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Farid Aliniaeifard

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Education

2013-2017. Ph.D of Mathematics, York University, June 2017
Dissertation title: Normal Supercharacter Theories
Advisor: Nantel Bergeron

2011-2013. Master of Mathematics, Brock University, Canada
Dissertation title: Rings, Group Rings, and Their Graphs
Advisor: Yuanlin Li

2008-2011 Master of Mathematics, Isfahan University of Technology, Iran
Dissertation title: The Genus of Zero-divisor and Annihilating-Ideal Graphs
Advisors: Mahmood Behboodi and Hossein Khabazian

Appointments

August 2019-present. The University of British Columbia
Postdoctoral fellow

August 2017-August 2019. University of Colorado Boulder
Burnett Meyer Postdoc

Honors and Awards

- 2017-2018, York Postdoctoral Fellowship (Declined in favor of Burnett Meyer Postdoc Position).
- 2016 - 2017, Teaching Ticket Award.
- 2016 - 2017, Ontario Graduate Scholarship.
- 2013, Edgar and Irmgrad Penner Scholarship.
- 2013, One of the 5 Ph.D students of York University Nominated for Vanier Scholarship.

Research

General interests. Algebra and Combinatorics.

Particular topics. Representation theory, character theory, symmetric functions, Hopf structures, polytopes, ring theory, group theory, and graph theory.

Publications

Journal publications

1. F. Aliniaeifard, Normal supercharacter theories and their supercharacters, J. Algebra 469 (2017) 464-484.
2. F. Aliniaeifard, M. Behboodi, and Y. Li, The annihilating-ideal graph of a ring, J.Korean Math. Soc. 52 (2015) 1323-1336.
3. F. Aliniaeifard and Y. Li, Zero-divisor graphs for group rings, Comm. Algebra 42 (11) (2014) 4790-4800.
4. F. Aliniaeifard, M. Behboodi, E. Mehdi-Nezhad, and A. Masoud Rahimi, The annihilating-ideal graph of a commutative ring with respect to an ideal, Comm. Algebra 42 (5) (2014) 2269-2284.
5. F. Aliniaeifard, Y. Li, and W. Keith Nicholson, Morphic p-groups, J. Pure Appl. Algebra 217 (10) (2013) 1864-1869.
6. F. Aliniaeifard and M. Behboodi, Commutative rings whose zero-divisor graphs have positive genus, Comm. Algebra 41 (10) (2013) 3629-3634.
7. F. Aliniaeifard and M. Behboodi, Rings whose annihilating-ideal graphs have positive genus, J. Algebra Appl. 11, 1250049 (2012) [13 pages].

Conference proceedings

1. F. Aliniaeifard and N. Thiem, Pattern groups and a poset based Hopf monoid, Proceedings of the 31st Conference on Formal Power Series and Algebraic Combinatorics, Ljubljana 2019.
2. F. Aliniaeifard, Normal supercharacter theory, Proceedings of the 28th Conference on Formal Power Series and Algebraic Combinatorics, Vancouver 2016.

Preprints and submitted works

1. F. Aliniaeifard and N. Thiem, A categorification of the Malvenuto–Reutenauer algebra via a tower of groups, submitted (2019), arXiv:1909.01418.
2. F. Aliniaeifard and N. Thiem, Pattern groups and a poset based Hopf monoid, submitted (2018), arXiv:1810.01826.
3. F. Aliniaeifard and N. Thiem, The structure of normal lattice supercharacter theories, submitted (2018), arXiv:1810.01353.
4. F. Aliniaeifard and Shu Xiao Li, Theta maps for combinatorial Hopf algebras, submitted (2018), arXiv:1710.03925.
5. F. Aliniaeifard and S. Burkett, Positive self-dual Hopf algebras of Galois characters, preperint (2018), arXiv:1710.03846.
6. F. Aliniaeifard, C. Benedetti, N. Bergeron, and F. Saliola, Polytopes of independent sets of relations and their 1-skeleta, preprint (2017), arXiv:1804.00360.

Selected talks

- Representation theory and combinatorial Hopf algebras, Discrete Math Seminar, Simon Fraser University, Vancouver, Canada, October 2019.
- Normal supercharacter theories and Hopf structures, Rocky Mountain Algebraic Combinatorics Seminar, Colorado State University, Fort Collins, USA, September 2018.
- Normal supercharacter theories, PRIMA 2017, Oaxaca, Mexico, July 2017.
- Theta maps, Algebraic Combinatorics Working Seminar, Fields Institute, Toronto, Canada, January 2017.
- Normal supercharacter theory, Dyck paths, and Hopf structures, Algebraic Lie Theory Seminar, University of Colorado Boulder, USA, November 2017.

- Normal supercharacter theory, Dyck paths, and Hopf structures, Applied Algebra Seminar, York University, Canada, November 2017.
- Co-teaching and co-planning with TAs, students and colleagues in higher education, Teaching In Focus 2016 conference, York University, Canada, May 2016.
- Normal supercharacter theory, Applied Algebra Seminar, York University, Canada, February 2016.
- On the problem of Fibo-Catalans, Algebraic Combinatorics Seminar, Fields Institute, Canada, December 2014.
- The annihilating-ideal graph of a ring, Discrete Mathematics Seminar, York University, Canada, October 2014.
- The zero-divisor graphs of semigroups, rings, and group rings, The Applied Algebra Seminar, York University, Canada, October 2013.
- Zero-divisor graph for group rings, 31th Ohio State-Denison Mathematics conference, USA, May 2012.
- The annihilating-ideal graph of a non-commutative ring, 41th Iranian international conference on mathematics, Oromieh University, Iran, August 2010.

Teaching

Classes

Sept. 2019-present. The University of British Columbia

- **Undergraduate Courses:** Math 100: Differential Calculus with Applications to Physical Sciences and Engineering

2017-2019. The University of Colorado Boulder

- **Undergraduate Courses:** MATH 2130: Introduction to Linear Algebra (Fall 2017, Spring 2018); MATH 2001: Introduction to Discrete Mathematics (Proofs) (Summer and Fall 2018); Calculus II (Summer 2019).
- **Graduate Courses:** MATH 6900: Independent Study, Coxeter Groups and Hopf Algebras (Spring 2018); MATH 6250: Ring Theory (Spring 2019).

2016-2017. York University

- **Undergraduate Course:** MATH 1200: Problems, Conjectures, and Proofs, 2016-2017.

Service

Organizing

- Algebraic Lie Theory Seminar at University of Colorado Boulder, Fall 2017-Present (Co-organizer).

Committee work

- Tenure Track Adjudicating Committee, York University, Aug. 2015 - Aug. 2016.
- Ph.D defense committee member for three students at University of Colorado Boulder.

Mentoring

- Graduate Peer Mentor, Bethune College, Feb. 2015 - Sept. 2016.

Refereeing/Reviewing

- The Electronic Journal of Combinatorics
- Communications in Algebra
- Formal Power Series and Algebraic Combinatorics Conference
- Discrete Mathematics, Algorithms and Applications (DMAA)
- Journal of Group Theory

Computer Skills

- C, C++, SQL, html
- Matlab, LaTeX
- Sage, Python