
DREXEL UNIVERSITY

DEPARTMENT OF MATHEMATICS

Annual Report

2017— 18

DEPARTMENT DIRECTORY

Department Leadership
Administration
Faculty
Visiting Faculty
Adjunct Faculty
Teaching Assistants and Research Assistants

DEPARTMENT LEADERSHIP



Shari Moskow, PhD Department Head; Professor of Mathematics

J. Douglas Wright, PhD Associate Department Head; Professor of Mathematics

David Ambrose, PhD Associate Department Head; Professor of Mathematics

ADMINISTRATION



Paige Chmielewski, Undergraduate Program Coordinator

Kenneth Hemphill, Budget Coordinator

Gene Phan, Computer Specialist

Sobha Philip, Graduate Program Manager (Math Resource Center)

Amy Tiernan, Program Assistant (Math Resource Center)

FACULTY MEMBERS



DAVID AMBROSE
JASON ARAN
JONAH BLASIAK
ROBERT BOYER



PATRICK CLARKE
DARYL FALCO
RAYMOND FAVOCCI
PAVEL GREENFIELD



ANATOLII GRINSHIPAN
YIXIN GUO
R. ANDREW HICKS
PAWEL HITCZENKO



ROBERT IMMORDINO
DMITRY K-VERBORETSKYI
GEORGI MEDVEDEV
SHARI MOSKOW



MARNA MOZEFF
OKSANA ODINTSOVA
DIMITRI PAPADOPOULOS
JOEL PEREIRA



FACULTY MEMBERS

RONALD PERLINE
MARCI PERLSTADT
BRIANNA PEZZATO
ADAM RICKERT



VALERIE SARRIS
ERIC SCHMUTZ
LI SHENG
GIDEON SIMPSON



XIAOMING SONG
JEANNE STEUBER
K. SHWETKETU
VAISHALEE WADKE



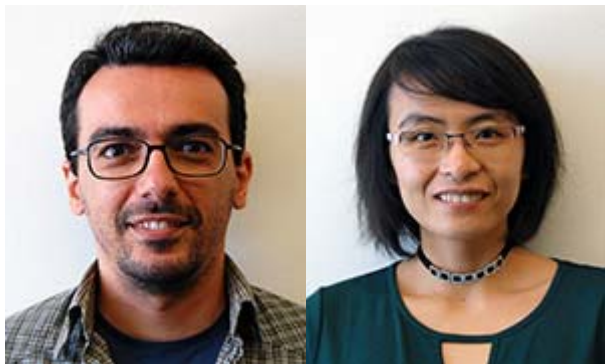
RICH WHITE
HUGO WOERDEMAN
DOUGLAS WRIGHT
DENNIS YANG



THOMAS P YU
MATT ZIEMKE

VISITING FACULTY

ILKER COLAK
ANNA PUN



ADJUNCT FACULTY

JOHN COPPOLA
HAROLD GILMAN
JUNE GORDON
BORIS L. KHEYFETS



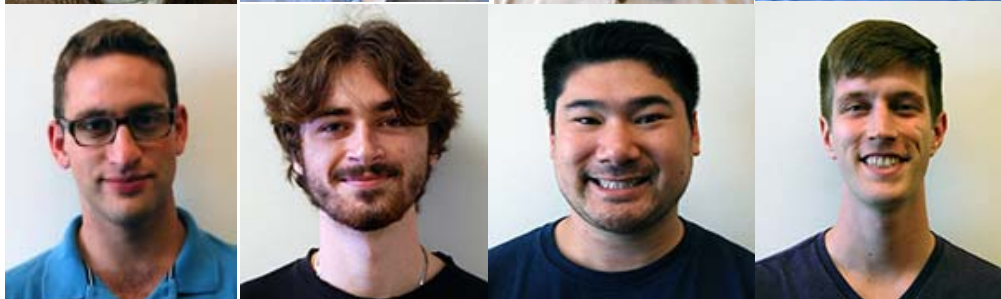
LEO W. LAMPONE
PATRICIA HENRY RUSSELL
OLGA TRUBINA
SERGIO ZEFELIPPO



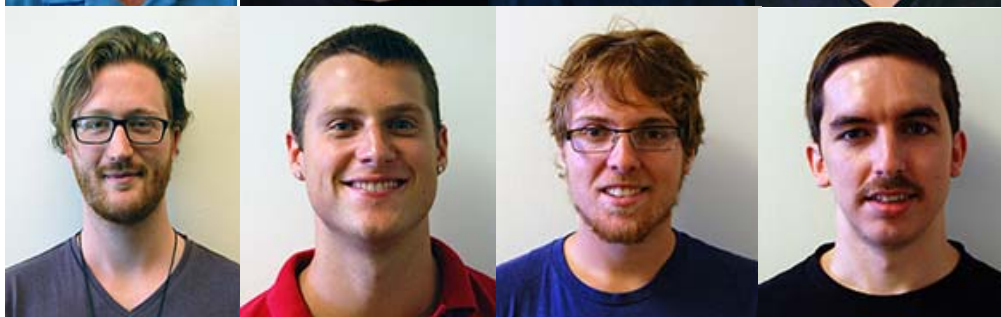


**TEACHING & RESEARCH
ASSISTANTS**

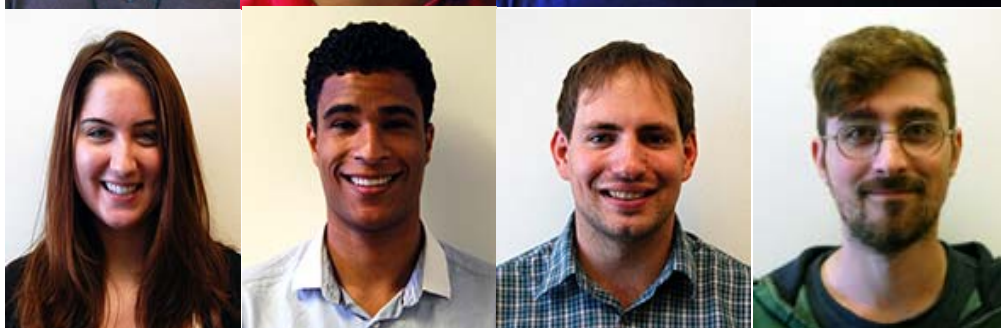
Nathan Anderson
Joshua Carmichael
Kennett Dela Rosa
A. J. Furia



Benjamin Grossmann
Eammon Hart
Ben Irwin
Joshua Jackson



Felix Jones
Dominick Macaluso
Joshua McGinnis
Andrew Pallotto



Taylor Pangburn
Gabriel Pimentel
Daniel Summers
James Thomas



Aleksandr Yaroslavskiy
Zac Gaskill
Alexander Onderdonk
David Sulon



Patrick Shields
Leonard Stevenson
Elisabeth Johnson
Timothy Faver

DEPARTMENT OF MATHEMATICS TENURE,
PROMOTION AND AWARDS

Promotion to Professor

J. Douglas Wright, PhD

Promotion to Associate Professor

Gideon Simpson, PhD

Promotion to Teaching Professor

Marna Mozeff

Awarded Emeritus Status

Justin Smith, PhD

2017 SERVICE RECOGNITION HONOREES

FACULTY GRANTS

Ambrose, David, National Science Foundation, DMS 1515849, Dynamics of Dispersive PDE, 2015-2018, \$269,987

Ambrose, David, PI, and Co-PIs **Shari Moskow**, **Gideon Simpson**, **Xiaoming Song**, and **J. Douglas Wright**, National Science Foundation, DMS 1613965, 2016 Gene Golub Summer School at Drexel University, 2016-2017, \$95,000

Blasiak, Jonah, National Science Foundation Grant, DMS 1600391, Tools for Positivity, 2016-2019, \$195,000

Guo, Yixin, National Science Foundation, DMS 1226180, Closed-loop Deep Brain Stimulation, Synchrony breaking and Chimera State, 2012-2016, \$164,996

Hitczenko, Pawel, Simons Foundation, Collaborative research in Combinatorics and Probability, 2011–2016, \$35,000

Hitczenko, Pawel, Drexel Scholarly and Creative Award, 2016-2017, \$4,060

Medvedev, Georgi, National Science Foundation, DMS 1412096, Dynamics of Large Networks, 2014-2017, \$150,000

Morse, Jennifer, National Science Foundation, Combinatorics in algebra, geometry, and physics, 2013-2016, \$290,000

Morse, Jennifer, National Science Foundation, Combinatorics of Macdonald polynomials and Schubert calculus, 2016-2019, \$285,000

Moskow, Shari, National Science Foundation, Heterogeneous Optical Media: Boundary Effects, Spectral Properties and Inversion, 2017-2020, \$339,999

Moskow, Shari, National Science Foundation, DMS 1411721, Nonlinear spectral problems in electromagnetics: asymptotics and inversion, 2014-2017, \$191,670

Moskow, Shari, National Science Foundation DMS: SIAM Optics and Photonics Workshop, 2016-2017, \$31,200.

FACULTY GRANTS

Moskow, Shari, Timed for a Successful Career: NSF/AWM Travel Grants for Women in the Mathematical Sciences 2016-2019, \$432,687

Simpson, Gideon, National Science Foundation, DMS 1409018, Computational and Analytical Challenges in Nonlinear Dispersive Wave Equations, 2014-2017, \$146,118

Simpson, Gideon, United States Department of Energy, DE-SC0012733, Theory and Computation for Mesoscopic Materials Modeling, 2014-2017, \$88,715.20

Woerdeman, Hugo, Simons Foundation, Collaborative grant, The multivariable Schur class and determinantal representations, 2015-2020, \$35,000

Wright, J. Douglas, National Science Foundation, DMS Applied Mathematics, Wave propagation in heterogeneous nonlinear dispersive systems, 2015-2018, \$340,446

Yu, Pok Yin Thomas, National Science Foundation, DMS 1522337, New Developments in Geometric and Multiscale Numerical Methods, \$230,000, 2015-2018

FACULTY PUBLICATIONS

Acan, H. and **Pawel Hitczenko**, On random trees obtained from permutation graphs, *Discrete Mathematics*, 339, p. 2871-2883, 2016

Acan, H. and **Pawel Hitczenko**, On a memory game and preferential attachment graphs, *Advances in Applied Probability*, 48, p. 585-609, 2016

Akin, Myles, R. Dzakpasu, **Yixin Guo**, and **Alex Onderdonk** Functional Reconstruction of Dyadic and Triadic Subgraphs in Spiking Neural Network Models, Springer, 2016

Ambrose, David and **J. Douglas Wright**, Nonexistence of small doubly periodic solutions for dispersive equations, *Analysis & PDE*, 9, p. 15-42, 2016

Akers, B.F., **David Ambrose**, K. Pond, and **J. Douglas Wright**, Overturned internal capillary-gravity waves, *European Journal of Mechanics - B/Fluids*, 57, p. 143-151, 2016

FACULTY PUBLICATIONS

Alvarado, E., S. Beres, V. Coufal, K. Hlavacek, **Joel Pereira**, and B. Reeves, Klein links and related torus links, *Involve*, 9(2), 347–359, 2016

Aristoff, D., S.T. Chill, **Gideon Simpson**. Analysis of estimators for adaptive Kinetic Monte Carlo, *Communications in Applied Mathematics and Computational Science*, 11(2), p. 171-186, 2016

Ambrose, David, Small strong solutions for time-dependent mean field games with local coupling. *Comptes Rendus Mathématique Academie des Sciences, Paris*, 354, p. 589-594, 2016

Ambrose David., W.A. Strauss, and **J. Douglas Wright**. Global bifurcation theory for periodic traveling interfacial gravity-capillary waves. *Annales de l'Institut Henri Poincaré C, Analyse non linéaire*, 33, p. 1081-1101, 2016

Blasiak, Jonah, Haglund's conjecture on 3-column Macdonald polynomials, *Mathematische Zeitschrift*, 283, p. 601–628, 2016

Blasiak, Jonah, What makes a D_0 graph Schur positive?, *Journal of Algebraic Combinatorics*, p. 1–51, 2016

Blasiak, Jonah, R. Liu, and K. Mészáros. Subalgebras of the Fomin-Kirillov algebra. *J. Algebraic Combin.*, 1–45, 2016

Blasiak, Jonah, S. Fomin. Noncommutative Schur functions, switchboards, and Schur positivity, *Selecta Mathematica*, p. 1-40, 2016

Bouchot, Jean-Luc, Simon Foucart, and Pawel Hitczenko, Hard Thresholding Pursuit and variations: the number of iterations, *Applied and Computational Harmonic Analysis*, 41, p. 412-435, 2016

Burnette, Charles and **Eric Schmutz**, *Representing random permutations as the product of two involutions*, *Online Journal of Analytic Combinatorics*, 11(6), 2016

Chen, D., D.E. Henson, M.T. Hueman, A.M. Schwartz, **Li Sheng**, and H. Wang, Clustering Cancer Data by Areas between Survival Curves. *Proceedings of 2016 IEEE First Conference on Connected Health: Applications, Systems and Engineering Technologies*, p. 61-66, 2016

FACULTY PUBLICATIONS

Chen, D., D.E. Henson, M.T. Hueman, A.M. Schwartz, **Li Sheng**, and H. Wang, An Algorithm for Creating Prognostic Systems for Cancer, *Journal of Medical Systems*, 40(7), p. 1-10, 2016

Clarke, Patrick, Dual fans and mirror symmetry, *Advances in Mathematics*, p. 902-933, 2016

Grinfeld, M., **Pavel Grinfeld**, The Gibbs method in thermodynamics of heterogeneous substances carrying electric charges, *Results in Physics* 6, p. 194–195, 2016

Grinfeld, M., **Pavel Grinfeld**, J. Niederhaus, A. Porwitzky, ALEGRA Based Computation of Magnetostatic Configurations, *Aces Express Journal*, 1(2), p. 40-43, 2016

M. Grinfeld, **Pavel Grinfeld**, A rigorous framework for the Landau-Lifshitz approach to Thomson Electrostatics, *Journal of Geometry and Symmetry in Physics*, 41, p. 69-75, 2016

Grinshpan, Anatolii, Dmitry Kaliuzhnyi-Verbovetskyi, V. Vinnikov, **Hugo J. Woerdeman**, Contractive determinantal representations of stable polynomials on a matrix polyball, *Mathematische Zeitschrift*, 283(1–2), p. 25–37, 2016

Grinshpan, Anatolii, Dmitry Kaliuzhnyi-Verbovetskyi, V. Vinnikov, **Hugo J. Woerdeman**, Stable and real-zero polynomials in two variables, *Multidimensional Systems and Signal Processing*. 27(1), p. 1–26, 2016

Grinshpan, Anatolii, Dmitry Kaliuzhnyi-Verbovetskyi, V. Vinnikov, **Hugo J. Woerdeman**, Matrix-valued Hermitian positivstellensatz, lurking contractions, and contractive determinantal representations of stable polynomials, *Operator Theory: Advanced Applications*, 255, p. 123–136, 2016

Guo, Yixin and Kelly Toppin, Multi-site delayed feedback stimulation in parkinsonian networks, *BMC Neuroscience* 2016, 17(1), p. 151, 2016

Guo, Yixin and Aijun Zhang, Existence and Nonexistence of Traveling Pulses in a Lateral Inhibition Neural Network. *Discrete and Continuous Dynamical Systems - Series B*, 21(6), 2016

Li, Huilan, Jennifer Morse, and Patrick Shields, Structure constants for K-theory of Grassmannians, revisited. *Journal of Combinatorial Theory, Series A*, p. 306-325, 2016

FACULTY PUBLICATIONS

Li, Huilan, Jennifer Morse, and Patrick Shields, A dual approach to structure constants for K-theory of Grassmannians, *Discrete Mathematics & Theoretical Computer Science*, p. 767-778, 2016

Hitczenko, Pawel and Amanda Lohss, Probabilistic consequences of some polynomial recurrences, *Proceedings of the 27th International Conference on the Probabilistic, Combinatorial, and Asymptotic Methods for the Analysis of Algorithms*, 2016

Hitczenko, Pawel and Amanda Lohss, Corners in tree-like tableaux, *Proceedings of the 27th International Conference on the Probabilistic, Combinatorial, and Asymptotic Methods for the Analysis of Algorithms*, 2016

Hitczenko, Pawel and Amanda Lohss, On the asymptotic distribution of the parameters in weighted random staircase tableaux, *Journal of Combinatorics*, 17, p. 643-670, 2016

Hitczenko, Pawel and Amanda Lohss, Corners in tree-like tableaux, *Electronic Journal of Combinatorics*, 24, p. 4.26, 2016

Luskin, M., **Gideon Simpson**, and D.J. Srolovitz. A Theoretical Examination of Diffusive Molecular Dynamics, *SIAM Journal on Applied Mathematics*, 76(6), p. 2176-2196, 2016

Shari Moskow, David M. Ambrose, Jayadeep Gopalakrishnan, and Scott Rome. Scattering of electromagnetic waves by thin high contrast dielectrics ii: asymptotics of the electric field and a method for inversion. *Commun. Math. Sci.*, 15(4):1041–1053, 2017.

Kimberly Kilgore, **Shari Moskow**, and John C. Schotland. Convergence of the born series for electromagnetic waves. *Appl. Anal.*, 96(10), 2017.

Perline, Ronald, Y. Starosvetsky, A. Vainchtein, and **J. Douglas Wright**, Solitary Waves in Diatomic Lattices, *Physical Review E*, 93(4), 2016

Perline, R. and **Ronald Perline**, Two Universality Properties Associated with the Monkey Model of Zipf's Law, *Entropy*, 18(3), p. 89, 2016

Woerdeman, Hugo J., *Advanced Linear Algebra*. Boca Raton, Florida: CRC Press, 2016. Print.

Grohs, P., M. Sprecher, and **Pok Yin Thomas Yu**, Scattered Manifold-Valued Data Approximation, *Numerische Mathematik*, 2016

FACULTY PRESENTATIONS

Ambrose, David, “Sufficiently strong dispersion removes ill-posedness in truncated series models of water waves,” BIRS Workshop on Theoretical and Computational Aspects of Nonlinear Surface Waves, Banff International Research Station for Mathematical Innovation and Discovery, Banff, Alberta, November 2016, Invited

Ambrose, David, “On vortex sheets and mean field games,” Oregon State University, Corvallis, Oregon, November 2016. Invited

Ambrose, David, “Traveling waves in interfacial fluid dynamics with multi-valued height,” 13th Franco-Romanian Colloquium on Applied Mathematics, Special Session of Free Boundary Problems, August 2016, Invited

Ambrose, David, “Convergence of a boundary integral method for 3D interfacial flow with surface tension,” SIAM Annual Meeting, Minisymposium on High-Fidelity Modeling for Cellular Flows, Boston, MA, July 2016, Invited

Ambrose, David, “Convergence of a boundary integral method for 3D interfacial flow with surface tension,” International Conference on Scientific Computing and Applications, Session on Scientific and High-Performance Computing, Toronto, Canada, June 2016, Invited

Ambrose, David, “On vortex sheets and mean field games,” Analysis of Partial Differential Equations Using Dynamical Systems Techniques conference, Boston, MA, June 2016, Invited

Ambrose, David, “Convergence of a boundary integral method for 3D interfacial flow with surface tension,” CSCAMM Workshop on Mixing and Mixtures in Geo- and Biophysical Flows, University of Maryland, College Park, MD, May 2016, Invited

Ambrose, David, “Ill-Posedness of truncated series models of water waves,” 2nd KUMU Conference on PDE, Dynamical Systems, and Applications, University of Missouri, Columbia, MO, April 2016, Invited

Ambrose, David, “Traveling waves in interfacial fluid dynamics with multi-valued height,” PDE & Analysis Seminar, University of Pittsburgh, Pittsburgh, PA, April 2016, Invited

Ambrose, David, “A convergent boundary integral method for 3D interfacial flow with surface tension,” Analysis and Applied Mathematics Seminar, University of Illinois at Chicago, Chicago, IL, April 2016, Invited

FACULTY PRESENTATIONS

Blasiak, Jonah, “Kronecker coefficients and noncommutative super Schur functions,” Fall Eastern AMS Sectional Meeting, Bowdoin College, Brunswick, ME, September 2016, Invited

Grinshpan, Anatolii, “Nested subclasses of the Schur class,” International Workshop on Operator Theory and Applications, St Louis, MO, July 2016

Grinshpan, Anatolii, “Determinantal representations of stable polynomials,” Southeastern Analysis Meeting, Tampa, FL, March 2016

Hitzenko, Pawel, “On the game of memory,” Workshop on Probabilistic and Analytic Combinatorics held at the BIRS Center, Banff, Canada, October 2016, Invited

Kaliuzhnyi-Verbovetskyi, “Contractive determinantal representations of stable polynomials on a matrix polyball,” Workshop in Noncommutative Analysis, The University of Iowa, Iowa City, IA, June 2016

Kaliuzhnyi-Verbovetskyi, Rational inner functions on a square-matrix polyball,” special session Multivariable Operator Theory of the IWOTA 2016 conference, Washington University, St. Louis, MO, July 2016

Kaliuzhnyi-Verbovetskyi, “Integrability of Free Noncommutative Functions,” CIMI workshop on noncommutative functions and complex analysis, University of Toulouse, France, October 2016

Morse, Jennifer, “Discrete affairs with Macdonald and Gromov-Witten,” Formal Power Series and Algebraic Combinatorics, Vancouver, Canada, July 2016

Morse, Jennifer, “Combinatorics of affine Schubert calculus,” Southeastern Lie Theory Workshop, Charlottesville, VA May 2016

Odintsova, Oksana, “Technology in Teaching Mathematics,” International conference Krasnoyarsk, Russia, November 2016

Medvedev, Georgi, Gene Golub SIAM Summer School on Stochastic Differential Equations, Drexel University, Philadelphia, PA, July 2016 Invited

FACULTY PRESENTATIONS

Medvedev, Georgi, Workshop on Synchronization and Oscillators with Generalized Coupling, University of Exeter, Exeter, UK, April 2016, Invited

Medvedev, Georgi, MBI Workshop on Generalized Network Structures and Dynamics, Ohio State University, March 2016, Invited

Medvedev, Georgi, MBI Workshop on Dynamics in Networks with Special Properties, Ohio State University, January 2016, Invited

Moskow, Shari, Invited minisymposium speaker, "Equivalence of Galerkin methods and spectrally matched grids.", Model Reduction in Inverse Problems, SIAM Annual meeting, Boston, MA, July 2016.

Moskow, Shari, "Homogenization of a Transmission Problem," Oberwolfach Workshop on Inverse Scattering, Oberwolfach, Germany, September 2016, Invited

Moskow, Shari, "Homogenization of a Transmission Problem," Workshop on homogenization theory, Corsica, France, November 2016, Invited

Moskow, Shari, "Inverse Problems: Determining the Equation from the Solution," Haverford College, Haverford, PA, November 2016, Invited

Pok Yin Thomas Yu "Subdivision Methods of Biomembranes"- SIAM Conference on Industrial and Applied Geometry, Pittsburg, PA, July 2017

Pok Yin Thomas Yu "Numerical Solution and Uniqueness of the Canham-Evans-Helfrich Model for Biomembranes", European Conference on Numerical Mathematics and Advanced Applications, Voss, Norway, September 2017

Simpson, Gideon, "Mathematical Formalisms for Molecular Dynamics" colloquium at University of Pennsylvania, Philadelphia, PA, March 2016

Simpson, Gideon, "Application to McKenzie model," workshop on "From the Grain to the Continuum: Two Phase Dynamics of a Partially Molten, Polycrystalline Aggregate," Isaac Newton Institute for Mathematical Sciences, University of Cambridge, Cambridge, UK, April 2016

FACULTY PRESENTATIONS

Simpson, Gideon, “Stochastic Processes and Diffusive Molecular Dynamics” SIAM Conference on Mathematical Aspects of Materials Science minisymposium on Computational Methods for Materials Science, Philadelphia, PA, May 2016

Simpson, Gideon, “Stochastic Processes and Diffusive Molecular Dynamics,” Frontiers in Applied and Computational Mathematics, New Jersey Institute of Technology, Newark, NJ, June 2016

Woerdeman, Hugo, “Rational Schur-Agler functions on polynomially-defined domains,” International Workshop Operator Theory and Analysis, St. Louis, MO July 2016, Invited

Woerdeman, Hugo, “Rational Schur-Agler functions on polynomially-defined domains,” Analysis Seminar, Department of Pure Mathematics, University of Waterloo, Waterloo, ON, Canada, September 2016

Woerdeman, Hugo, “The 2xM separability problem investigated via semidefinite programming and normal completions,” Quantum Information and Computation Theory Seminar, Institute for Quantum Computing, University of Waterloo, Waterloo, ON, Canada, December 2016

Wright, J. Douglas, “Overhanging traveling gravity capillary waves,” Joint Mathematical Meetings, Seattle, WA, January 2016

Wright, J. Douglas, “Traveling waves for diatomic FPUT lattices,” SIAM Conference on Nonlinear Waves and Coherent Structures, Philadelphia, PA, August 2016

Xiaoming Song “Admission Control for Multidimensional Workload Input with Heavy Tails and Fractional Ornstein-Uhlenbeck Process” - Poster Presentation & Seminar on “Stochastic Processes”, University of Maryland, March 2016

Xiaoming Song “A Mathematical Model of file Uploads and Download”-Dean’s Seminar, Drexel University, April 2016

Xiaoming Song “An Implicit Numerical Scheme for a Class of BDSDEs”- SIAM Conference on Control and its Applications, July 2017

EDITORIAL POSITIONS

Ambrose Division Editor of Journal of Mathematical Analysis and Applications

Hitzenko, Pawel, Editorial Board Member, Open Journal of Discrete Mathematics

Kaliuzhnyi-Verbovetskyi, Dmitry, Associate Editor, Journal Complex Analysis and Operator Theory

Morse, Jennifer, Managing editor, Journal of Combinatorics

Woerdeman, Hugo J., Associate Editor, Indagationes Mathematicae

Woerdeman, Hugo J., Associate Editor, Annals of Functional Analysis'

FACULTY APPOINTMENTS & CONFERENCE ORGANIZATIONS

Ambrose, David and **Gideon Simpson**, co-organizer of session, "Analysis of numerical methods for dispersive and fluid equations", The Tenth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, University of Georgia, Athens, GA, March -April 2017

Ambrose, David, co-organizer, Summer school on Mean Field Games and Applications, University of California, Los Angeles, Los Angeles, CA, June 2018

Blasiak, Jonah, scientific committee member, Mid-Atlantic Algebraic Geometry and Combinatorics Workshop, Drexel University, Philadelphia, PA, April 2016

Hitzenko, Pawel, program committee member, Meeting on Analytic Algorithmics and Combinatorics, New Orleans, LA, January 2018

Morse, Jennifer, executive officer, Formal Power Series and Algebraic Combinatorics, Vancouver, Canada, July 2016

Morse, Jennifer, scientific committee member, Mid-Atlantic Geometry & Combinatorics Conference, Drexel University, Philadelphia, PA, May 2016

Morse, Jennifer, organizer, Formal Power Series and Algebraic Combinatorics, London, England, July 2017

Simpson, Gideon, organizer of minisymposium, on "Materials Science," Frontiers in Applied and Computational Mathematics, New Jersey Institute of Technology, Newark, NJ, June 2016

Simpson, Gideon, co-organizer of workshop, "From the Grain to the Continuum: Two Phase Dynamics of a Partially Molten, Polycrystalline Aggregate," Isaac Newton Institute for Mathematical Sciences, University of Cambridge, Cambridge, UK, April 2016

Song, Xiaoming, David Ambrose, Shari Moskow, Gideon Simpson, J. Douglas Wright, co-organizer, "Gene Golub Summer School on Stochastic Differential Equations and Wave Propagation." Drexel University, Philadelphia, PA, July-August 2016

FACULTY PAPPPOINTMENTS & CONFERENCE ORGANIZATIONS

Woerdeman, Hugo J., member of the scientific organizing committee, 2016 International Linear Algebra Society (ILAS) meeting, Leuven, Belgium, July 2016

Woerdeman, Hugo J., organizer of a minisymposium, “Multivariable Operator Theory,” 2016 International Workshop on Operator Theory and its Applications, St. Louis, MO, July 2016

Woerdeman, Hugo J., Member of the International Program Committee, 2016 International Symposium on the Mathematical Theory of Networks and Systems (MTNS), Minneapolis, MN July 2016

Wright, J. Douglas, co-organizer, Conference on the Analysis of Partial Differential Equations using Dynamical Systems Techniques, Gene Wayne’s 60th Birthday Conference, Boston University, Boston, MA, June 2016

Wright, J. Douglas, co-organizer of minisymposium, Lattice Dynamics: Wave Propagation and Continuum Approximation at SIAM Conference on Nonlinear Waves and Coherent Structures in Philadelphia, PA. August 2016

Woerdeman, Hugo J., board member, International Research Center for Tensor and Matrix Theory of Shanghai University

Woerdeman, Hugo J., vice president, Steering Committee, International Workshop on Operator Theory and its Applications

Woerdeman, Hugo J., vice president, International Linear Algebra Society

Woerdeman, Hugo J., Organizer of the mini-symposium ‘Multivariable Operator Theory’ at the International Workshop on Operator Theory and its Applications, St. Louis, July 2016

PHD DEGREE AWARDED



Myles Akin with his advisor **Dr. Yixin Guo**.

His thesis title is "Multiplex Network Analysis of Local Topology in Simulated and In Vitro Spiking Neural Networks"



Tim Faver with advisor **Dr. Douglas Wright**

His thesis title is "Nanopteron-stegoton traveling waves in mass and spring dimer Fermi-Pasta-Ulam-Tsingou Lattices"



David Sulon with his advisor **Dr. David Ambrose**

His thesis title is "Analysis for periodic travelling interfacial Hydroelastic waves"



Alexander Onderdonk with advisor **Dr. Yixin Guo**

His thesis title is "Activity patterns in Lateral-Inhibition type Neural Fields with Asymmetric Excitatory Distal Components"



Leonard Stevenson with advisor **Dr. Dmitri V-Verbovetskyi**

His thesis title is "Calculus of Non-Commutative Functions"

GRADUATE AWARDS



Joshua Carmichael , won the Teaching Excellence Award for his exemplary commitment to student learning, reflective teaching practices, innovative teaching methods, leadership and a commitment to their professional growth and development as a teacher.

Ben Grossman received an honorable mention as a Teaching Assistant for his exemplary commitment to student learning, reflective teaching practices, innovative teaching methods, leadership and a commitment to their professional growth and development as a teacher.



Kennett Paul Dela Rosa received a Research Excellence award for his work on Matrix Factorization results for orthogonal and symplectic matrices and the Location of Ritz values in the numerical range of normal matrices

congrats

UNDERGRADUATE AWARDS



The winners are with CoAS dean Donna M. Murasko, PhD and math undergraduate advisor Dr. Ron Perline

Robert J. Bickel Scholarship—Presented in honor of Dr. Robert J. Bickel who was a member of the mathematics department from 1946 to 1987. The winners are:

Curtis Bechtel , Maria Boerlin , Joseph Nuyannes, Rishi Patel, Guruansh Singh , Zhilang Zhang, Yuwei Zhou

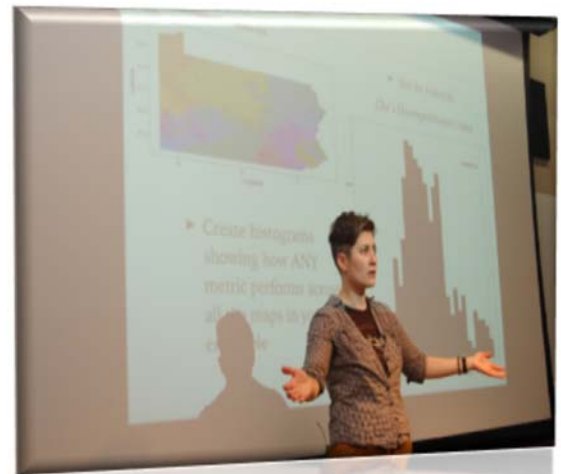
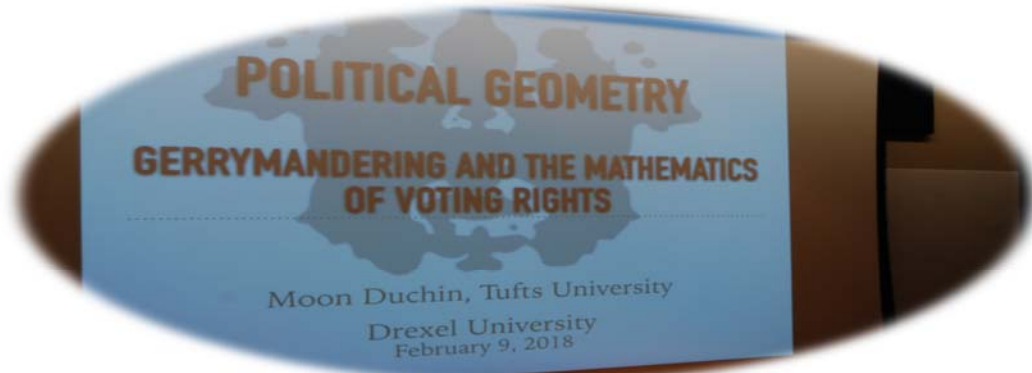
Frank H. M. Williams Prize in Mathematics—Presented annually in recognition of academic achievement in mathematics. The winner is:

Preetham Mohan

congrats

DISTINGUISHED SPEAKER

Moon Duchin, Tufts University was the distinguished speaker and she talked to the Drexel audience on February 9th, 2018 about the geometry of Gerrymandering and the discrete curvature in redistricting and group theory.



Dr. Duchin is the Director of the Science, Technology, and Society Program at Tufts University. She launched the Metric Geometry and Gerrymandering Group (or MGGG), which coordinates a national network of mathematicians working to provide geometric and computational innovations for redistricting reform in the United States. Her research involves geometric group theory and geometric topology; the history, philosophy, and culture of science; and gerrymandering and civil rights. She holds an NSF CAREER Award and has been named a Fellow of the American Mathematical Society and a Senior Fellow of the Jonathan M. Tisch College of Civic Life at Tufts.



FACULTY AWARD

COLLOQUIA

Concentration of Information for Log-Concave Measures

November 8, 2017

Speaker: Mokshay Madiman, University of Delaware

Large Time Behavior of Randomly Perturbed Dynamical Systems

November 15, 2017

Speaker: Lenoid Korolov, University of Maryland

Nodal Statistics of Graph Eigenfunctions

January 31, 2018

Speaker: Gregory Berkolaiko, Texas A & M University

Solutions of a non-linear Field Theory

February 14, 2018

Speaker: Peter Miller, University of Michigan

Hierarchy of PDE Models of Cell Motility

February 21, 2018

Speaker: Leonid Berlyand, Penn State University

Homotopy Probability Theory in the Univalent Foundations

April 11, 2018

Speaker: Harry Crane, Rutgers University

Periodic Paths on the Pentagon

April 25, 2018

Speaker: Diana Davis, Swarthmore College

COLLOQUIA

Vanishing Vector– Valued Logarithmic Residues and Universal Cantor Sets

May 30, 2018

Speaker: Harm Bart, Erasmus University Rotterdam

The Bounded Real Lemma for Infinite -Dimensional Discrete Time-Linear Input/State/Output Linear Systems

June 6, 2018

Speaker: Joe Ball, Virginia Tech

PDE SEMINAR

Examining androgen-mediated disruption of the ovulatory cycle through mathematical modeling

October 20, 2017

Speaker: Erica J. Graham, Bryn Mawr

Phantom Traffic Jams, Autonomous Vehicles, and the Future of Traffic Modeling

October 6, 2017

Speaker: Benjamin Seibold, Temple University

Can I Borrow a Feeling?

November 3, 2017

Speaker: Scott Rome, Cadent

TBD

November 16, 2017

Speaker: Quinn Morris, Swarthmore

TBD

December 1, 2017

Speaker: Georgi Medvedev, Drexel University

COMBINATORICS & ALGEBRA GEOMETRY SEMINARS

Combinatorial stability and representation stability

September 22, 2016

Thomas Church, IAS/Stanford

Applying Representation Theory to Random Walks

September 29, 2016

Angela Hicks, Lehigh University

Using Grassmann (or anti-commuting) variables in Combinatorics: Lindstrom-Gessel-Viennot lemma and Schur functions

October 13, 2016

Adrian Tanasa, University of Bordeaux

Peak and descent polynomials

October 27, 2016

Alexander Diaz-Lopez, Swarthmore College

A Grassmann Algebra for Matroids

November 3, 2016

Noah Giansiracusa, Swarthmore College

K-Theory and Monodromy of Schubert Curves

November 10, 2016

Jake Levinson, Michigan

Splines, GKM theory, and non-GKM spaces

November 17, 2016

Elizabeth Drellich, Swarthmore College

An Introduction to Symplectic Duality

December 1, 2016

Justin Hilburn, Penn

Decompositions of Grothendieck polynomials

January 26, 2017

Oliver Pechenik, Rutgers University

COMBINATORICS & ALGEBRA GEOMETRY SEMINARS

Kohnert tableaux and quasi-key polynomials

February 2, 2017

Dominic Searles, USC

Rook and Wilf equivalence of integer partitions

February 16, 2017

Jonathan Bloom, Lafayette College

Colorings and Positivity

February 28, 2017

Per Alexandersson, Penn and KTH

Stable bases and q-Fock space

March 2, 2017

Eugene Gorsky, UC Davis

Quantum cohomology of Grassmannians via Landau-Ginzburg potentials and combinatorics

March 16, 2017

Kaisa Taipale, Univ. of Minnesota

Conjugacy Growth Series for Wreath Products of Finitary Permutation Groups

March 30, 2017

Madeline Locus, Emory

Genus Two analogue of A₁ spherical DAHA

April 13, 2017

Semeon Artamonov, Rutgers University

Puzzles and Cohomology of the Cotangent Bundle on Projective Space

April 20, 2017

Voula Collins, University of Connecticut

Noncommutative Schur functions

May 5, 2017

Sergey Fomin, University of Michigan

Equivariant Pieri Rules for Isotropic Grassmannians

May 11, 2017

Vijay Ravikumar, Chennai Mathematical Institute

ANALYSIS SEMINAR

A uniqueness proof of Willmore minimizer with prescribed isoperimetric ratio

October 6, 2017

Dr. Thomas P. Yu, Drexel University

On Factorization , Indices and completely Decomposable Matrix Polynomials

October 20, 2017

Joshua Jackson , Drexel University

On the Preserves of Reversible Maps

November 3, 2017

Benjamin Grossman, Drexel University

Tensor Decomposition—A Mathematical Tool for Data Analysis and Compression

December 8, 2017

Tamara Kolda, Sandia National Labs

Maximum Determinant Positive Definite Toeplitz Completions

February 23, 2018

Dr. Hugo Woerdeman, Drexel University

Semi Groups on $B(H)$ having an Invariant Faithful Normal State

March 9, 2018

Dr. Matthew Ziemke, Drexel University

Sobolev Extension Domains

April 2, 2018

Nahum Zobin , William and Mary

A Problem of Steinitz

April 13, 2018

Dr. Anatolii Grinshpan, Drexel University

The Cyclic Rank Completion Problem with Regular Blocks

May 25, 2018

Benjamin Grossman, Drexel University

Vanishing Vector -Valued Logarithmic Residues and Unusual Cantor Sets

May 30, 2018

Harm Bart, Erasmus University

ANALYSIS SEMINAR

Ritz Values of Normal Matrices

June 1, 2018

Kennett Dela Rosa, Drexel University

Realizations and Polynomials in Two Variables

June 8, 2018

Joshua Jackson, Drexel University

More Tractable Alternatives to Sum of Squares and Semidefinite Optimization

June 13, 2018

Dr. Thomas P. Yu, Drexel University

PDE & APPLIED MATHEMATICS SEMINAR

Estimating Discrete Corrections to a Mesoscale, Free-Boundary Model of Crystal Growth

November 17, 2016

Joshua Schneider, UCLA

Approximate Global Minimizers to Pairwise Interaction Problems by a Convex/Non-Convex Energy Decomposition

October 20, 2016

David Shirokoff, NJIT

Modeling Waves: Towards Understanding the Role of Nonlinearity

October 27, 2016

Katie Oliveras, Seattle University

Examining Androgen-Mediated Disruption of the Ovulatory Cycle Through Mathematical Modeling

October 6, 2017

Erica J. Graham, Bryn Mawr

Phantom Traffic Jams, Autonomous Vehicles, and the Future of Traffic Modeling

October 22, 2017

Benjamin Seibold, Temple University

Can I Borrow a Feeling?

November 3, 2017

Scott Rome, Cadent

November 16, 2017

Quinn Morris, Swarthmore

December 1, 2017

Georgi Medvedev, Drexel University

PDE & APPLIED MATHEMATICS SEMINAR

Accelerated Sampling and Sensitivity Analysis of Multiscale Reaction Networks

January 19, 2017

Ting Wang, University of Delaware

Existence of Propagators for Coulomb-Like Potentials in Density Functional Theory

February 23, 2017

Eric Stachura, Haverford College

Almost Sure Scattering for the 4D Energy-Critical Defocusing Nonlinear Wave Equation with Radial Data

April 6, 2017

Ben Dodson, John Hopkins University

Transform Analysis for Markov Processes and its Applications in Finance

April 13, 2017

Chihoon Lee, Stevens Institute of Technology

Path-Differentiability BSDE driven by a Continuous Martingale

April 20, 2017

Kihun Nam, Rutgers University

High-Order Finite-Difference Time-Domain Simulation of Electromagnetic Waves at Complex Interfaces Between Linear Dispersive Media

May 4, 2017

Michael Jenkinson, RPI

HONORS DAY

Robert J. Bickel Scholarship

Presented in honor of Robert J. Bickel who was a member of the Mathematics Department from 1946 to 1987.

Patrick Brogan

Yassine Terrab

Bradford Green

Sanjana Venkat

Patrick Lombardo

Jadzia Lynn Watsey

Preetham Mohan

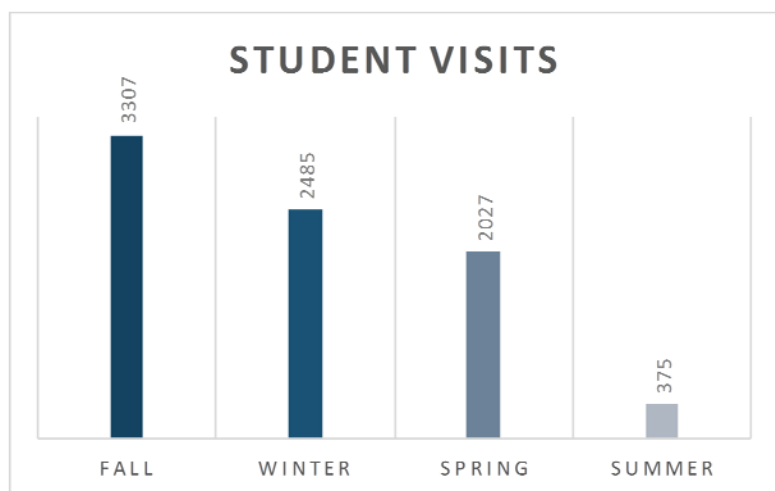
Jacob Woods

Frank H. M. Williams Prize in Mathematics

Presented annually in recognition of academic achievement in mathematics.

Yilin Yang

MATH RESOURCE CENTER



The mission of the Math Resource Center is to assist the undergraduate students currently enrolled in courses offered by the Department of Mathematics.

The Student Visits graph illustrates the visits to the MRC over the different terms during the year for a total of 8,194.

The Math 102 students visited the center the most and was followed by MATH 122.

The Math Resource Center moved to the Library Learning Terrace in the winter quarter due to construction in the Korman Center. The Learning Terrace is located on 33rd and Race Street under Race Hall. Over the course of the year the MRC is always available to students currently enrolled in a mathematics course, however the hours of operation can vary. During Fall, Winter, and Spring terms the MRC is open Monday to Thursday from 10am-7pm and on Fridays from 10am-4pm. Over the Summer the MRC is open Monday to Thursday from 12pm-5pm. The MRC is also open during Finals Weeks.