

Emine YILDIRIM

emine.y.yildirim@gmail.com or ey260@cam.ac.uk

Website: emine-yildirim.github.io

- EDUCATION** *PhD. in Mathematics,*
Université du Québec à Montréal, Canada. August 2015–May 2018
Advisor : Hugh Thomas
- MSc. in Mathematics,* February 2010–June 2011
Abant Izzet Baysal University, Turkey.
Advisor : Tahire Ozen Ozturk
- BSc. in Mathematics,* September 2006–January 2010
Abant Izzet Baysal University, Turkey.
- WORK EXPERIENCE** *INI-Simons Postdoctoral Fellow* October 2021–present
Isaac Newton Institute; University of Cambridge.
- Coleman Postdoctoral Fellow* July 2018–June 2021
Queen’s University, Canada.
- Teaching Assistant* January 2014–August 2015
University of New Brunswick, Canada.
- Lecturer* September 2012–December 2013
Istanbul Arel University, Turkey.
- PAPERS** C. Paquette, E. Yildirim, *A Completion of Discrete Cluster Categories of type A*, Transactions of the London Mathematical Society (2021), 8(1), 35–64.
- V. Bazier-Matte, N. Chapelier-Laget G. Douville, K. Mousavand, H. Thomas, E. Yildirim, *ABHY Associahedra and Newton Polytopes of F-polynomials for finite type cluster algebras*, arXiv:1808.09986v2 (submitted).
- V. Bazier-Matte, G. Douville, A. Garver, R. Patrias, H. Thomas, E. Yildirim, *Leading Terms of SL_3 Web Invariants*, International Mathematics Research Notices, (2020), rnaa110.
- T. Brüstle, G. Douville, K. Mousavand, H. Thomas, and E. Yildirim, *On the combinatorics of gentle algebras*, Canadian Journal of Mathematics (2020), 72(6), 1551-1580.

E. Yildirim, *Coxeter transformation on cominuscule posets*. Algebra and Representation Theory (2019), 22(3), 699-722.

T. Ozen and E. Yildirim, *\mathcal{X} -Injective and \mathcal{X} -Projective Complexes*. Bulletin of Iranian Mathematical Society (2016), 42(5), 1221-1235.

IN PREPARATION

I. Le and E. Yildirim, *Web diagrams and modules over preprojective algebras*.

R. Marczinzik, H. Thomas, and E. Yildirim, *On the interaction of the Coxeter transformation and Rowmotion bijection*.

C. Paquette, J. Rock, and E. Yildirim, *Representations of poset quivers*.

AWARDS

- Queen's University Post-Doctoral Travel Award, 2018.
- Institute des Science du Mathématiques (ISM) Scholarships for Outstanding PhD Candidates, 2018.
- ISM Travel Grant, 2018.
- ISM Graduate Scholarships at UQAM. 2016, 2017, 2018.
- Tuition Exemption Scholarships at UQAM. 2015, 2016, 2017, 2018.
- President's Doctoral Tuition Award at UNB. 2014.
- International Differential Scholarship at UNB. 2014.
- Graduate Scholarship from Prime Ministerial Office in Turkey. 2010-2011.
- Undergraduate Scholarship from Prime Ministerial Office in Turkey. 2006-2010.

ORGANIZING I am a co-organizer of the following conference and seminars.

- The Advances in Representation Theory of Algebras, to be held at Queen's University, date to be updated.
- Cluster algebras and Representation Theory Seminars at Isaac Newton Institute, September-December 2021.
- Virtual Advances in Representation Theory of Algebras 2021 - Online Conference in Honor of Andrzej Skowroński, May 17-May 28 2021.
- Algebra & Geometry Working Seminars Queen's University at the math department, 2020-2021.
- Geometry and Representation Theory Seminars, Queen's University at the math department, 2019-2020.
- Quantum Groups Learning Seminars, Queen's University at the math department, 2019-2020.

- PRESENTATIONS**
- *Periodic actions on distributive lattices and counterparts in algebra*, FD Seminar, November 2021 (online).
 - *Cluster structures*, New developments in Representation Theory arising from Cluster Algebras, Isaac Newton Institute, September 2021 (online).
 - *The manifestations of Rowmotion in Representation Theory of Algebras*, Summer School of Algebraic Combinatorics, June 2021 (online).
 - *Composition of the rowmotion and the Coxeter transformation*, Virtual Advances in Representation Theory of Algebras, May 2021 (online).
 - *Webs and Modules*, TRAC Online Seminars, University of Sherbrooke, April 2021 (online).
 - *Generalized Associahedra*, Algebra Seminar, University of Leeds, March 2021 (online).
 - *Tilting theory and Quiver mutation*, LPA Seminars, Turkey, February 2021 (online).
 - *Discrete cluster categories of type A and beyond*, Flash Talks in Representation Theory, NTNU, January 2021 (online).
 - *The orbits of the Coxeter Transformation and Rowmotion for cominuscul posets*, Dynamical Algebraic Combinatorics, Banff International Research Station, October 2020 (online).
 - *Graphs and Combinatorics in Representation Theory of Algebras.*, Queen's University Colloquium, October 2020 (online).
 - *Associahedra and Quiver Representations*, Gebze Technical University, October 2020 (online).
 - *The Coxeter Transformation and Rowmotion for cominuscul posets*, Kentucky Discrete Math Seminar, September 2020 (online).
 - *Cluster categories*, Uluslararası Cebirsel Geometri Neşesi, 2020 (online).
 - *Cluster categories capturing combinatorics of infinite cluster variables*, Algebra Seminar, University of Sherbrooke, Quebec, February 2020.
 - *The Coxeter Transformation and Promotion*, Algebra Seminar, University of Toronto, Toronto, January 2020.
 - *A completion of discrete cluster categories of type A*, Seventh Conference on Geometric Methods in Representation Theory, University of Missouri, Columbia, November 2019.
 - *Rowmotion and Coxeter transformation*, Applied Algebra Seminar, York University, Toronto, September 2019.
 - *A slight extension of discrete cluster categories*, Cluster Algebras and Quiver Representations, Centre de Recherches Mathématiques (CRM), August 2019.
 - *Cluster categories for an infinite rank cluster algebra*, Summer Day of Representation Theory of Algebras, Université de Sherbrooke-Bishop's University, QC, July 2019.

- *The bounded derived category for cominuscule posets*, Maurice Auslander Distinguished Lectures and International Conference, Woods Hole, MA, April 2019.
- *The Web Basis and Preprojective Algebras*, American Mathematical Society Sectional Meeting, Hartford, CT, April 2019.
- *Associahedra and Newton Polytopes of F -Polynomials*, Cluster structures in geometry, physics, combinatorics and representation theory, Jerusalem, December 2018.
- *The bounded derived category for cominuscule posets*, Algebra seminar, Queen's University, Kingston, ON, September 2018.
- *Generalized Associahedra and Newton polytopes of F -polynomials*, Algebra seminar, Carleton University, Ottawa, ON, September 2018.
- *Associahedra via quiver representations*, Canadian Mathematical Society Summer Meeting, Fredericton, NB, June 2018.
- *The periodicity of the Coxeter transformation*, The XXI^e Colloque panquébécois des étudiants de l'Institut des Sciences mathématiques (ISM), Université de Sherbrooke, QC, May 2018.
- *The Coxeter transformation on cominuscule posets*, Séminaire de combinatoire, Université du Québec à Montréal, LaCIM, QC, February 2018.
- *The Coxeter transformation on cominuscule posets*, Department seminar, Mimar Sinan University, Istanbul, December 2017.
- *The Coxeter transformation on grid posets*, Department seminar, Istanbul Technical University, Istanbul, December 2017.
- *Cluster Monomials in Web Basis*, Algebra seminar, University of Sherbrooke, QC, November 2017.
- *Cluster Monomials in Web Basis*, Cluster algebras seminar, University of Connecticut, CT, November 2017.
- *Coxeter transformation on cominuscule posets*, Cluster algebras seminar, University of Connecticut, CT, October 2017.
- *Coxeter transformation on cominuscule posets*, Combinatoric seminar, University of Minnesota, MN, September 2017.
- *Auslander-Reiten translation on cominuscule posets*, Advances in Representation Theory of Algebras VI: Geometry and Homology (ARTA), Luminy, September 2017.
- *Periodic behavior of Auslander-Reiten translation*, The Mathematical Congress of the Americas (MCA), Montreal, QC, July 2017.
- *On the combinatorics of gentle algebras*, XXVIIIth Meeting on Representation Theory of Algebras, Sherbrooke, QC, September 2016.
- *Coxeter transformation of the poset of order ideals in a grid*, International Conference on Representations of Algebras, Syracuse, NY August 2016.
- *Cluster Algebras*, graduate seminar, University of New Brunswick, NB, April 2015.

- *Two dimensional Yetter-Drinfeld modules over $U_q(sl_2)$ are trivial*, Hopf Algebras in (Co)Action workshop, NB, June 2014.
- *Monomial ideals of path algebras*, research seminar, University of New Brunswick, NB, March 2014.

CONFERENCES ATTENDED

- Dynamical Algebraic Combinatorics, Banff International Research Station (BIRS), November 2021 (online).
- New developments in representation theory arising from cluster algebras, Isaac Newton Institute, September 2021 (online).
- Summer School of Algebraic Combinatorics, June 2021 (online).
- Virtual ARTA 2021 - Online Conference in Honor of Andrzej Skowroński, May 2021 (online).
- Additive categories between algebra and functional analysis, March 2021 (online).
- Flash Talks in Representation Theory, NTNU, January 2021 (online).
- Dynamical Algebraic Combinatorics, BIRS, October 2020 (online).
- Winter School "Connections between representation theory and geometry", Hausdorff Research Institute for Mathematics, October 2020 (online).
- Meeting on Representation Theory of Algebras – Corona Edition, Sherbrooke, QC, September 2020 (online).
- Categorifications in Representation Theory, September 2020 (online).
- Cluster Algebras 2020 (online).
- McKay correspondence, mutation and related topics, Kavli IPMU, August 2020 (online).
- Dimers in Combinatorics and Cluster Algebras, University of Michigan, August, 2020 (online).
- Seventh Conference on Geometric Methods in Representation Theory, University of Missouri, Columbia, November 2019.
- The 29th Annual Route 81 Conference on Commutative Algebra and Algebraic Geometry, Kingston, ON, October 2019.
- The XXXIst Meeting on Representation Theory of Algebras, Sherbrooke, QC, September 2019.
- Quiver Varieties and Representation Theory, Centre de Recherches Mathématiques (CRM), Montreal, QC, August 2019.
- Maurice Auslander Distinguished Lectures and International Conference, Woods Hole, Massachusetts, MA, April 2019.
- American Mathematical Society Sectional Meeting, Hartford, CT, April 2019.
- Cluster structures in geometry, physics, combinatorics and representation theory, Jerusalem, December 2018.

- The 28th Annual Route 81 Conference on Commutative Algebra and Algebraic Geometry, Syracuse, September 2018.
- The XXXth Meeting on Representation Theory of Algebras, Sherbrooke, QC, September 2018.
- Canadian Mathematical Society Summer Meeting, Fredericton, NB, June 2018.
- The XIX^e Colloque panquébécois des étudiants de l'ISM, Université de Sherbrooke, QC, May 2018.
- Cluster Algebras: Twenty Years On, Centre International de Rencontres Mathématiques (CIRM), Luminy, 2018.
- Combinatorial Algebra meets Algebraic Combinatorics, Fifteenth Annual Meeting, Hamilton, ON, January 2018.
- The XXIXth Meeting on Representation Theory of Algebras, Sherbrooke, QC, September 2017.
- Advances in Representation Theory of Algebras VI: Geometry and Homology (ARTA), CIRM, Luminy, 2017.
- The Mathematical Congress of the Americas (MCA), Montreal, QC, July 2017.
- Maurice Auslander Distinguished Lectures and International Conference, Woods Hole, MA, April 2017.
- Combinatorial Algebra meets Algebraic Combinatorics, Fourteenth Annual Meeting, Montreal, QC, January 2017.
- The XXVIIIth Meeting on Representation Theory of Algebras, Sherbrooke, QC, September 2016.
- International Conference on Representations of Algebras, Syracuse, NY, August 2016.
- The XIX^e Colloque panquébécois des étudiants de l'ISM, QC, May 2016.
- Maurice Auslander Distinguished Lectures and International Conference, Woods Hole, MA, April 2016.
- Canadian Mathematical Society Winter Meeting, Montreal, QC, December 2015.
- The XXVIIth Meeting on Representation Theory of Algebras, Sherbrooke, QC, September 2015.
- Maurice Auslander Distinguished Lectures and International Conference, Woods Hole, MA, April 2015.
- Fall Eastern Sectional Meeting Dalhousie University, Halifax, NS, October 2014.

WORKSHOPS ATTENDED

- Cluster Algebras and Representation Theory, Semester-Program at the Isaac Newton Institute, Sept-Dec 2021, Cambridge, UK.
- Connections for Women: Group Representation Theory and Applications, Mathematical Sciences Research Institute, Berkeley, CA February 2018.
- School and Workshop: Algebraic and Geometric Combinatorics of Reflection Groups, Montreal, QC, June 2017.
- Sage Days 86, UQAM, Montreal, QC, April 2017.
- Workshop on Representations of Algebras, Syracuse, NY, August, 2016.
- Positive Grassmannians, CRM, Montreal, QC, July 2015.
- Cluster algebras, Poisson Structure, Networks and Integrable Systems, CRM, Montreal, QC, July 2015.
- Hopf Algebras in (Co)Action, Fredericton, NB, June 2014.
- Noncommutative Geometry and Quantum Groups, Bahcesehir University, Istanbul, September 2014.
- Path Algebras and Homology, Bahcesehir University, Istanbul, January 2013.

TEACHING

Queen's University, Kingston, Canada:

1. **Vector Calculus** in the Fall semesters of 2018; 2019; 2020. So, I taught this course three semesters in total.
 - The class size was about 150 students in 2018 and 2019 and the online course in 2020 Fall had about 275 students.
 - I was the only instructor, thus the coordinator, of this course each semester and I was responsible for every aspect of the teaching including preparing and giving lectures, assigning homeworks, preparing exams and coordinating with teaching assistants for grading of the exams.
2. **Rings and Fields** in the Winter semester 2019.
 - This was a coordinated course and I was responsible from preparing and giving lectures for my section which had about 55 students.
 - I was also responsible for preparing weekly quizzes for my section and organizing weekly tutorial sessions with the teaching assistant.
3. **Linear Algebra** for the Winter semester 2020; 2021.
 - This was a coordinated course and I had about 120 students in 2020 and 135 students in the online course in 2021.
 - I was the coordinator of the online course in 2021 and was responsible for every aspect of the teaching.

University of New Brunswick, Fredericton, Canada:

- From January 2014 to August 2015, I worked as a teaching assistant for introductory calculus classes. I was responsible for preparing exercises and grading. I conducted problem solving sessions for two hours every week.
- In addition, I worked as a tutor at the Math Help Center helping students in their homeworks and questions related to math courses.

Arel University, Istanbul, Turkey:

- From September 2012 to December 2013, I was a full time lecturer.
- I taught introductory calculus classes in English to first and second year engineering students.
- I had around six sections each semester and each section included around 25 students.
- I was responsible from every aspect of teaching; preparing and giving lectures, assigning and grading homeworks, preparing and grading exams.

SUPERVISING *Undergraduate:*

- Aysel Şahin, *Conway-Coxeter Friezes and related combinatorics*, 2021.
- Elifnaz Gülsen, *Quiver representations and their interaction with algebra and combinatorics*, 2019.
- Molly Liu, *Cluster algebras and combinatorics*, 2019.

SKILLS

Languages: Turkish (native), English (fluent), French (intermediate).

Software: SAGE, GAP, PYTHON, R, JUPYTER.

Art: Painting, Photography.