Jane Ivy Coons

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EDUCATION

2021 (expected)	**Ph.D. in Mathematics**, North Carolina State University Advisor: Seth Sullivant Thesis: "Applications of Toric Geometry in Algebraic Statistics"
2020	**M.S. in Mathematics**, North Carolina State University
2015	**B.A. in Mathematics and Music,** State University of New York at Geneseo *Summa cum laude* with honors in Mathematics and Music

JOURNAL ARTICLES

1. Coons, J.I. & Sullivant, S. (in press). Quasi-independence models with rational maximum likelihood estimator. *Journal of Symbolic Computation*. https://doi.org/10.1016/j.jsc.2020.10.006
2. Coons, J.I., Marigliano, O. & Ruddy, M. (in press). Maximum likelihood degree of the two-dimensional linear Gaussian covariance model. *Algebraic Statistics*, *11* (2). arXiv:1909.04553
3. Coons, J.I. & Sullivant, S. (2021). Toric geometry of the Cavender-Farris-Neyman model with a molecular clock. *Advances in Applied Mathematics, 123*. https://doi.org/10.1016/j.aam.2020.102119
4. Coons, J.I. & Rusinko, J. (2016). A note on the path interval distance. *Journal of Theoretical Biology, 398*, 145-149. https://doi.org/10.1016/j.jtbi.2016.03.027
5. Coons, J.I., Knowles, D., Jenkins, J., Luke, R. & Rault, P.X. (2016). Numerical Ranges over Finite Fields. *Linear Algebra and Its Applications, 501*, 37-47. https://doi.org/10.1016/j.laa.2016.03.024

SUBMITTED PAPERS

1. Boege, T., Coons, J.I., Eur, C., Maraj, A. & Röttger, F. (2020). Reciprocal maximum likelihood degrees of Brownian motion tree models. 14 pages. arXiv:2009.11849
2. Coons, J.I., Cummings, J., Hollering, B. & Maraj, A. (2020). Generalized cut polytopes for binary hierarchical models. 28 pages. arXiv:2008.00043
3. Coons, J.I. & Sullivant, S. (2019). The h*-polynomial of the order polytope of the zig-zag poset. 18 pages. arXiv:1901.07443

ACADEMIC HONORS, AWARDS, AND APPOINTMENTS

July 2019	Best Poster Award, SIAM Conference on Applied Algebraic Geometry
Summer 2018	Visiting Ph.D. student in the Nonlinear Algebra Group at the Max Planck Institute for Mathematics in the Sciences
2017-present	National Science Foundation Graduate Research Fellowship
2015	STEM Fellowship, North Carolina State University
2014	Presidential Scholar, SUNY Geneseo

INVITED PRESENTATIONS

1. Algebra and Geometry Seminar. Otto von Guericke Universität Magdeburg. January 12, 2021.
2. Minisymposium on Applications of Algebraic Geometry. Third Annual Meeting of the SIAM

Texas-Louisiana Section. October 17, 2020.
3. Special session on Algebraic Geometry in Statistics and Machine Learning. AMS Spring Western Sectional Meeting, California State University, Fresno. Cancelled due to COVID-19 crisis.
4. Discrete Combinatorics, Algebra, Topology and Statistics Seminar. University of Kentucky. February 17, 2020.
5. Minisymposium on Algebraic and Combinatorial Phylogenetics, SIAM Conference on Applied Algebraic Geometry, Universität Bern, Switzerland. July 9, 2019.
6. Discrete Math, Geometry and Optimization Seminar, Göthe Universität Frankfurt, Germany. July 3, 2018.
7. Special session on the Mathematics of Phylogenetics, AMS Spring Central Sectional Meeting, The Ohio State University. March 17, 2018.
8. Minisymposium on Polyhedral and Combinatorial Biology, SIAM Conference on Applied Algebraic Geometry, Georgia Institute of Technology. July 31, 2017.

CONTRIBUTED PRESENTATIONS

1. Algebraic Statistics 2020 Virtual Conference. June 23, 2020.
2. Graduate Online Combinatorics Colloquium. April 4, 2020.
3. Triangle Area Graduate Mathematics Conference, University of North Carolina, Chapel Hill. November 9, 2019.
4. North Carolina State University Mathematics Department 130th Anniversary. Poster. October 4, 2019.
5. SIAM Conference on Applied Algebraic Geometry, Universität Bern, Switzerland. Poster. July 10, 2019. **Best poster award.**
6. Meeting on Applied Algebraic Geometry, Georgia Institute of Technology. Poster. April 13, 2019.
7. Summer School on Graphical Models: From Mathematical Foundations to Biological Applications at ETH Zürich, Switzerland. June 28, 2018.

SELECTED CONFERENCES AND WORKSHOPS ATTENDED

1. Macaulay2 Workshop, Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany. July 2018.
2. Introduction to Algebraic Statistics, Berlin, Germany. May 2018.
3. MSRI Introductory Workshop in Topological and Geometric Combinatorics. September 2017.
4. MSRI Connections for Women in Topological and Geometric Combinatorics. August, 2017.
5. MSRI Summer School on Positivity Questions in Geometric Combinatorics. July 2017.
6. Mediterranean Month in Phylogenetics, Barcelona Graduate School of Mathematics, Spain. June 2017.

TEACHING EXPERIENCE AT NORTH CAROLINA STATE UNIVERSITY

MA241: Calculus II	Spring 2019 (Instructor of Record, 130 students)
MA242: Calculus III	Fall 2018 (Instructor of Record, 50 students)
MA103: Topics in Contemporary Mathematics	Spring 2017 (Instructor of Record, 60 students)
MA141: Calculus I	Fall 2016 (Recitation Leader, 120 students)

SERVICE, LEADERSHIP, AND PROFESSIONAL DEVELOPMENT

1. **Journals refereed:** Algebraic Statistics (formerly Journal of Algebraic Statistics), Mathematics

in Computer Science.
2. GLBTQ+ in STEM Program, Fall 2020
3. GLBT Student Advocate Program, Fall 2020
4. Graduate student speaker and panelist at North Carolina State University Mathematics Department Graduate Student Recruitment Weekend, Spring 2020, 2019 and 2018
5. Co-organizer of minisymposium on Algebraic and Combinatorial Phylogenetics. SIAM Conference on Applied Algebraic Geometry, Universität Bern, Switzerland. July 2019.
6. Vice President and Graduate Student Association Liaison, Mathematics Graduate Student Association, 2017-18
7. Member of the Graduate Student Association Teaching Effectiveness Committee, 2017-18
8. Volunteer at "Math Doesn't Bug Me" at Bugfest in Raleigh, NC, September 2016
9. Alpha Phi Omega National Service Fraternity, inducted 2012

PROFESSIONAL MEMBERSHIPS

1. American Mathematical Society (AMS)
2. Society for Industrial and Applied Mathematics (SIAM)

Last updated: November 3rd, 2020