

❱ Dalena Vien (PhD student, Bryn Mawr College)	Fall 2023– present
❱ Ellie Lew (AB/MA student, Bryn Mawr College)	Spring 2024– Spring 2025t

⫸ Student Research

❱ Trung Chau (Graduate student, University of Utah)	Fall 2021– Fall 2024
❱ Lia Smith (Undergraduate student, University of Utah)	Fall 2022– Spring 2023
❱ Aidan Bucko, Nick Van Fleet, Josie Marshall, Kayden Perez, Kiyanna Porter, Amelia Walden, and Deborah Wooton (Science Research Initiative Students, University of Utah)	Fall 2022– Fall 2023
❱ Rachel Hilarides (Undergraduate student, University of South Alabama)	Spring 2021 – Spring 2022
❱ Beata Casiday (Undergraduate student, Yale University)	Fall 2019 - Fall 2020, Summer 2023 –Fall 2023
❱ Kayla Johnson (Masters student, University of South Alabama)	Spring 2019 - Spring 2020

⫸ Recent Talks

❱ Algebraic and Homological Perspectives with a view towards Geometry Session, AMS Sectional at Kansas March 29-30, 2025	
❱ Combinatorial Commutative Algebra in Canada Seminar,	April 29, 2025
❱ OURFA2M2, Virtual Annual Conference,	February 8, 2025

❱ Mathematics Department Colloquium, Bryn Mawr College,   February 3, 2025

❱ Fairfax Algebra Days, George Mason University   March 9-10, 2024

❱ Colloquium, University of Wisconsin-Milwaukee   March 1, 2024

❱ Combinatorics Seminar, Brown University   February 12, 2024

❱ Distressing Math Collective, Bryn Mawr College   November 15, 2023

❱ Math/Stat Colloquium, Swarthmore College   October 10, 2023

❱ Algebra Seminar, West Virginia University   April 2023

❱ Algebra Seminar, West Virginia University   April 2023

❱ Discrete Math Seminar, Texas State University   April 2023

❱ Recent Developments in Comm.Algebra Session, AMS Sectional at Georgia Tech   March 18-19, 2023

❱ Mathematics Colloquium, Hunter College   February 2023

❱ Topological and Combinatorial Methods in Comm. Algebra Session, JMM 2023   January 4-5, 2023

❱ Algebraic, Geometric, and Topological Combinatorics Session, AMS Sectional at UTEP   September 2022

❱ Macaulay 2 Workshop, Cleveland State University   May 2022

❱ Undergraduate Seminar for Science and Math Students, Westminster College   April 2022

❱ Virtual AMS Spring Eastern Sectional Meeting Virtual, Tufts University   March 2022

❱ MAA Intermountain Section Speaker, Virtual   March 2022

❱ Algebra and Combinatorics Seminar, Tulane University   March 2022

❱ Virtual Combinatorial Algebra meets Algebraic Combinatorics, Fields Institute   January 2022

❱ Undergraduate Math Colloquium, University of Utah   January 2022

❱ Undergraduate Math Seminar, Colgate University   December 2021

❱ Algebra Seminar, University of Utah   November 2021

❱ Algebra Seminar, Bilkent University, Turkey   October 2021

❱ Algebra and Discrete Math Seminar, Clemson University   September 2021

❱ NTAG Seminar, Simon Fraser University, Canada   June 2021

❱ Departmental Colloquium, Gebze Technical University, Turkey   May 2021

❱ Commutative Algebra Seminar, Jagiellonian University, Poland   April 2021

❱ Algebra Seminar, University of Connecticut   April 2021

❱❱❱ Recent Conferences and Workshops Attended

❱ Collaborative Workshop in Algebraic Combinatorics, Institute for Advanced Study,	June 2- 6, 2025
❱ Women in Commutative Algebra II in Trento	October 16 - 20, 2023
❱ Interactions Between Top. Combinatorics and Comb. Comm. Algebra Workshop at BIRS	April 2023
❱ GEMS of Combinatorics Workshop at AIM	March 2023
❱ MathFest	August 2021 and Augusts 2022
❱ MSRI Workshop on Math and Racial Justice	June 2021
❱ NAM Faculty Conference on Research and Teaching Excellence	May 2021
❱ paraDIGMS Fall & Spring Conference	Nov 2020 & April 2021
❱ Workshop in Combinatorial Algebraic Geometry at ICERM	February 2021
❱ Advocating for Students of Color, AMS Webinar	Fall 2020
❱ AWM Working Towards Change Workshop, JMM 2020	January 2020

❱❱❱ Recent Conferences and Workshops Organized

❱ Computational Interactions between Algebra, Combinatorics, and Discrete Geometry, IPAM February 10 - 14, 2025	
❱ Combinatorial Algebra Meets Algebraic Combinatorics , Fields Institute	January 24 - 26, 2025
❱ Ignite Students' Mathematical Identities Workshop (Meet a Mathematician), Carnegie Mellon University January 30 - February 17 - March 14, 2024	
❱ MEET and SHARE: a mathematicians' storytelling event at JMM	January 4, 2024
❱ Combinatorial and Homological Methods in Commutative Algebra at the AWM Research Symposium, Clark Atlanta University	September 30 – October 2, 2023
❱ Math for All, Salt Lake City Satellite	February 2023
❱ 2023 Combinatorial Algebra Meets Algebraic Combinatorics	January 2023
❱ AWM Research Symposium, Special Session on Combinatorial and Homological Methods in Commutative Algebra, University of Minnesota	June 2022
❱ Virtual AMS Spring Western Sectional, Special Session Commutative Algebra	May 2022
❱ Workshop for Inclusive Teaching Practices in SLC	April 2022
❱ Virtual Math for All, Salt Lake City Satellite	February 2022
❱ Virtual AMS Fall Southeastern Sectional Meeting	November 2021

❱❱❱ Community Projects and Events

❱ **Meet a Mathematician!**, Co-Founder	March 2020 - present
❱ **Math For All SLC Satellite**, Co-Organizer	2022-2023

❱ **MEET and SHARE: A Mathematicians' Storytelling Event at JMM 2023,**, Co-Organizer   January 5, 2023

❱ **GSAC EDI Book Club**, Co-Organizer   Summer 2022

❱ **Summer Research in Mathematics Program in Turkey**, Co-Organizer   Summer 2021

❱ **Girls in Math Day Program @ South 2018 & 2019**, Co-Founder and Co-Director   2018 - 2021

❱ **Panel discussion "What comes after #MeToo?"** Organizer and Moderator   April 2018

❱ **#MeToo Panel Discussion, Democracy Day**, Organizer and Moderator   March 2018

❱ **Girls Exploring Math and Science**, Keynote Speaker and Workshop Leader   November 2017

❱ **Girls Who Code Club at South**, Founder and Facilitator   2017 - 2021

❱ **AWM Student Chapter @ South**, Faculty Advisor   Fall 2017 - Spring 2021

❱❱❱ Professional Service

2023 - present   **Bryn Mawr College**

❱ **(24-25 AY)** Director of Graduate Studies

2021 - 2023   **University of Utah**

Departmental Committees

❱ EDI Committee
❱ EDI Survey Subcommittee, Chair

2017 - 2021   **University of South Alabama**

College Committees

❱ Summer Professional Development Awards Committee
❱ Diversity Committee

Departmental Committees

❱ Outreach Committee
❱ Curriculum Committee
❱ Library Committee

Scholarly Review

❱ Journal of Combinatorial Theory Series A
❱ Journal of Algebraic Combinatorics
❱ Journal of Algebra
❱ Electronic Journal of Combinatorics
❱ Proceedings of the AMS