

# Doctoral Degrees Conferred

2012–2013

## ALABAMA

### Auburn University (15)

DEPARTMENT OF MATHEMATICS AND STATISTICS

*Bahmanian, Mohammad*, Amalgamations and detachments of graphs and hypergraphs

*Bindele, Huybrechts*, Rank-based regression for nonlinear and missing models

*Brown, Wesley*, Modular balanced graphs

*Carrigan, Braxton*, Triangulations and simplex tilings of polyhedra

*Clark, Jonathan*, Nim on graphs

*Couch, P. J. (Phillip)*, The metamorphosis of maximum packings of  $2K_n$  with triples into maximum packings of  $2K_n$  with 4-cycles

*Jiang, Nan*, Upper bounds on the coarsening rates for some non-conserving equations

*Li, Geng*, Semi-supervised classification techniques in big data text analytics

*Liu, Xuhua*, Gradient flows, convexity and adjoint orbits

*Noble, Abigail*, Maximal sets of Hamilton cycles in complete multipartite graphs

*Ohlson, Vicky*, Almost resolvable maximum packings of bipartite graphs with 4-cycles

*Petrie, Caleb*, On security,  $(F, I)$ -security, and ultra-security in graphs

*Roberts, Daniel*, Stars and hyperstars

*Thompson, Mary Clair*, Asymptotic results in noncompact semisimple Lie groups

*Whitt, Thomas*, Path decompositions of the Kneser graph

### University of Alabama (4)

DEPARTMENT OF MATHEMATICS

*Chen, Jing*, Most likely path to the shortfall risk in long-term hedging with short-term future contracts

*Holloway, Caleb*, Wolff's theorem on ideals for mathematics

*Karatas, Yalcin*, Groups whose non-permutable subgroups satisfy certain conditions

*Ross, Lance*, Context sensitive languages and word problems

### University of Alabama at Birmingham (5)

DEPARTMENT OF BIostatISTICS

*Mbowe, Omar*, An investigation of the effect of misspecifying the random effect distribution and the incorrect assumption of equal intraclass correlation coefficients among treatment groups in the analyses of data from cluster randomized trials

*Yang, Celeste T.*, Hypothesis tests of equivalence and their application to microarray and clinical trial data

DEPARTMENT OF MATHEMATICS

*Bledsoe, Matthew*, Resonances and inverse scattering

*Huang, Qizhuo*, Geometric fitting in errors-in-variables model

*Ma, Hui*, Geometric fitting of quadratic curves and surfaces

### University of Alabama-Tuscaloosa (2)

INFORMATION SYSTEMS, STATISTICS, AND MANAGEMENT SCIENCE DEPARTMENT

*Mercado, Gary*, On the detection and estimation of changes in a process mean based on kernel estimators

*Oh, Dong-Yop*, GA-Boost: A genetic algorithm for robust boosting

## ARIZONA

### Arizona State University (10)

SCHOOL OF HUMAN EVOLUTION AND SOCIAL CHANGE

*Murillo, David*, Cites in ecology: Settlement patterns and diseases

*Salau, Kehinde*, Assessing the effects of institutional and spatial arrangements in analytical and computational models of conservation

*Vega-Guzman, Jose*, Solution methods for certain diffusion-type equations

SCHOOL OF MATHEMATICAL AND STATISTICAL SCIENCES

*Bilinsky, Lydia*, Dynamic Hopf bifurcation in spatially extended excitable systems from neuroscience

*Horan, Victoria*, Listing combinatorial objects

*Huang, Qing*, Some topics concerning the singular value decomposition and generalized singular value decomposition

*Jones, Jeremiah*, Drift-diffusion simulation of the ephaptic effect in the triad synapse of the retina

*Li, Jingjin*, Multivariate generalization of reduced major axis regression

*Rabern, Landon*, Coloring graphs from almost maximum degree sized palettes

*Smith, Matt*, On-line coloring of partial orders, circular arc graphs, and trees

### University of Arizona (11)

DEPARTMENT OF MATHEMATICS

*Acosta, Enrique*, Leading order asymptotics of a partition function for colored triangulations

*Bishop, Michael*, Low energy states of quantum systems in disordered Bernoulli environments

*Hadad, Yaron*, Integrable nonlinear relativistic equations

*Nguyen, Dong Quan*, Nonexistence of rational points on certain varieties

*Park, Chol*, Semi-stable deformation rings in Hodge-Tate weights  $(0, 1, 2)$

*Schaeffer Fry, Amanda*, Irreducible representations of finite groups of Lie type: On the irreducible restriction problem and some local-global conjectures

*Smith, Ryan*, Serre weights: The partially ramified case

The above list contains the names and thesis titles of recipients of doctoral degrees in the mathematical sciences (July 1, 2012, to June 30, 2013) reported in the 2013 Annual Survey of the Mathematical Sciences by 197 departments in 143 universities in the United States. Each entry contains the name of the recipient and the thesis title. The number

in parentheses following the name of the university is the number of degrees listed for that university. A supplementary list containing names received since compilation of this list will appear in a later 2014 issue of the *Notices*.

PROGRAM IN APPLIED MATHEMATICS

- Fry, Brendan*, Theoretical models for blood flow regulation in heterogeneous microvascular networks
- Hottovy, Scott*, The Smoluchowski-Kramers approximation for stochastic differential equations with arbitrary state-dependent friction
- McGuire, Luke*, Modeling the evolution of Rill networks, debris fans, and cinder cones: Connections between sediment transport processes and landscape development
- Tolwinski-Ward, Susan*, Inference on tree-ring width and paleoclimate using a proxy model of intermediate complexity

ARKANSAS

University of Arkansas at Fayetteville (3)

DEPARTMENT OF MATHEMATICAL SCIENCES

- Bloomfield, Nathan*, On the representation of inverse-semigroups by difunctional relations
- Espinosa Lucio, Belen*, Hardy space properties of the Cauchy kernel function for strictly convex planar domain
- Myers, Jeanine*, The effect of symmetry on the Riemann map

CALIFORNIA

California Institute of Technology (9)

DEPARTMENT OF COMPUTING AND MATHEMATICAL SCIENCES

- Cheng, Mulin*, Adaptive methods exploring intrinsic sparse structures of stochastic partial differential equations
- Elling, Timothy*, GPU-accelerated Fourier-continuation solvers and physically-exact computational boundary conditions for wave scattering problems
- Gittens, Alex*, Topics in randomized numerical linear algebra
- McCoy, Michael*, A geometric analysis of convex demixing

DEPARTMENT OF MATHEMATICS

- Bartlett, Pdraic*, Completions of  $\epsilon$ -dense Latin squares
- Peskin, Laura*, Ordinary mod  $p$  representations of the metaplectic cover of  $p$ -adic  $SL_2$
- Teh, Kevin*, Dirac spectra, summation formulae, and the spectral action
- van Garrel, Michel*, Relative mirror symmetry and ramifications of a formula for Gromov-Witten invariants
- Wong, Wing Hong Tony*, Diagonal forms, linear algebraic methods and Ramsey-type problems

Claremont Graduate University (16)

INSTITUTE OF MATHEMATICAL SCIENCES

- Baik, Eunsil*, Dynamics of two-component Bose-Einstein condensates
- Berggren, Susan Anne Elizabeth*, Computational and mathematical modeling of coupled superconducting quantum interference devices
- Billen, Joris*, Simulated associating polymer networks
- Bliss, David Atwood*, Periodic boundary value problems and the Dancer-Fucik spectrum under conditions of resonance
- Caplan, Ronald Meyer*, Study of vortex ring dynamics in the nonlinear Schrödinger equation utilizing GPU-accelerated high-order compact numerical integrators
- Che, Xiaoyu*, Joint modeling and analysis of recurrent and terminal events
- De Cecchis, Dany*, Development of a parallel coupler library with minimal inter-process synchronization
- Frumkin, Jesse Peter*, Induction of chromosome instability by gene dosage and over-expression in *saccharomyces cerevisiae*
- Glueck, Ruben Jeffrey*, Pseudo-spectral and Kronecker product methods for fourth order partial differential equations
- Lo, Shin-en*, A fire spread model using level set methods
- Moberly, Raymond Bion*, Quantization of a low-density parity-check (LDPC) decoder
- Navarro, Rafael*, Dynamical properties of Bose-Einstein condensates
- Schmieder, Robert Armin*, A framework for identifying antibiotic resistance in the human microbiome
- Shu, Jody Hewychun*, Autonomous voice and motion controlled video camera system for instructional technology
- Wilson, Jonathon Louis*, Advancements in elicitation, aggregation, and forecasting of probability distributions under time constraints

- Zarei, Sara*, Mathematical modeling of cystic fibrosis

Stanford University (23)

DEPARTMENT OF MATHEMATICS

- Bellovin, Rebecca*,  $p$ -adic Hodge theory in rigid analytic families
- Campbell, Jonathan*, Some results on  $K$ -theory, topological Hochschild homology, and parameterized spectra
- de Matos Geraldés Diogo, Luis*, Filtered Floer and symplectic homology via Gromov-Witten theory
- Fouladgar, Kaveh*, Regularity theory for the symmetric minimal surface equation
- Jiang, Yunjiang*, Mixing time of Markov chains on finite and compact Lie groups

- Kozai, Kenji*, Singular hyperbolic structures on pseudo-Anosov mapping tori
- Miller, Jeremy*, The topology of spaces of  $J$ -holomorphic maps to  $CP^2$
- Murphy, Emmy*, Loose Legendrian embeddings in high dimensional contact manifolds
- Nance, Tracy*, Equivariant algebraic  $k$ -theory of products of motivic circles
- Peng, Minyu*, Deviation inequalities for eigenvalues of deformed random matrices
- Pham, Ha*, A model diffractive boundary value problem on an asymptotically anti-de Sitter space
- Radziwill, Maksym*, Zero-distribution and size of the Riemann zeta-function on the critical line
- Rubinstein-Salzedo, Simon*, Controlling ramification in number fields
- Stiennon, Nisan*, The moduli space of real curves and a  $Z/2$ -equivariant Madsen-Weiss theorem
- Zhao, James*, A random walk through combinatorial probability
- Zhou, Xin*, On the variational methods for minimal submanifolds

DEPARTMENT OF STATISTICS

- Chen, Hao*, Two graph-based tests for high-dimensional inference
- He, Pei*, Non-proportional hazards in clinical trials with failure time endpoints
- Liao, Yueh-Wen*, Adaptive design of clinical trials with interim selection of treatment arms
- Mukherjee, Gourab*, Sparsity and shrinkage in predictive density estimation
- Ray, Nelson*, Topics in two-sample testing
- Simon, Noah*, Interactions and high dimensional data
- Su, Yong*, Statistical methods for dynamical panel data and their applications

University of California, Berkeley (48)

DEPARTMENT OF MATHEMATICS

- Bayer, Robertson*, Lowness for computational speed
- Berwick Evans, Daniel*, Supersymmetric signal models, partition functions, and the Chern-Gauss-Bonnet theorem
- Cramer, Scott*, The inverse limit reflection and the structure of  $L(V_{\lambda+1})$
- Cristofaro-Gardiner, Daniel*, Some results involving contact homology
- Critch, Andrew*, Algebraic geometry of hidden Markov and related models
- DeIonno, John*, Quasi-variational inequalities for source-expanding Hele-Shaw problems
- Donatelli, Jeffrey*, Reconstruction algorithms for x-ray nanocyst
- Dyatlov, Semyon*, Resonances in general relativity
- Erhard, Julia*, The Carlson-Simpson lemma in reverse mathematics

*Ettinger, Boris*, Well-posedness of the three-form field equation and the minimal surface equation in Minkowski space

*Ghosh, Subhroshekar*, Rigidity phenomena in random point sets

*Grip Barros Ramos, Vinicius*, The asymptotics of ECH capacities and absolute gradings on Floer homologies

*Halpern-Leistner, Daniel*, Geometric invariant theory and derived categories of coherent sheaves

*Hartglass, Michael*, Free probability, planar algebras and the multicolored Guinnot-Jones-Shylakhtenko construction

*Hengesbach, Conrad*, Prescribed mean curvature systems

*Hening, Alexandru*, Two models of default from finance and a model of invasion from ecology

*Igusa, Gregory*, Generic reduction, and work with partial computations and partial oracles

*Iveson, Sarah*, A special case of the  $k$ -Littlewood-Richardson rule for  $k$ -Schur functions

*Johnson-Freyd, Theodore*, Perturbative methods in path integration

*Kazi, Michael K.*, Reconstruction from volume fraction data using variational techniques and level set methods

*Kominiarczuk, Jakub*, Acyclic Monte Carlo

*Lin, Haijian Kevin*, Two studies of topological quantum field theory in two dimensions

*Martirosyan, Lilit*, The representation theory of the exceptional Lie superalgebras  $F(4)$  and  $G(3)$

*Oliveira e Silva, Diogo*, Oscillatory integrals and external problems in harmonic analysis

*Potter, Trevor*, Dynamics and stability of rolling viscoelastic tires

*Saye, Robert*, The Voronoi implicit interface method and applications to multiphase fluid flow and multiscale modeling of foam dynamics

*Seyfaddini, Sobhan*,  $C^0$  rigidity in Hofer geometry and Floer theory

*Tran, Hung*, Some new methods for Hamilton-Jacobi type nonlinear partial differential equations

*Voroninski, Vladislav*, Phaselift: A novel framework for phase retrieval

*Wilson, Trevor*, Contributions to descriptive inner model theory

*Yoo, Hwajong*, Modularity of residually reducible Galois representations and Eisenstein ideals

DEPARTMENT OF STATISTICS

*Abramson, Joshua*, Some minorants and majorants of random walks and Lévy processes

*Benjamini, Yuval*, Predictive models in neuroscience and bioinformatics

*Cai, Mu*, High dimensional covariance estimation and variable selection

*Gagnon-Bartsch, Johann*, Removing unwanted variation from microarray data with negative controls

*Heggeseth, Brianna*, Longitudinal cluster analysis with applications to growth trajectories

*Higgins, Michael*, Applications of integer programming methods to solve statistical problems

*Lee, Wayne*, Bayesian analysis in problems with high dimensional data and complex dependence structure

*Lin, Winston*, Essays on causal inference in randomized experiments

*Neeman, Joseph*, Isoperimetry and noise sensitivity in Gaussian space

*Purdy, David*, Sparse models for sparse data: Methods, limitations, visualizations, and ensembles

*Raskutti, Garvesh*, Large-scale sparse regression models under weak assumptions

*Ting, Daniel*, Graphs and combinatorial representations of stochastic processes

*Wang, Yueqing*, Aerosol retrieval using remote-sensed observations

GROUP IN BIostatISTICS

*Chaffee, Paul*, Targeted minimum loss based estimation for longitudinal data

*Kim, Kyung Pil*, Application of statistical methods to integrative analysis of genomic data

*Li, Jingyi (Jessica)*, Statistical and computational methods for analyzing high-throughput genomic data

*McLoughlin, Kevin Shane*, Modeling and analysis of oligonucleotide microarray data for pathogen detection

**University of California, Davis** (15)

DEPARTMENT OF MATHEMATICS

*Barrera-Rodriguez, Carlos*, A collection of multicurve complexes

*Dobrin, Adam*, Exploring the effects of enforced proximity in enzyme reaction kinetics

*Hildebrand, Robert*, Algorithms and cutting planes for mixed integer programs

*Hole, Jason*, Well-posedness of the free-boundary compressible 3-D Euler equations with surface tension and the zero surface tension

*Kemper, Yvonne*, Problems of enumeration and realizability on matroids, simplicial complexes, and graphs

*Mach, Paul*, Protein sequence design for fold recognition using a new quantification of protein geometry

*Travers, Nicholas*, Bounds on convergence of entropy rate approximations in hidden Markov processes

*Woei, Ernest*, Characterization and clustering of dendritic trees using morphological features extracted by graph spectra

*Xia, Jing*, Finding disease associated genes from microarray data

DEPARTMENT OF STATISTICS

*Chen, Jun*, Statistical methods for diffusion magnetic resonance imaging

*Chen, Senke*, Predictive modeling for clustered data with applications

*Gottlieb, Andrea*, Functional methods for stickiness and compositional longitudinal data

*Qiao, Wanli*, On estimation of filamentary structures

*Tan, Zheng*, Testing contagion in multivariate financial time series based on residual and recurrence times

*Wang, Lu*, Generalized exponential prediction for time series analysis

**University of California, Irvine** (19)

DEPARTMENT OF MATHEMATICS

*Chen, Meng*, Study of noise attenuation in feedback systems

*Choi, Timothy*, Kloosterman sums and  $L$ -functions

*Faubion, Zachary*, Improving the consistency strength of stationary set reflection at aleph omega plus one

*Gong, Keqin*, Portfolio optimization under multiscale volatility model

*Huang, Chien-Hao*, Random potentials for pinning models with interactions

*Huber, Kenn*, Disorder relevance in continuous time polymer models

*Jankans, Jeremy*, Tangent space of Chow variables

*Mei, May*, Spectral properties of primitive invertible substitution Schrödinger and Jacobi operators

*Moobed, Shabnam*, Multi-scale models of solid tumor growth from the cell level to the continuum

*Nguyen, Son*, The bootstrap multi-scale analysis for the multi-particle Anderson model

*Ovadia, Jeremy*, Computational modeling of tissue growth, organization, and patterning

*Pachas, William*, On the invariance principle and central limit theorems on stochastic flow

*Rael, Michael*, Results on the parabolic Anderson model

*Wang, Fan*, Fast calibration in SLV model

*Wang, Jingyu*, On the geometry of Beilinson quiver moduli spaces for  $P^2$

*Wong, Angela*, Primality test using elliptic curves with complex multiplication by  $Q(\sqrt{-7})$

*Wu, Min*, Modeling of microenvironmental fluid dynamics and vascular tumor growth

*Yessen, William*, Dynamical methods in one-dimensional quasi-periodic lattice models

*Yin, Deliang*, Paraxial coupling of electromagnetic waves in random media

**University of California,  
Los Angeles** (29)

DEPARTMENT OF BIostatISTICS, FIELDING  
SCHOOL OF PUBLIC HEALTH

- He, Ren*, Multiple imputation of high-dimensional mixed incomplete data
- Jeffries, Robin*, Sequential Bayesian regression for multiple imputation and conditional editing
- Liao, Eileen*, Challenges in high-throughput data analysis: Proteomic data pre-processing and network methods for integrating multiple data types
- Shih, Vivian*, Statistical methods for evaluating relational structures in multi-dimensional phenotypic data for neuropsychiatric disorders

DEPARTMENT OF MATHEMATICS

- Baron, Joshua*, Efficient secure computation and randomness
- Compton, Ryan*, Sparsity promoting optimization in quantum mechanical signal processing
- Givens, Clinton*, Measures of efficiency for secure multiparty computation
- Hall, Michael*, Spectral theory for semiclassical operators and artificial black holes
- Hammock, Frances*, POD investigations
- Lane, Matthew*, Generalized Atkin polynomials and non-ordinary hyperelliptic curves
- Liu, Wenjian*, The tightness of the Kesten-Stigum reconstruction bound
- McKinlay, Christopher*, Efficient algebraic representations for throughput-oriented algorithms
- Navkal, Viraj*,  $K'$ -theory of a Cohen-Macaulay local ring with  $n$ -cluster tilting object
- O'Brien, Michael*, The role of short-term synaptic plasticity in neural network spiking dynamics and in the learning of multiple distal rewards
- Palumbo, Justin*, Hechler forcing and its relatives
- Stomakhin, Alexey*, Part I: Reconstruction of missing data in social networks based on temporal patterns of interactions. Part II: Constitutive modeling in solid mechanics for graphics applications
- Sun, Hui*, Singular solutions and pattern formation in aggregation equations
- Taylor, David*, Moduli of hyperelliptic curves and invariants of binary forms
- Thamrongthanyalak, Athipat*, Extensions and smooth approximations of definable functions in  $O$ -minimal structures
- Tong, Melissa*, Restoration of images in the presence of Rician noise and in the presence of atmospheric turbulence
- Tserunyan, Anush*, Finite generators for countable group actions; finite index pairs of equivalence relations; complexity measures for recursive programs
- Yang, Jed*, Computational complexity and decidability of tileability

DEPARTMENT OF STATISTICS

- Fellows, Ian*, Exponential family random network models
- Fu, Fei*, Sparse causal network estimation with experimental intervention
- Hu, Wenze*, Integrating 3D and 2D representations for view invariant object recognition
- Jaynes, Jessica*, Contributions in design of experiments: Methods and applications
- Kukuyeva, Irina*, Array independent component analysis with application to remote sensing
- Yau, Nathan*, An online tool for personal data collection and exploration
- You, Jiashen*, A statistical modeling methodology for the analysis of term structure of credit risk and its dependency

**University of California,  
Merced** (1)

DEPARTMENT OF APPLIED MATHEMATICS

- Kumar, Nitesh*, Modeling dependence in data: Option pricing and random walks

**University of California,  
Riverside** (10)

DEPARTMENT OF MATHEMATICS

- Gumaer, Dennis*, A Jacobi field splitting theorem for positive curvature
- Highfield, Matthew*, Twisted graded Hecke algebras for elementary abelian groups
- Quinn, John*, Scale covariance of fractal sets and measures, a differential approach to the box-counting functions, with applications

DEPARTMENT OF APPLIED STATISTICS

- Ambartsoumian, Tatevik*, Cumulative sum algorithms based on nonparametric kernel density estimators
- Ban, Jifei*, Comparison of species assemblages using data depth and mixture model
- Fu, Yingzhou (Joyce)*, Statistical process control tools for network monitoring using generalized linear mixed models
- Hansen, Anne*, Goodness-of-fit tests for autoregressive logistic regression models and generalized linear mixed models
- Murillo, Gabriel*, SNP calling using genotype model selection on high-throughput sequencing data
- Yang, Cheng-Hsueh (Peter)*, Prediction intervals in generalized linear mixed models
- Yu, Yao*, Bayesian and non-parametric approaches to missing data analysis

**University of California,  
San Diego** (19)

DEPARTMENT OF MATHEMATICS

- Banham, Timothy*, A phase field model for cell shapes: Gamma-convergence and numerical simulations

*Berglund, James*,  $\mathbb{Z}$ -graded maximal orders of GK 3

- Duane, Adrian Scott Campe*, Pattern matching statistics in the permutations and the alternating permutations
- Eustis, Alex*, Hypergraph independence numbers
- Hall, James*, Convergence of Galerkin variational integrators for vector spaces and Lie groups
- Hicks, Angela*, Parking function polynomials and their relation to the Shuffle Conjecture
- Hughes, Jacob*, Stochastic processes arising from graph manipulations
- Hummon, Benjamin*, Surface diagrams for Gray categories
- Jones, Miles*, Consecutive matches in permutations and cycles
- Kenter, Franklin H. J.*, On spectral properties of graph coloring, directed graphs, and hypergraphs
- Kungurtsev, Vyacheslav*, Second derivative sequential quadratic programming methods for nonlinear optimization
- Lipshutz, David*, Existence, uniqueness and stability of slowly oscillating periodic solutions for delay differential equations with non-negativity constraints
- Meier, Caleb*, Generalized solutions and non-uniqueness in the Einstein constraint equations: Some unresolved issues with the conformal formulation
- Metti, Maximilian Sloan*, Analysis of some higher order space-time moving finite element methods
- Oliver, Jesus*, A vector field method for non-trapping spacetimes
- Parrish, Andrew*, Adventures in graph Ramsey theory
- Serencsa, Jonathan*, A development of discretization techniques for some elliptic and hyperbolic PDE
- Wilson, Ben*, Topics in Khovanov homology
- Yang, Bo*, Some results on gradient Ricci solitons and complete Kähler manifolds with nonnegative curvature

**University of California,  
Santa Barbara** (17)

DEPARTMENT OF MATHEMATICS

- Albrecht, Brent*, Optimal mass transport and curvature bounds
- Brighton, Kevin*, Geometry of nonnegatively curved smooth metric spaces
- Cass, Jonathan*, Generalized arithmetic functions
- Chang, Liang*, Non-semisimple generalizations of Turaev-Viro TQFTs and their lattice model realizations
- Grano, Ellie*, Algorithms for planar algebras
- Kabbabe, Tomas*, In search of exceptional collections

*Kennedy, Kathleen Grace*, A diagrammatic multivariate Alexander invariant of tangles

*Martin, Charles*, Variational methods in potential theory and planar elliptic growth

*Plunkett, Laura*, An analysis of shape, scaling and knotting in polymer models with and without excluded volume

*Thompson, Keith*, Group actions on spaces with surface quotients

*Valdman, David*, Spectral methods for analyzing biological polymers

*Yoshizawa, Michael*, High distance Heegaard splittings via Dehn twists

DEPARTMENT OF STATISTICS AND APPLIED PROBABILITY

*Gao, Chunkai*, Diversification, systemic default and regulation

*Kim, Mee-Kyung*, Semi-parametric mixed-effect models for the analysis of QT intervals

*Kulikova, Varvara*, Mixture tests with contributions to the analysis of times between events in a LOB

*Ren, Bin*, Asymptotic behavior of worst case scenario prices in uncertain volatility models

*Shen, Qunying*, European option pricing in liquid markets

**University of California, Santa Cruz** (11)

APPLIED MATHEMATICS AND STATISTICS DEPARTMENT

*He, Yuning*, Variable-length functional output prediction and boundary detection for an adaptive control simulator

*Wang, Ziwei*, A Bayesian nonparametric modeling framework for extreme value analysis

DEPARTMENT OF MATHEMATICS

*Batoreo, Marta*, Coisotropic symplectic topology and periodic orbits in symplectic dynamics

*Howard, Wyatt*, The Monster Tower and action selectors

*Jiao, Kiangyu*, Quantum dimensions and quantum Galois theory

*Nitz, Frederic*, On lattice-like subgroups of Witt group schemes, and associated moduli spaces

*O'Hare, Shawn*, Fusion systems and biset functors via ghost algebras

*Shanbrom, Corey*, Two problems in sub-Riemannian geometry

*Shelley, Christopher*, An arithmetic construction of the Gaussian and Eisenstein topographs

*Xu, Zhe*, Spectral gaps of random Hecke operators

*Yu, Nina*, Representations of vertex operator algebras

**University of Southern California** (14)

DEPARTMENT OF MATHEMATICS

*Courter, Rebecca*, Computing higher indicators for the double of a symmetric group

*Dreyer, Guillaume*, Geometric properties of Anosov representations

*Du, Jie*, Stochastic games on stopping time

*Huang, Yang*, Homotopy classes of 2-plane fields in low dimensional topology

*Ko, Hong Fu*, Recurrence and Renyi entropy

*Lin, Ning*, Estimation on coefficients in stochastic differential equations

*Moers, Michael*, Statistical inference of stochastic differential equations driven by Gaussian noise

*Nibert, Joel*, Invariant measures of a stochastic predator prey model

*Pham, Triet*, Zero-sum stochastic differential games in weak foundation and related norms for semi-martingales

*Song, Jinlin*, Time-sequential testing for multiple hypotheses

*Wang, Huanhuan*, Asset management with incomplete information

*Wang, Xin*, Nonlinear expectations for continuous time model with jumps and applications

*Xu, Shanshan*, Non-parametric multivariate regression hypothesis testing

*Zhong, Jie*, Second order in time stochastic evolution equation and Wiener chaos approach

**COLORADO**

**Colorado School of Mines** (2)

DEPARTMENT OF APPLIED MATHEMATICS AND STATISTICS

*Lucero, Christian*, Bayes risk A-optimal experimental design methods for ill-posed inverse problems

*Thompson, Ty*, Algorithms and analysis for simulation of deterministic and stochastic Ginzburg-Landau models

**Colorado State University** (9)

DEPARTMENT OF MATHEMATICS

*Bayens, Luke*, Hyperovals, Laguerre planes and hemisystems—an approach via symmetry

*Brake, Daniel*, Homotopy continuation methods, intrinsic localized modes, and cooperative robotic workspace

*Marks, Justin*, Mean variants on matrix manifolds

*Rohrbacker, Nicholas*, Sparse multivariate analyses via  $l_1$ -regularized optimization problems solved with Bregman iterative techniques

*Williams, Cassandra*, Conjugacy classes of matrix groups over local rings and an application to the enumeration of abelian varieties

*Zou, Yang*, Spatiotemporal complexity in Ginzburg Landau equations for anisotropic systems

DEPARTMENT OF STATISTICS

*Dahlke, Markk*, Survey sampling with nonparametric regression: Endogenous post-stratification and penalized instrumental variables

*Hernandez-Stumpfhauser, Daniel*, Bayesian analysis of directional data based on the projected normal distribution

*Weller, Grant*, Joint tail modeling via regular variation with applications in climate and environmental studies

**University of Colorado, Boulder** (26)

DEPARTMENT OF APPLIED MATHEMATICS

*Alexander, Zachary*, A topology-based approach for nonlinear time series with applications in computer performance analysis

*Baldwin, Douglas*, Dispersive shock wave interactions and two-dimensional ocean-wave soliton interactions

*Biagioni, David*, Numerical construction of Green's functions in high-dimensional elliptic problems with variable coefficients and analysis of renewable energy data via sparse and separable approximations

*Fox, Adam*, Destruction of invariant tori in volume-preserving maps

*Hammond, Jason*, Analysis and simulation of partial differential equations in mathematical biology: Applications to bacterial biofilms and Fisher's equation

*Hampton, Jerrad*, Dissimilarity and optimal sampling in urn ensembles

*Kaslovsky, Daniel*, Analysis of high-dimensional data

*Lewis, Ryan*, Nonlinear approximations in filter design and wave propagation

*Lipinski, Douglas*, Efficient ridge tracking algorithms for computing Lagrangian coherent structures in fluid dynamics applications

*Liu, Kuo*, Hybrid first-order system least-squares finite element methods with the application to Stokes and Navier-Stokes equations

*Mosovsky, Brock*, Finite-time transport in aperiodic dynamical systems

*Reeger, Jonah*, A computational study of the fourth Painlevé equation and a discussion of Adams predictor-corrector methods

*Reynolds, Matthew*, Nonlinear approximations in tomography, quadrature construction, and multivariate reductions

*Skardal, Per Sebastian*, Periodic behavior in cardiac tissue: Dynamics

*Taylor, Dane*, Spectral theory for the robustness and dynamical properties of complex networks

*Villavert, John*, The analysis of some nonlinear partial differential equations

*Wu, Yuqi*, Parallel scalable domain decomposition methods for simulating blood flows in three-dimensional compliant arteries

DEPARTMENT OF MATHEMATICS

*Christenson, Bryce*, The real homotopy type of singular spaces via the Whitney-de Rham complex

*Cong, Cui*, Implicit space-time domain decomposition methods for stochastic parabolic partial differential equations

*Gern, Tyson*, Leading coefficients of Kazhdan-Lusztig polynomials in type D

*Kish, Jonathan*, Harmonic analysis on the positive rationals: Multiplicative functions and exceptional Dirichlet characters

*Ma, Chao*, Qualitative and quantitative analysis of nonlinear integral and differential equations

*Martinez, Michael*, The relative  $K$ -theory of an algebraic pair

*McGregor-Dorsey, Zachary*, Some properties of full heaps

*Moore, Matthew*, The undecidability of the definability of principal subcongruences

*Wakefield, Nathan*, Primitive divisors in generalized iterations of Chebyshev polynomials

**University of Colorado, Denver** (3)

DEPARTMENT OF BIostatISTICS

*Horton, Kenneth*, A multiple-subject analysis of pulsatile hormones using birth-death Markov chain Monte Carlo

*Pyle, Laura*, Inference for incompletely observed longitudinal endpoints in clinical trials with application to trial monitoring

*Sillau, Stefan*, Local likelihood non-parametric and semi-parametric methods for longitudinal data applied to a study of air pollution and asthma

**University of Denver** (2)

DEPARTMENT OF MATHEMATICS

*Greer, Mark*, Loops and their permutation groups

*Kirshtein, Jenya*, Cayley-Dickson loops

**University of Northern Colorado** (2)

SCHOOL OF MATHEMATICAL SCIENCES

*Glassmeyer, David*, Secondary teacher models of quantitative reasoning

*Yestness, Nissa*, A study of undergraduate students' use of diagrams in understanding and constructing proofs about groups, subgroups, and isomorphisms

CONNECTICUT

**University of Connecticut, Storrs** (14)

DEPARTMENT OF MATHEMATICS

*Daniels, Harris*, Siegel functions, modular curves and Serre's uniformity problem

*Feinberg, Gabriel*, Homogeneous representations of Khovanov-Lauda-Rouquier algebras

*Mututhanthrige-Perera, Sirani*, Quasiseparable approach to matrices of Vandermonde type

*Ren, Hua*, Myers inequality for stable-like operators and pathwise uniqueness of SDEs with jumps

*Sarukkali, Milanthi*, Replicated stratified sampling for sensitivity analysis

DEPARTMENT OF STATISTICS

*Bharath, Karthik*, Inference for discretely observed processes

*Chattopadhyay, Bhargab*, Performance of U-statistics having kernels of degree higher than two in inference problems with applications

*Hu, Shan*, Dynamic modeling of discrete-valued time series with applications

*Li, Wenqing*, Bayesian design of non-inferiority clinical trials

*Liu, Ran*, Clustering, classification and segmentation of 3-dimensional images

*Wei, Ziwen*, Bayesian methodologies for time-course gene expression data and clinical trial data

*Wu, Rui*, Theory and method for estimating Bayesian posterior marginal density and normalizing constant based on inflated density ratio with applications

*Yao, Hui*, Maximum likelihood and Bayesian inference of meta-analysis regression models

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### Iowa State University (25)

DEPARTMENT OF MATHEMATICS

*Al-Sa'di, Sa'ud*, Sampling and interpolation in Hilbert spaces of entire functions

*Aydogmus, Ozgur*, Non-local interactions in spatial evolutionary games

*Huang, Yuanyuan*, Statistical summary of protein structures

*Hwang, Sukjung*, Hölder regularity of solutions of generalized  $p$ -Laplacian type parabolic equations

*Li, Zhen*, Stochastic homogenization of elliptic equation and optimal control

*Olmez, Oktay*, On highly regular digraphs

*Park, Jun Koo*, Normal mode analysis and Gaussian network model

*Tang, Chunquan*, Mixed boundary value problems for quasilinear elliptic equations

*Tims, Geoff*, Haemers' minimum rank

*Yu, Hui*, On entropy satisfying and maximum-principle-satisfying high-order methods for Fokker-Planck equations

DEPARTMENT OF STATISTICS

- Chen, Sixia*, Efficient estimation in missing data and survey sampling problems
- Ji, Tieming*, Borrowing information across genes and experiments for improved error variance estimation in microarray data analysis and statistical inferences for gene expression heterosis
- Joseph, Maria Lavonne*, Threshold value estimation in the presence of covariate measurement error
- Kraemer, Kari Angela*, Confidence intervals for variance components and functions of variance components in the random effects model under non-normality
- Orr, Megan Cristina*, Assessing differential expression when the distribution of effect sizes is asymmetric and evaluating concordance of differential expression across multiple gene expression experiments
- Pazdernik, Karl T.*, Alternative approaches to maximum likelihood estimation of the spatial random effects model
- Qiu, Yu*, Isotropic distributions for 3-dimension rotations and one-sample Bayes inference
- Schmidt, Kristian*, Modeling cash frequency data
- Si, Yaqing*, Statistical analysis of RNA-SEQ data from next-generation sequencing technology
- Tian, Ye*, Estimating a parametric lifetime distribution from superimposed renewal process data
- Trapp, Allan Francis*, Applications of non-parametric kernel smoothing estimators in Monte Carlo risk assessments
- Wang, Heng*, Application of order restricted statistical inference and hidden Markov modeling to problems in biology and genomics
- Xu, Ruo*, Improvements to random forest methodology
- Xu, Zheng*, Essays on GMO effects on crop yields, the effects of pricing errors on implied volatilities and smoothing for seasonal time series with a long cycle
- Zoh, Roger Sai*, Using the negative log-gamma distribution for Bayesian system reliability assessment

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- Diedrichs, Danilo*, A mathematical model of the unfolded protein response to stress in the endoplasmic reticulum of mammalian cells under stress
- Graham, Jason*, Mathematical representations in musculoskeletal physiology and cell motility
- Li, Bin*, Look-back stopping times and their applications to liquidation risk and exotic options
- Tsuruta, Kai*, Construction of the wave operator for non-linear dispersive equations

DEPARTMENT OF BIOSTATISTICS

- Foster, Eric D.*, State-space time series clustering using discrepancies based on the Kullback-Leibler information and Mahalanobis distance
- Kliethermes, Stephanie A.*, A Bayesian nonparametric approach to modeling longitudinal growth curves with non-normal outcomes
- Mills, Elizabeth Dastrup*, Adjusting for covariates in zero-inflated gamma and zero-inflated log-normal models for semicontinuous data
- Shen, Shihao*, Statistical methods for RNA sequencing
- Zhang, Tao*, Discrepancy-based algorithms for best-subset model selection

DEPARTMENT OF MATHEMATICS

- Averett, Syvillia*, Some representations of  $Sl_*(2, A)$
- De la Mora, Carlos*, Explicit Plancherel measure for  $PGL_2(\mathbb{F})$
- Gaebler, David*, Unital dilations of completely positive semigroups
- Greene, Andrew*, Extensions of Hilbert models over tensor algebras
- Insko, Erik*, Equivariant cohomology and local invariants of Hessenberg varieties
- Juett, Jason*, Some topics in abstract factorization
- Niedzialomski, Robert*, Extension of positive definite functions
- Price, Candice*, A biological application for the oriented skein relation
- Schirmer, Trenton*, Two varieties of tunnel number subadditivity
- Talbott, Shannon*, Universal deformation rings of modules for algebras of dihedral type of polynomial growth
- Udrea, Bogdan*, Applications of deformation rigidity theory in von Neumann algebras
- Welch, Stephen*,  $C^{1,\alpha}$  regularity for boundaries with prescribed mean curvature
- Wright, Carmen*, Some representation theory for  $Sl^*(2, A)$  where  $A = M(2, O/p^2)$  and  $*$  equals transpose
- Zupan, Alexander*, Thin position, bridge structure, and monotonic simplification of knots

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- Li, Jinzheng*, Statistical detection with weak signals via regularization
- Yuan, Zhongyi*, Quantitative analysis of extreme risks in insurance and finance

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- Fan, Zhaobing*, Geometric approach to Hall algebra and character sheaves

- Lee, Ik Jae*, A new generalization of the Khovanov homology
- Majard, Dany*, Cubical categories, TQFTs and new possible representations of the Poincaré group
- Moore, Todd*, What calculus do students learn after calculus?
- Natarajan, Rekha*, Application and analysis of just in time teaching methods in a calculus course
- Saleh, Ibrahim*, Cluster automorphisms and hyperbolic cluster algebras
- Silwal, Sharad*, Harnack's inequality in spaces of homogeneous type
- Teka, Kubrom*, The obstacle problem for second order elliptic operators in nondivergence form
- Zhang, XiaoJing*, A law of the iterated logarithm for general lacunary series

DEPARTMENT OF STATISTICS

- Demel, Seth*, Modeling and computation of multivariate datasets in space and time
- Keating, Karen*, Analysis of pyrosequence data
- Zheng, Lianqing*, Statistical identification of metabolic reactions catalyzed by gene products of unknown function

**University of Kansas (7)**

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- Brucal Hallare, Maila*, Solutions of lattice differential equations over inhomogeneous media
- Hart, Jarod*, Bilinear Littlewood-Paley square functions and singular integrals
- Lamb, Charles*, Neutral equations of mixed type
- Lei, Pedro*, On the self-similar Gaussian processes
- Lu, Fei*, Some applications of Malliavin calculus to SPDE and convergence of densities
- Oh, Seungly*, Normal form approach for dispersive equations with low-regularity data
- Stone, Branden*, Super-stretched and countable Cohen-Macaulay type

**Wichita State University (2)**

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- Khanfer, Ammar*, On the existence of central fans of capillary surfaces
- Metheny, Maryssa*, Covariance structures of Gaussian and log-Gaussian vector stochastic processes

**KENTUCKY**

**University of Kentucky (4)**

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- Hineman, Jay*, The hydrodynamic flow of nematic liquid crystals in  $\mathbb{R}^3$
- Walker, Ryan*, On a Paley-Wiener theorem for the ZS-AKNS scattering transform
- Wilfong, Andrew*, Toric varieties and cobordism

DEPARTMENT OF STATISTICS

*Wang, Zilong*, Analysis of binary data via spatial-temporal autologistic regression models

**University of Louisville (2)**

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*Caragianis, Christophe*, Connected matchings in special families of graphs

*Leidner, Maxfield*, A study of the total coloring of graphs

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**LSU Health Science Center, New Orleans (3)**

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*Burton, Jeffrey*, Improved hypothesis tests for linear combinations of fixed effects parameters in nonlinear random effects models

*Fan, Ying*, Multiple mediation analysis for general predictive models

*Yang, Shengping*, Normalization and genotyping methodologies for single nucleotide polymorphism array and next-generation sequencing data

**Louisiana State University, Baton Rouge (14)**

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*Armond, Cody*, The head and tail conjecture for alternating knots

*Gruszka, Aleksandra*, Some tracking problems for aerospace models with input constraints

*Gu, Shiyuan*,  $C^0$  interior penalty methods for Cahn-Hilliard equations

*Ho, Vivian*, Paley-Wiener theorem for line bundles over compact symmetric spaces

*Huang, Lingyan*, Subgradient formulas for optimal control problems with constant dynamics

*Jacobson, Jeremy*, On the Witt groups of schemes

*McCarty, Benjamin*, Hypercube diagrams for knots, links, and knotted tori

*Nan, Zhe*, Application of Helmholtz/Hodge decomposition to finite element methods for two-dimensional Maxwell's equations

*Russell, Amber*, Graham's variety and perverse sheaves on the nilpotent cone

*Szozda, Benedykt*, The new stochastic integral and anticipating stochastic differential equations

*Tao, Ming*, Large deviations for stochastic Navier-Stokes equations with nonlinear viscosities

*Windsberger, Lee*, Operational methods for evolution equations

*Xuanting, Cai*, Skein theory and topological quantum field theory

*Yue, Chen*, Resonance and double negative behavior in metamaterials

**Louisiana Technology University (7)**

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*Atkins, Scott Alan*, Event shapes in proton-antiproton collisions at a center-of-mass energy=1.96 TeV

*Cheng, Yuan*, New microarray image segmentation using segmentation based contours method

*Idowu, Richard*, A study of cellular calcium dynamics in culture using fluorescence microscopy—A statistical and mathematical approach

*Rahman, Khandaker Abir*, Snoop-forge-replay attack on continuous verification with keystrokes

*Saini, Sheetal*, Adaptive grid based localized learning for multidimensional data

*Thanakornworakij, Thanadech*, Reliability models for HPC applications and a cloud economic model

*Thompson, Sr., Mark Anthony*, Predicting threat potential using cyber sensors

**Tulane University (2)**

DEPARTMENT OF MATHEMATICS

*Meyer, Karlene*, Distance-weighted neighboring sites models for methylation pattern inheritance

*Twelbeck, Tim*, Shellability of the Bruhat order on Borel orbit closures

**University of Louisiana at Lafayette (6)**

DEPARTMENT OF MATHEMATICS

*Lennon IV, Matthew J.*, Intrinsic and dense intrinsic extensions of rings

*Ma, Baoling*, Long-time solution behavior and higher order numerical schemes for structured population models

*Ryan, Chris E.*, Fully invariant modular decompositions using pairwise comaximal ideals

*Xie, Fang*, Tolerance intervals for some continuous and discrete distributions

*Xu, Zhao*, Inferences on lognormal distributions based on samples with multiple detection limits

*Zhang, Dan*, Test and interval estimation methods for binomial and Poisson distributions

MARYLAND

**Johns Hopkins Bloomberg School of Public Health (3)**

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*Li, Shanshan*, Statistical methods for evaluating diagnostic accuracy of biomarkers

*Parker, Hilary*, Statistical approaches for the removal of batch effects in genomic studies

*Wu, George*, Statistical methods for the integrative analysis of high-throughput genomic data

**Johns Hopkins University, Baltimore (8)**

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*Cao, Xumeng*, Relative performance of expected and observed Fisher information matrix in covariance estimation for maximum likelihood estimates

*Lin, Peter*, A paradigm shift in interest-rate modeling

*Liu, Peng*, Optimal liquidation of credit and equity derivatives portfolios

*Lyzinski, Vincent*, Intertwinings, interlacing eigenvalues and strong stationary duality for diffusions

*Sanchez Vega, Francisco*, Learning of multivariate distributions with compositional graphical models

*Sedlock, Matthew*, Site percolation thresholds and critical exponents in inhomogeneous percolation models

DEPARTMENT OF MATHEMATICS

*Hussey, Caleb*, Classification and analysis of low index mean curvature flow self-shrinkers

*Shahriyari, Leili*, Translating graphs by mean curvature flow

**University of Maryland, Baltimore County (7)**

DEPARTMENT OF MATHEMATICS AND STATISTICS

*Danaher, Michelle*, Biospecimen assessment

*Gao, Zhong*, On multistage adaptive biomarker-directed clinical trial design

*Gopalakrishnan, Mathangi*, Validations of surrogate endpoints by Bayesian equivalence testing

*Saraf, Sanatan*, Statistical validation of surrogate endpoints using equivalence testing

*Sun, Anna*, Applying weighted GEE for missing data analysis and sample size estimation in repeated measurement studies with dropout

*Thompson, Stephen*, Anomalous diffusion in subsets of Euclidean space

*Wouhib, Abera*, Exploring methods of estimating heterogeneity parameters in statistical meta-analysis

**University of Maryland, College Park (25)**

DEPARTMENT OF MATHEMATICS

*Angelos, Bryant*, The hunt variance gamma process with applications to option pricing

*Bradford, Jeremy*, Commutative endomorphism rings of simple Abelian varieties over finite fields

*Duke, Kevin*, A study of the relationship between spectrum and geometry through Fourier frames and Laplacian eigenmaps

*Dussault, Benjamin*, Modeling and solving ARC routing problems in street sweeping and snow plowing

*Franco, Carolina*, Selected problems in multi-sample statistical inference

*Gao, Peng*, A multivariate stochastic Levy correlation model with integrated Wishart time change and its application in option pricing

*Ghosh, Debojyoti*, Compact-reconstruction weighted essentially non-oscillatory schemes for hyperbolic conservation laws

*Guo, Wei*, Exploring and modeling of bidding behavior and strategies of online auctions

*Ha, Neung Soo*, Hierarchical Bayesian estimation of small area mean using complex survey data

*Hu, Wenqing*, Asymptotic problems in stochastic processes and differential equations

*Jorstad, Anne*, Measuring deformation and illumination changes in images with applications to face recognition

*Li, Jing*, Analysis of repeated measures in the presence of missing observations due to dropout

*Miroshnikov, Alexey*, A variational approximation scheme for radial polyconvex elasticity that preserves the positivity of determinants

*Rainwater, Sabrina*, Nonlinear and multiresolution error covariance estimation in ensemble data assimilation

*Sanders, Andrew*, Minimal surfaces, hyperbolic 3-manifolds and related deformation spaces

*Schmitt, Karl*, Network algorithms for complex systems with applications to nonlinear optics and genome assembly

*Schug, David*, Three dimensional edge detection using wavelet and shearlet analysis

*Sibley, Benjamin*, Asymptotics of the Yang-Mills flow for holomorphic vector bundles over Kähler manifolds

*Suntornchost, Jiraphan*, Analysis of models for epidemiologic and survival data

*Wang, Rongrong*, Global geometric conditions on sensing matrices for the success of  $\ell_1$  minimization algorithms

*Wu, Minghao*, Linear stability analysis using Lyapunov inverse iteration

*Wu, Weiqiang*, On embedded spheres of affine manifolds

*Xue, Jinxin*, Non-collision singularities in a planar two-center-two-body problem

*Yan, Jin*, Reversible jump hidden Markov model analysis of longitudinal data with medical applications

*Zhou, Wen*, Out-of-sample fusion

## MASSACHUSETTS

### Boston College (1)

DEPARTMENT OF MATHEMATICS

*Hansen, David*, Overconvergent cohomology: Theory and applications

### Boston University (1)

DEPARTMENT OF MATHEMATICS AND STATISTICS

*Sweet, Ross*, Extended unoriented topological field theories and  $G$ -extended Frobenius algebras

### Boston University School of Public Health (9)

DEPARTMENT OF BIOSTATISTICS

*Chen, Han*, Statistical methods for genetic association studies: Multi-cohort and rare genetic variants approaches

*Cheng, Hai Long*, Meta-analysis of safety data: Approximation of arcsine transformation and application of mixture distribution modeling

*Dufour, Alyssa Beth*, Cluster analysis of longitudinal trajectories

*Guo, Wei*, Sample size re-estimation in active controlled non-inferiority clinical trials using a frequentist approach

*Himali, Jayandra Jung*, Effect of selection of censoring times on survival analysis estimation of disease incidence and association with risk factors

*Louie-Gao, Qiong*, Multiple phenotype modeling in pleiotropic effect studies of quantitative trait loci

*Lustgarten, Stephanie*, Non-parametric Bayesian prediction of landmark times for analysis of failure-time data

*Moser, Carlee Brooks*, A Bayesian framework for incorporating multiple data sources and heterogeneity in the analysis of infectious disease outbreaks

*Wang, Ke*, Multistate Markov chain transition models for clustered longitudinal categorical data: Application to a knee pain severity study

### Brandeis University (7)

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*Burchardt, Alyson*, The Hausmann-Weinberger 4-manifold invariant of right-angled Artin groups

*Charis, Alexander*, Mod  $p$  representations of reductive  $p$ -adic groups

*Graham, Matthew*, Studying surfaces in 4-dimensional space using knot Floer homology

*Majumdar, Dipramit*, Geometry of the eigencurve at critical Eisenstein series of weight 2

*Merrill, Keith*, Some results of intrinsic approximation

*Moynihn, Matthew*, The flag descent and the colored Eulerian descent algebra

*Vijayan, Anna*, Compactifying the space of length functions of a right-angled Artin group

### Harvard University (9)

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*Kaplan, Nathan*, Rational point counts for del Pezzo surfaces over finite fields and coding theory

*Lin, Yu-Shen*, Open Gromov-Witten invariants on elliptic K3 surfaces and wall-crossing

*Patel, Anand Pankaj*, The geometry of Hurwitz space

*Sung, Yih*, Holomorphically parametrized  $L^2$  Cramer's rule and its algebraic geometric applications

*Tiozzo, Giulio*, Entropy, dimension and combinatorial moduli for one-dimensional dynamical systems

*Tsai, Pei-Yu*, On newforms for split special odd orthogonal groups

*Wang Ericson, Carl William*, Moduli of Galois representations

*Wang, Xiaoheng*, Pencils of quadrics and Jacobians of hyperelliptic curves

SCHOOL OF ENGINEERING AND APPLIED SCIENCES

*Owrutsky, Philip*, Periodic pulsed controllability with applications to NMR

### Harvard University School of Public Health (12)

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*Cefalu, Matthew*, Statistical methods for effect estimation in biomedical research: Robustness and efficiency

*Correia, Andrew*, Estimating the health effects of environmental exposures: Statistical methods for the analysis of spatio-temporal data

*Goyal, Ravi*, Estimating network features and associated measures of uncertainty and their incorporation in network generation and analysis

*Li, Shuli*, Estimating and testing treatment effects and covariate by treatment interaction effects in randomized clinical trials with all-or-nothing compliance

*Qiao, Dandi*, Statistical approaches for next-generation sequencing data

*Quiroz Zarate, Alejandro*, Deciphering the biological mechanisms driving the phenotype of interest

*Sharkey, Brian*, Statistical methods for the assessment of safety and efficacy in HIV clinical trials

*Sinnott, Jennifer*, Kernel machine methods for risk prediction with high dimensional data

*Swanson, David*, Hypothesis testing in GWAS and statistical issues with compensation in clinical trials

*Valeri, Linda*, Statistical methods for causal mediation analysis

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*White, Richard*, Novel statistical methods applied in clinical trials and gut microbiota

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*Boyle, Elette*, Secure multi-party protocols under a modern lens

*Chiu, Jiawei*, Matrix probing, skeleton decompositions, and sparse Fourier transform

*Clausen, Dustin*, Arithmetic duality in algebraic K-theory

*Fortuna, Giorgia*, Beilinson-Bernstein localization theorem for the affine Grassmannian

*Halldórsson, Hoeskuldur*, Self-similar solutions to the mean curvature flow in Euclidean and Minkowski space

*Haugsgeng, Rune*, Weakly enriched higher categories

*Horel, Geoffroy*, Operads, modules and higher Hochschild cohomology

*Khandhawit, Tirasan*, Twisted Manolescu-Floer spectra for Seiberg-Witten monopoles

*Levin, Alex*, Graphs, matrices, and populations: Linear algebraic techniques in theoretical computer science and population genetics

*Li, Nan*, Combinatorial aspects of polytope slices

*Loh, Po-Ru*, Algorithms for genomics and genetics: Compression-accelerated search and admixture analysis

*Marberg, Eric*, Coxeter systems, multiplicity free representations, and twisted Kazhdan-Lusztig theory

*Molacek, Jan*, Bouncing and walking droplets: Towards a hydrodynamic pilot-wave theory

*Pereira, Luis*, Goodwillie calculus and algebras over a spectral operad

*Singh, Bhairav*, Some results related to the quantum geometric Langlands program

*Suh, Uhi Rinn*, Structure of classical  $W$ -algebras

*Ullman, John*, On the regular slice spectral sequence

*Yan, Zhang*, The combinatorics of Adinkras

*Yun, Taedong*, Diagrams of affine permutations and their labellings

## Northeastern University (5)

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*Galetto, Federico*, Free resolutions of orbit closures for representations with finitely many orbits

*Helfand, Ilanit*, Constructions of  $k$ -orbit abstract polytopes

*Russell, Jeremy*, A functional approach to linkage and the asymptotic stabilization of the tensor product

*Shafiei, Masoumeh*, Apolarity for the determinant and permanent

*Stella, Salvatore*, Discrete structures in finite type cluster algebras

## Tufts University (3)

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*Chen, Donghui*, Numerical methods for edge preserving image restoration

*Lim, Kyung-Taek*, The spherical mean value operator on Euclidean and hyperbolic spaces

*Ryvkina, Jelena*, Fractional Brownian motion with variable Hurst parameter

## University of Massachusetts, Amherst (4)

DEPARTMENT OF MATHEMATICS AND STATISTICS

*Gasca-Aragon, Hugo*, Data combination from multiple sources under measurement error

*Shen, Yannan*, On models of short pulse type in continuous media

*Tanguay, Allison*, New bilinear estimates for quadratic-derivative nonlinear wave equations in  $2 + 1$  dimensions

*Zhao, Yue*, Improved computational methods for Bayesian tree models

## Worcester Polytechnic Institute (3)

MATHEMATICAL SCIENCES DEPARTMENT

*Bhatta, Dilli*, A Bayesian test of independence for two-way contingency tables under cluster sampling design

*Borges, Carlos*, A multifrequency method for the solution of the acoustic inverse scattering problem

*Liang, Haodong*, Fractal interfaces and heat transmission problems

## MICHIGAN

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*Balm, Cheryl*, Topics in knot theory: On generalized crossing changes and the additivity of the Turaev genus

*Chen, Tianran*, Projective path tracking for homotopy continuation method

*Deng, Wei*, Study of a class of Landau-Lifshitz equations of ferromagnetism without exchange energy

*Kwon, Oh*, Conceptualizing vectors in college geometry: A new framework for analysis of student approaches and difficulties

*Lawlor, David*, Sub-linear Fourier algorithms: Theory and implementation

*Musselman, Bernard*, Diffusion for Markov wave equations

*Pattakos, Nikolas*, Continuity of weighted estimates in harmonic analysis with respect to the weight

*Van Groningen, Gerard*, Implicit solutions to the wave equation based on the method of lines transpose

*Weiwen, Gu*, A decomposition algorithm of skew-symmetric and skew-symmetrizable exchange matrices

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*Cao, Guanqun*, Statistical inference for functional and longitudinal data

*Li, Xiaoyu*, Testing of the regression functions when responses are missing at random

## Michigan Technical University (4)

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*Al-Jamal, Mohammad*, Numerical solutions of elliptic inverse problems via the equation error method

*Dai, Yilin*, Statistical methods for multi-marker testing in genetic association studies

*Fang, Shurong*, Statistical methods for rare and common variant association studies

*Molzon, Raymond*, Berry-Esseen bounds for nonlinear statistics, and asymptotic relative efficiency between correlation statistics

## Oakland University (1)

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*Lolla, Madhuri*, Comparison of numerical methods for 2D crystals under anisotropic surface free energy and through evolution

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*Boonstra, Phil*, Shrinkage methods utilizing auxiliary information to improve high-dimensional prediction models

*Gao, Xin*, Causal modeling with principal stratification to assess effects of treatment with partial compliance, non-compliance, and principal surrogacy in longitudinal and time-to-event settings

*Gong, Qi*, Semiparametric methods for estimating the effect of a longitudinal covariate and time-dependent treatment on survival using observational data with dependent censoring

*He, Zhi*, Semi-parametric and parametric methods for the analysis of multi-center survival data

*Hu, Chen*, Semiparametric regression models for disease natural history and multiple events in cancer research

*Hu, Youna*, Statistical methods on emerging medical studies

*Jia, Nan*, Generalized statistical approaches for the design for phase I trials

*Lee, Oliver*, Permutation tests for random effects in mixed models

*Li, Yijiang*, Optimization and simulation of kidney paired donation programs

*Ma, Yu*, Analysis of marked recurrent events in the presence of a terminating event

*Maitra, Samopriyo*, Applications of circular distributions and spatial point processes to the analysis of periodontal data

*Sun, Rena*, Evaluating failure outcomes with applications to transplant facility performance

*Wang, Fei*, Development of joint estimating equation approaches to merging clustered or longitudinal datasets from multiple biomedical studies

*Wu, Meihua*, Study design for longitudinal and high dimensional measures

*Xiang, Fang*, Developing pseudo-observation and multiple imputation approaches for analysis of dependently censored survival and quality adjusted survival data

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*Ahn, Taeyong*, Foliation structure for generalized Henon mappings

*da Cunha, Aubrey*, Turing machines, Cayley graphs, and inescapable groups

*DeWitt, Elizabeth*, Identities relating Schur  $s$ -functions and  $Q$ -functions

*Flores, Steven*, Correlation functions in two-dimensional critical systems with conformal symmetry

*Glick, Max*, The pentagram map: Combinatorial and geometric perspectives

*Holland, Ashley*, Penalized spline estimation in the partially linear model

*Kravitz, Ross*, Problems in optimal stopping and control

*Lee, Michelle*, Dynamics on the  $PSL(2, \mathbb{C})$ -character variety of certain hyperbolic 3-manifolds

*Mayes, Sarah*, The asymptotic behavior of generic initial systems

*McCarty, Lindsey*, Preemptive rerouting of airline passengers under uncertain delays

*Mishchenko, Andrey*, Rigidity of thin disk configurations

*More, Ajinkya*, Symbolic powers and other contractions of ideals in Noetherian rings

*Nunez Betancourt, Luis*, Finiteness properties of local cohomology

*Rooney, Patrick*, Control of finite-dimensional quantum systems under Lindblad dissipation

*Sahattchieve, Jordan*, Solutions to two open problems in geometric group theory

*Starinshak, Dave*, Level set methods for radiative shock hydrodynamics

*Von Korff, Michael*, The  $F$ -signature and Frobenius splitting on toric varieties

*White, Nina*, Bounds on eigenvalues of the Laplace-Beltrami operator for certain classes of hyperbolic 3-manifolds

DEPARTMENT OF STATISTICS

*Guo, Cen*, Machine learning methods for magnetic resonance imaging analysis

*Wang, Zhen*, Topics in time series analysis with macroeconomic applications

*Zangeneh, Sahar*, Model-based methods for robust finite population inference in the presence of external information

*Zhang, Juan*, Statistical analysis for genomic studies involving measurement error, multiple populations, and limited sample size

*Zhao, Yunpeng*, Statistical inference for some problems in network analysis

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DEPARTMENT OF MATHEMATICS

*Fonger, Nicole*, Characterizing and supporting change in algebra students' representational fluency in a CAS/paper-and-pencil environment

*Lin, Jianwei*, The domination number of  $K_a \square K_b \square K_c \square$

*Phillips, Benjamin*, Boolean and profinite loops

*Sievewright, Daniel*, Weighted shifts of finite multiplicity

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*Elbayoumi, Tamer*, A robust estimate for the bifurcating autoregressive model with application to cell lineage data

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*Kim, Sunkyung*, New penalized regression approaches to analysis of genetic and genomic data

*Li, Shuzhen*, Statistical modeling of signal detection in fMRI data

*Monteiro, Joao*, Process-based Bayesian melding of occupational exposure models and industrial workplace data

*Zhong, Wei*, Bayesian adaptive designs in phase I/II clinical trials

SCHOOL OF MATHEMATICS

*Byrnes, Patrick*, Structural aspects of differential posets

*Chen, Haojie*, Generalized complex structures on 4-manifolds

*Doh, Hyun Soo*, Error estimates for finite difference solutions of second-order elliptic equations in discrete Sobolev spaces

*Guo, Xiaojin*, Diffusivity and ballistic behavior of random walk in random environment

*He, Xiaoqing*, The effects of diffusion and spatial variation in the Lotka-Volterra competition-diffusion system

*Jia, Hao*, On some regularity problems in the theory of Navier Stokes equation

*Khamviwath, Varunyu*, Directional sensing and actin dynamics in dictyostelium discoideum amoebae

*Kim, Christopher*, Contracting convex torus by its harmonic mean curvature flow

*Kim, Ji Hee*, Concentration of empirical distribution functions for dependent data under analytic hypotheses

*Lee, Jeonghun*, Mixed methods with weak symmetry for time dependent problems of elasticity and viscoelasticity

*Li, Hui*, Topics in the mathematical theory of nonlinear elasticity

*Li, Liping*, A generalized Koszul theory and its applications in representation theory

*Li, Xingjie*, The development and analysis of atomistic-to-continuum coupling methods

*Li, Xu*, On fully nonlinear elliptic and parabolic equations in domains with VMO coefficients

*Liu, Baiying*, Fourier coefficients of automorphic forms and Arthur classification

*Liu, Gang*, On manifolds with Ricci curvature lower bound and Kähler manifolds with nonpositive bisectional curvature

*Shen, Xin*, Unramified computation of tensor  $L$ -functions on symplectic groups

*Shi, Ke*, Devising superconvergent HDG methods for partial differential equations

*Shih, Hsi-Wei*, Some results on scattering for log-subcritical and log-supercritical nonlinear wave equations

*Wang, Qixuan*, Modeling of amoeboid swimming at low Reynolds number

*Wang, Teng*, Filtering partially observable diffusions up to the exit time from a domain

*Wang, Yi*, Robust hybrid linear modeling and its applications

*Wu, Qiliang*, Defects and stability of Turing patterns

*Wu, Weiwei*, Lagrangian spheres, symplectic surfaces and the symplectic mapping class group

*Yu, Guowei*, Homoclinic and heteroclinic orbits in Lagrangian dynamical systems

*Zhang, Wujun*, Convergence of adaptive hybridizable discontinuous Galerkin methods for second-order elliptic equations

*Zhang, Yi*, Local cohomology modules over polynomial rings of prime characteristic

*Zhao, Liqiong*, Synchronization on second order networks



*Zhou, Wei*, On the interior regularity for degenerate elliptic equations  
*Zhu, Yifei*, The power operation structure on Morava  $E$ -theory of height 2 at the prime 3

SCHOOL OF STATISTICS

*Li, Danning*, Random matrix theory and its application in high-dimensional statistics

*Park, Ka Young*, Comparing crossing hazard rate functions by joint modeling survival and longitudinal data

*Qu, Yanping*, A Bayesian approach to joint small area estimation

*Soma, Michael*, A Bayesian approach to cluster sampling

*Su, Zhihua*, Envelope models and methods

*Wang, Zhan*, Minimax estimation and model identification for high-dimensional regression

*Xing, Chen*, Image registration by non-degenerate pixel detection

*Xue, Lingzhou*, Regularized learning of high-dimensional sparse graphical models

*Zhou, Tianyang*, Bayesian approach to phase II statistical process control for time series

## MISSISSIPPI

### Mississippi State University (3)

DEPARTMENT OF MATHEMATICS AND STATISTICS

*Bagchi Misra, Arundhati*, Total variation based methods for speckle image denoising

*Ko, Eunkyung*, Analysis of classes of singular boundary value problems

*Sasi, Sarath*, Alternate stable states in ecological systems

### University of Mississippi (2)

DEPARTMENT OF MATHEMATICS

*Harville, Kayla*, On binary and regular matroids without small minors

*Yu, Kai*, Contributions to robust methods: Modified rank covariance matrix and spatial-EM algorithm

## MISSOURI

### Missouri University of Science and Technology (4)

DEPARTMENT OF MATHEMATICS AND STATISTICS

*Chieochan, Rotchana*, Periodic  $q$ -difference equations

*Heim, Julius*, Economics and finance on time scales

*Randrianampy, Noroharivelo*, Saddlepoint-based bootstrap inference for exponential failure times with right-censoring

*Rupasinghe, Maduka*, Sieve bootstrap based prediction intervals and unit root tests for time series

### Saint Louis University (1)

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

*Prince-Lubawy, Jesse*, Equivalence of cyclic  $p$ -squared actions on handlebodies of genus  $g$

### University of Missouri-Columbia (18)

DEPARTMENT OF MATHEMATICS

*Ao, Lunhao*, On projective morphisms of varieties with nef anticanonical divisor

*Grau de la Herran, Ana*, Generalized local Tb theorem and applications

*Heinecke, Andreas*, Complemented block bases of symmetric bases and special tetris fusion frame constructions

*Peterson, Jesse*, Fusion frame constructions and frame partitions

*Sukhtayev, Alim*, The Evans function, the Weyl-Titchmarsh function and the Birman-Schwinger operators

*Varner, Gregory*, Stochastically perturbed Navier-Stokes system on the rotating sphere

DEPARTMENT OF STATISTICS

*Duan, Ran*, The nonparametric methods for the analysis of interval-censored failure time data

*Hu, Na*, Statistical analysis of length-biased and right-censored data

*Lane, Adam*, Two stage adaptive optimal design with applications to dose-finding clinical trials

*Leeds, William*, Hierarchical modeling of nonlinear multivariate spatio-temporal dynamical systems in the presence of uncertainty

*Li, Junlong*, Regression analysis of clustered interval-censored failure time data

*Li, Yang*, Semiparametric and nonparametric methods for the analysis of panel count data

*Liang, Ye*, Bayesian methods on selected topics

*Liu, Yajun*, Bayesian analysis of spatial and survival models with applications of computation techniques

*Min, Xiaoyi*, Objective Bayesian inference for stress-strength models and Bayesian ANOVA

*Sanyal, Nilotpal*, Bayesian fMRI data analysis and Bayesian optimal design

*Wang, Tianhua*, Adaptive designs for dose-finding studies and an adaptive multivariate CUSUM control chart

*Xu, Chang*, Estimating population size with objective Bayesian methods

### University of Missouri-Kansas City (1)

DEPARTMENT OF MATHEMATICS AND STATISTICS

*Plummer, Paul*, Detecting change points in a compound Poisson process

### University of Missouri-St. Louis (1)

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

*Aleshunas, John*, GP representation space reduction using a tiered search scheme

### Washington University (5)

DEPARTMENT OF MATHEMATICS

*Bickel, Kelly*, Agler decompositions on bidisk and derivatives of matrix functions

*Brady, Joshua*, Analysis of the Navier-Stokes- $\alpha\beta$  equations

*Chumley, Timothy*, Limit theorems for random billiard models

*Quddus, Safdar*, On the homology of noncommutative toroidal orbifolds

*Wang, Qingyun*, Tracial Rokhlin property and non-commutative dimension

## MONTANA

### Montana State University (5)

DEPARTMENT OF MATHEMATICAL SCIENCES

*Buhanan, David*, On some aspects of cocyclic subshifts: Languages and automata

*Chang, Yin*, Principal component models applied to confirmatory factor analysis

*Keren, Ilai*, Development of total systems approach to multi-pest management decision models

*Mudzimiri, Rejoice*, A study of the development of technological pedagogical content knowledge in pre-service secondary mathematics teachers

*Soto, Adrian*, On the connectedness of the Rauzy fractal

### University of Montana - Missoula (2)

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*Howard, Marylesa*, Computational methods for support vector machine classification and large-scale Kalman filtering

*Johnson, Jeffrey*, Peripherally-multiplicative spectral preservers between function algebras

## NEBRASKA

### University of Nebraska-Lincoln (14)

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- Alyousef, Khulud*, Boundary value problem for discrete fractional equations  
*Boeckner, Derek*, Directed threshold graphs and directed graph limits  
*Celikbas, Ela*, Prime ideals in two-dimensional Noetherian domains and fiber products and connected sums  
*Croll, Amanda*, Periodic modules over Gorenstein local rings  
*Eager, Eric*, Modeling and mathematical analysis of plant models in ecology  
*Geisbauer, Joseph*, Regularity for solutions to parabolic systems and nonlocal minimization problems  
*Goodrich, Christopher*, On nonlocal boundary value problems of fractional and integer order  
*Janssen, Michael*, Symbolic powers of ideals in  $k[\mathbb{P}^N]$   
*Johnson, Brian*, Commutative rings graded by abelian groups  
*Johnson, Katherine*, The weak discrepancy and linear extension diameter of grids and other posets  
*Morrison, Katherine*, Equivalence and duality for rank-metric and matrix codes

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- Frenzel, Martin*, Frequentist approaches to overdispersed repeated measures count data  
*Yaseen, Muhammad*, Modeling complex multivariate genotype-by-environment interactions  
*Zhang, Boan*, Group testing regression models

## NEVADA

### University of Nevada, Las Vegas (1)

DEPARTMENT OF MATHEMATICAL SCIENCES

- Waters, Jiajia*, Discontinuous Galerkin finite element methods for Maxwell's equations in dispersive and metamaterials media

## NEW HAMPSHIRE

### Dartmouth College (1)

DEPARTMENT OF MATHEMATICS

- Gottschlich, Avram*, Elliptic curves from a statistical point of view

### University of New Hampshire (2)

DEPARTMENT OF MATHEMATICS AND STATISTICS

- Galle, Gillian*, What do students do in self-formed mathematics study groups?

- Yao, Shan*, On wavelet-based testing for serial correlation of unknown form using Fan's adaptive Neyman method

## NEW JERSEY

### New Jersey Institute of Technology (7)

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- Cai, Chenjing*, Mathematical models for bistable nematic liquid crystal displays  
*Cargill, Daniel*, Analytical and computational methods for the study of rare event probabilities in dispersive and dissipative waves  
*Chen, Feiyan*, Goodness-of-fit tests for geometric models  
*Liang, Zhi*, Fast algorithms for Brownian dynamics simulation with hydrodynamic interactions  
*Lu, Xiaoyu*, The application of Bayesian adaptive design and Markov model in clinical trials  
*Ma, Manman*, A numerical method for electro-osmotic flow with deformable interfaces  
*Pohlmeyer, Jeffrey*, Modeling cell proliferation in a perfusion tissue engineering bioreactor

### Princeton University (21)

DEPARTMENT OF MATHEMATICS

- Altug, Salim Ali*, Beyond endoscopy via the trace formula  
*Biesel, Owen*, Galois closures for rings  
*Cooper, Yaim*, The geometry of stable quotients in genus one  
*DiCerbo, Gabriele*, Effective boundedness results in algebra and analytic geometry  
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*Hughes, Kevin*, Arithmetic analogues in harmonic analysis: Results related to Waring's problem  
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*Pixton, Aaron*, The tautological ring of the moduli space of curves  
*Rios-Zertuche, Rodolfo Antonio*, Near-involutions, the pillowcase distribution, and quadratic differentials  
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*Shankar, Arul*, The average rank of elliptic curves over number fields  
*Wilson, Kevin*, Varieties of almost minimal degree: Algebra, analysis and geometry  
*Xu, Guangbo*, Symplectic vortex equation and adiabatic limits

- Yang, Shiwu*, Nonlinear wave equations on time dependent inhomogeneous backgrounds

NEUROSCIENCE INSTITUTE

- Feng, Samuel*, Extensions and applications of stochastic accumulator models in attention and decision making  
*Ozkaya, Sadik Gorkem*, Randomized wavelets on arbitrary domains and applications to functional MRI analysis  
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*Voronin, Sergey*, Regularization of linear systems with sparsity constraints with applications to large scale inverse problems  
*Wong, Pak Hin*, Local semicircle laws for the Gaussian beta-ensembles

### Rutgers, The State University of New Jersey-New Brunswick (20)

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- Castro, Hernan*, On some singular Sturm-Liouville equations and a Hardy type inequality  
*DeMarco, Robert*, Triangles in random graphs  
*Duncan, David*, A compactness result for the quilted Atiyah-Floer conjecture  
*Durst, Susan*, Universal labeling algebras as invariants of layered graphs  
*Maalaoui, Ali*, The action functional on dual Legendrian submanifolds of the loop space of a contact three dimensional closed manifold  
*Nakamura, Brian*, Computational methods in permutation patterns  
*Nanda, Vidit*, Discrete Morse theory for filtrations  
*Patel, Priyam*, Quantifying algebraic properties of surface groups and 3-manifold groups  
*Pfaff, Catherine*, Constructing and classifying fully irreducible outer automorphisms of free groups  
*Venugopalan, Sushmita*, Yang-Mills heat flow on gauged holomorphic maps  
*Wang, Ke*, Optimal upper bound for the infinity norm of eigenvectors of random matrices  
*Wang, Yunpeng*, Asymptotic behavior of solutions to the conformal quotient equation  
*Yang, Tian*, The skein algebra of arcs and links and the decorated Teichmüller space
- DEPARTMENT OF STATISTICS
- Chen, Xueying*, Analysis of big data by split-and-conquer and penalized regressions: New methods and theories  
*Ma, Min*, Hypothesis testing of bio-equivalence  
*Ma, Yingqiu*, Multiple testing procedures and simultaneous interval estimates with the interval property

*Nguyen, Tuan H.*, Random covering in high dimension by a union of scaled convex sets

*Qiao, Wenqian*, Recent advances in statistical models: Topics in model selection and semi-parametric inference

*Sun, Tingni*, Statistical methods for high-dimensional data and continuous glucose monitoring

*Wang, Jiabin*, A state space model approach to functional time series and time series driven by differential equations

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DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

*Fein, Gregory*, A recognition theorem for polynomial growth outer automorphisms of the free group

*Silverio, Andrew*, Linking and discreteness in hyperbolic 4-space

## Stevens Institute of Technology (3)

DEPARTMENT OF MATHEMATICAL SCIENCES

*Iswara Chandra Vidyasagar, Lakshmi*, On component order edge connectivity and component order edge reliability

*Lonen, Thomas*, Option pricing utilizing a jump diffusion model with a log mixture normal jump distribution

*Luttrell, Kristi*, On the neighbor-component order connectivity model of graph theoretic networks

## NEW MEXICO

### New Mexico State University, Las Cruces (6)

DEPARTMENT OF MATHEMATICAL SCIENCES

*Altawalbeh, Zuhier*, On the map from Leibniz to Hochschild homology

*Hren, Joshua David*, Fibers of complete scalar extensions

*Kengwoung-Keumo, Jean-Jacques*, Competition between two phytoplankton species under predation and allelopathic effects

*Nguyen, Phan*, Biorthogonal wavelets adapted to boundary value problems

*Savic, Milos*, Proof and proving: Logic, impasses, and the relationship to problem solving

*Vo, Van*, Monotonicity of the reflected Bessel transition density on the diagonal

## University of New Mexico (3)

DEPARTMENT OF MATHEMATICS AND STATISTICS

*Chen, Xi*, Numerical and analytical studies of electromagnetic waves: Hermite methods, supercontinuum generation, and multiple poles in the SEM

*Lin, Yong*, Contributions to linear models: Lack-of-fit test and linear model with singular covariance matrices

*Xu, Ling*, Viscous flow past plates

## NEW YORK

### Binghamton University, State University of New York (4)

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*Loney, Quincy*, Decomposition of level-1 representations of  $D_4^{(1)}$  with respect to its subalgebra  $G_2^{(1)}$  in the spinor construction

*Mauriello, Christopher*, Branching rule decomposition of irreducible level-1  $E_6^{(1)}$ -models with respect to  $F_4^{(1)}$

*Xu, Yifan*, On first crossing times of mixed compound Poisson processes under various boundary conditions with applications in queuing and risk theories

*Zhang, Can*, Two-stage and sequential procedures for Behrens-Fisher problem and their exact evaluations

### Clarkson University (3)

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*Almomani, Ahmad*, Constraint handling for derivative-free optimization

*Liu, Zhiqiang*, Dealing efficiently with exclusive OR, abelian groups and homomorphism in cryptographic analysis

*Zheng, Jiongxuan*, Comparing dynamical systems by mostly conjugacy

### Columbia University (21)

DEPARTMENT OF BIostatISTICS

*Zhang, Bingzhi*, On composition data modeling and its biomedical applications

DEPARTMENT OF MATHEMATICS

*Carneiro, Andre*, A geometric construction of a Calabi quasimorphism on projective space

*Disegni, Daniel*,  $p$ -adic heights of Heegner points on Shimura curves

*Ellis, Alexander*, Odd symmetric functions and categorification

*Fanoë, Andrew*, Properties of Hamiltonian torus actions on closed symplectic manifolds

*Garcia, Luis*, Singular theta lifts and near-central special values of Rankin-Selberg  $L$ -functions

*Hendricks, Kristen*, Localization and Heegaard Floer homology

*Maddock, Zachary*, del Pezzo surfaces with irregularity and intersection numbers on quotients in geometric invariant theory

*Qi, You*, Hopfological algebra

*Wang, Yu*, Local regularity of the complex Monge-Ampere equation

*Yang, Yanhong*, Purity of the stratification by Newton polygons and Frobenius-periodic vector bundles

*Zhou, Fan*, Sato-Tate problem for  $GL(3)$

DEPARTMENT OF STATISTICS

*Cribben, Ivor*, Detecting dependence change points in multivariate time series with applications in neuroscience and finance

*Liu, Heng*, Some models for time series of counts

*Qian, Bo*, Credit risk modeling and analysis using Copula method and change-point approach to survival data

*Sadhukhan, Subhankar*, On optimal arbitrage under constraints

*Seijo, Emilio*, Statistical inference in two non-standard regression problems

*Sit, Tony*, Contributions to semiparametric inference to biased-sampled and financial data

*Xu, Gongjun*, Statistical inference for diagnostic classification models

*Zang, Pengfei*, Modeling strategies for large dimensional vector autoregressions

*Zhang, Junyi*, Estimation and testing methods for monotone transformation

### Cornell University (18)

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*Alonso, Juan*, Graphs of free groups and their measure equivalence

*Anema, Jason*, Counting spanning trees on fractal graphs

*Gorbovickis, Igors*, Some problems from complex dynamical systems and combinatorial geometry

*Lierl, Janna*, Heat kernel estimates on inner uniform domains

*Luo, Shisen*, Hard Lefschetz property of Hamiltonian GKM manifolds

*Luthy, Peter*, Bi-parameter maximal multilinear operators

*Mahmood, Fatima*, Jacobi structures and differential forms on contact quotients

*Meerkamp, Philipp*, Singular Hopf bifurcation

*Pabiniak, Milena*, Hamiltonian torus actions in equivariant cohomology and symplectic topology

*Rajchgot, Jenna*, Compatibility split subvarieties of the Hilbert scheme of points in the plane

*Samuelson, Peter*, Colored Jones polynomials and the quantum torus

DEPARTMENT OF STATISTICAL SCIENCES

- Cunningham, Caitlin*, Markov methods for identifying ChIP-seq peaks
- Ji, Pengsheng*, Selected topics in nonparametric testing and variable selection for high dimensional data
- Johnson, Lynn Marie*, Topics in linear models: Methods for clustered, censored data and two-stage sampling designs
- Morris, Darcy*, Methods for multivariate longitudinal count and duration models with applications in economics
- Narayanan, Rajendran*, Shrinkage estimation for penalised regression, loss estimation and topics on largest eigenvalue distributions
- Xiao, Luo*, Topics in bivariate spline smoothing
- Zeber, David*, Extremal properties of Markov chains and the conditional extreme value model

**Graduate Center, City University of New York (14)**

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- Antonakos, Evangelia*, Forms of explicit common knowledge
- Chen, Yimao*, Uniqueness theorems for some nonlinear parabolic equations
- Dhmoon, Subir*, The differentiability of renormalized triple intersection local times
- Erlandsson, Viveca*, The Margulis region in hyperbolic 4-space
- Evren, Ozgur*, The length spectrum metric on the Teichmueller space of infinite type surfaces
- Funk, Jeanne*, The Witt ring of a smooth curve with good reduction over a local field
- Hirsh, Joseph*, Derived noncommutative deformation theory
- Jiménez López, Francisco*, Length spectrum metric and modified length spectrum metric on Teichmüller spaces
- Kim, Kwang Hyun*, On the rank of 2-primary part of Selmer group of certain elliptic curves
- Koupparis, Charalambos*, Non-commutative cryptography: Diffie-Hellman and CCA secure cryptosystems using matrices over group rings and digital signatures
- Lakzian, Sajjad*, Smooth convergence away from singular sets and intrinsic flat continuity of Ricci flow
- Lee, Whanki*, Resplendent models generated by indiscernibles
- Perlmutter, Norman*, Inverse limits of models of set theory and the large cardinal hierarchy near a high-jump cardinal
- Stout, Brian*, Dynamical Shafarevich results for rational maps

**New York University, Courant Institute (5)**

COURANT INSTITUTE OF MATHEMATICAL SCIENCES

- Goldman, Dorian*, Energy driven pattern formation in non-local Cahn-Hilliard energy
- Karabash, Dmytro*, Stability of Hawkes process and other models
- Mohylevskyy, Yevhen*, Ergodicity and percolation for variants of one-dimensional voter models
- Stinchcombe, Adam*, New approaches to modeling stochastic gene expression
- Zhu, Lingjiong*, Nonlinear Hawkes processes

**New York University, Stern School of Business (2)**

INFORMATION, OPERATIONS, AND MANAGEMENT SCIENCES-STATISTICS GROUP

- Kovtun, Vladimir*, The value of information sharing in supply chains facing ARMA demand
- Liu, Jun*, 1. The slow convergence of OLS estimators and estimated portfolio weights under long-memory stochastic volatility; 2. Nonparametric tests of independence and Markov property for interval censored models; 3. Nonparametric estimation of the cumulative intensities in an interval censored competing risks model

**Polytechnic Institute of New York University (1)**

DEPARTMENT OF MATHEMATICS

- Lazarashvili, Liana*, A new normed space for acoustic inverse problems

**Rensselaer Polytechnic Institute (7)**

DEPARTMENT OF MATHEMATICAL SCIENCES

- Barranca, Victor*, Data compression in sensory processing
- Fessel, Kimberly*, An examination of nonlinear waves in the cochlea
- Hammel, Erik*, Using reinforcement learning to improve network durability
- Jones, Jessica*, Statistical comparison of shear wave speed recovery using the direct algorithm and the arrival time algorithm
- Warner, Andrew*, Event chain and inverse problems with applications to neuroscience
- Webster, Tegan*, Scalar and vector multi-static radar data models
- Zhang, Weituo*, Analytical approach for opinion dynamics on social networks

**Stony Brook University (38)**

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- Balius, Trent*, Application and development of computational tools in drug discovery
- Biro, Michael*, Beacon-based routing and guarding
- Dyedov, Volodymyr*, Automatic mesh generation and processing for biomedical geometries
- Goode, Jimmie*, Maximum likelihood estimation of stable non-Gaussian financial models
- Hu, Yijing*, Front tracking method on phase transition problems and applications
- Huang, Jun*, New development on constrained variational analysis for a single column—with spatial and temporal correlations integrated
- Iwerks, Justin*, Combinatorics and complexity in geometric visibility problems
- Jin, Jing*, Principal components ancestry adjustment
- Kaman, Tulin*, Rayleigh-Taylor turbulent mixing simulations
- Kim, Hyeuk*, A novel combining algorithm in classification
- Kim, Joung-Dong*, Modeling of airfoil dynamics with front tracking method
- Knapik, Timothy*, Approximate policies for partially observable Markov decision processes with continuous state spaces using parameterized probability distributions
- Li, Yan*, Mass spring model and its coupling with front tracking method
- Li, Yinghua*, Generalized Delaunay refinement algorithms on hyperbolic plane
- Liao, Willey*, A novel Bayesian segmentation model for ChIP-seq data analysis
- Lin, Ruonan*, The application and assessment of consumer credit scoring models in measuring consumer loan issuing risk of commercial banks in China
- Mo, Yifan*, A stochastic segmentation model for categorical and continuous features for different biological data analysis
- Mukherjee, Sudipto*, Docking platform and validation resources for structure-based drug design
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- Wang, Yifan*, Longitudinal quantitative trait locus and population stratification
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*Gutt, Jan*, Hwang-Mok rigidity of minuscule homogeneous varieties in positive characteristic  
*Hales, Jonathan*, Exotic four-manifolds, corks and Heegaard Floer homology  
*Knox, Kenneth*, Compactness theorems for Riemannian manifolds with boundary and applications  
*Pingali, Vamsi*, On some computational and analytic aspects of Chern-Weil  
*Popa, Alexandra*, Two-point Gromov-Witten formulas for symplectic toric manifolds  
*Walsh, Joseph*, On the partition function for CPI-instantons on a flat torus  
*Wright, Evan*, Ricci-flat anti-self-dual asymptotically locally Euclidean 4-manifolds  
*Young, Matthew*, Self-dual Hall modules  
*Zhang, Yongsheng*, Gluing techniques in calibrated geometry

**University at Albany, SUNY (2)**

DEPARTMENT OF MATHEMATICS AND STATISTICS

*DeGraw, Arthur*, Optimal recovery of holomorphic functions from inaccurate information about integration type operators  
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**University at Buffalo, SUNY (8)**

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*Attwood, Kristopher*, Selected topics in two and three class ROC analysis  
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*Tsai, Wan-Min*, Advanced and novel parametric and nonparametric likelihood statistical techniques with applications in epidemiology

DEPARTMENT OF MATHEMATICS

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*Le, Tuan*, Infinite volume limit for correlation functions in the dipole gas  
*Zhang, Chen*, Spatially explicit population-genetics modeling in a discontinuous habitat and in the presence of an Allee effect

**University of Rochester (6)**

DEPARTMENT OF BIOSTATISTICS AND COMPUTATIONAL BIOLOGY

*Chen, Zhen*, A flexible copula model for bivariate survival data

DEPARTMENT OF MATHEMATICS

*da Silva, Daniel*, Non-concentration of energy in generalized wave maps  
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*Lester, Stephen*, The distribution of values of the Riemann zeta-function  
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*Zhang, Xiang*, A small data global well-posedness result for the  $2+1$ -dimensional equivariant Fadeev model

**NORTH CAROLINA**

**Duke University (14)**

DEPARTMENT OF MATHEMATICS

*Kim, Hyeonkwon*, Gersten-Witt complex of Hirzebruch surfaces  
*Li, Yi*, Numerical methods for simulating fluid motion driven by immersed interfaces  
*Luo, Shishi*, Probabilistic methods for multiscale evolutionary dynamics  
*Munch, Elizabeth*, Applications of persistent homology to time varying systems  
*Parry, Alan*, Wave dark matter and dwarf spheroidal galaxies

DEPARTMENT OF STATISTICAL SCIENCE

*Banerjee, Anjishnu*, Scalable nonparametric Bayes learning  
*Bonassi, Fernando*, Approximate Bayesian computation for complex dynamic systems  
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*Cui, Kai*, Bayesian modeling and computation for mixed data  
*Lin, Lin*, Bayesian variable selection in clustering and hierarchical mixture modeling  
*Nakajima, Jochi*, Bayesian analysis of latent threshold models

*Si, Yajuan*, Nonparametric Bayesian methods for multiple imputation of large scale incomplete categorical data in panel studies  
*Wang, Fangpo*, Space and space-time modeling of directional data

*Wang, Xiaojing*, Bayesian modeling using latent structures

**North Carolina State University (22)**

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*Attarian, Adam*, Patient specific subset selection, estimation and validation of an HIV-1 model with censored observations under an optimal treatment schedule  
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DEPARTMENT OF STATISTICS

*Avery, Matthew*, New techniques for functional data analysis: Model selection classification, and nonparametric regression  
*Brown, Chad*, A study of using lymphoblastoid cell lines in pharmacogenomics and drug family clustering  
*Fiske, Ian*, Characterizing spatiotemporal trends in amphibian abundance using latent variable models  
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**University of North Carolina at Chapel Hill** (28)

DEPARTMENT OF BIostatISTICS

*Colby Bozenhardt, Emily*, Methods for population pharmacokinetics and pharmacodynamics

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*Hussey, Michael*, Extensions of nonparametric randomization-based analysis of covariance

*Kundu, Suprateek*, Bayesian nonparametric methods for conditional distributions

*Long, Dorothy Leann*, Marginalized zero-inflated Poisson regression

*Long, Dustin*, Casual inference and principal stratification: Competing risks, bounds and surrogates

*Powers, James*, Population-averaged models for diagnostic accuracy studies and meta-analysis

*Wheeler, Matthew*, Bayesian nonparametric differential equation models for functions

*Zhao, Yue*, Sensitivity analyses of time-to-event data with possibly informative censoring for confirmatory clinical trials

DEPARTMENT OF MATHEMATICS

*Bayless, Rachel*, Entropy of transformations that preserve an infinite measure

*Fovargue, Lauren*, Addressing the computational bottleneck of the immersed boundary method through multi-implicit and multi-rate strategies with time parallelism

*Furno, Joanna*, Ergodic theory of  $p$ -adic transformations

*Glover, Rebecca*, Generalized twistor spaces for hyperkähler and quaternionic Kähler geometry

*Kaliszewski, Ryan*, Structure of quiver polynomials and Schur positivity

*Lee, Brandyn Gregory Rogers*, A comparison of eigencones under certain diagram automorphisms

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DEPARTMENT OF STATISTICS AND OPERATIONS RESEARCH

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*Deng, Chao*, Optimal design and control of resources for finite-population queueing systems

*Gratton, Melanie*, Algorithms for trust-region subproblems with linear inequality constraints

*Lu, Xiaosun*, Object oriented data analysis of cell-well structured data and statistical analysis of elastic functions

*Luo, Jianzhe*, Queueing approaches to appointment system design

*Mills, Alex*, Patient prioritization and resource allocation in mass casualty incidents

*Ru, Hongyu*, Statistical analysis of financial time series and risk management

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**University of North Carolina at Charlotte** (9)

DEPARTMENT OF MATHEMATICS AND STATISTICS

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*Birdsong, Sarah*, On the structure and invariants of cubical complexes

*Enos, Graham*, Binary Edwards curves in elliptic curve cryptography

*Jutmaan, Yanjmaa*, Branching processes in random trees

*Kim, Hyunju*, Isogeometric analysis and patchwise reproducing polynomial particle method for plates

*Shou, Qiong*, Semiparametric time-varying coefficient regression model for longitudinal data with censored time origin

*Xiang, Ming*, Hybrid solvation models for electrostatic interactions in molecular dynamics simulations of ionic solvent

*Zhang, Xing*, Asymptotic normality of entropy estimators

*Zou, Wenhua*, A unified treatment of derivative pricing and forward decision problems within the HJM framework

**NORTH DAKOTA**

**North Dakota State University, Fargo** (2)

DEPARTMENT OF MATHEMATICS

*Anderson, Benjamin*, NAK for Ext, ascent of module structures, and the blindness of extended modules

*Hasenauer, Richard*, Almost Dedekind domains and atomicity

**OHIO**

**Air Force Institute of Technology** (2)

DEPARTMENT OF MATHEMATICS AND STATISTICS

*Poteet, Miriam*, Parametrizing finite frames and optimal frame completion

*Schrock, Christopher*, Distributional Monte Carlo methods for the Boltzmann equation

**Bowling Green State University** (3)

DEPARTMENT OF MATHEMATICS AND STATISTICS

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*Cheng, Lee*, Developing the follow-up schedules for women with breast cancer

*Gu, Xuemin*, Clinical trial design for biomarker-based targeted therapy development

*Huang, Furong*, Robust effect sizes and their confidence intervals for group difference between trajectories in hierarchical linear growth model

*Liang, Fu-Wen*, Mixture modeling for joint analysis of survival, discrete and continuous data

*Liu, Jun*, Analyzing left-truncated right-censored data with uncertain onset time with parametric models

*Liu, Ping*, On Bayesian seamless phase I-II designs

*Liu, Suyu*, Bayesian adaptive designs in early phase clinical trials

*Wang, Tao*, A simulation study of the standard design, the rolling six design, the CRM and the modified CRM in phase I clinical trials

*Zhang, Hong*, Optimal and minimal two-stage designs in phase II dose clinical trials

## UTAH

### Brigham Young University (4)

DEPARTMENT OF MATHEMATICS

*Francis, Amanda*, New computational techniques in FJRW theory with applications to Landau-Ginzburg mirror symmetry

*Li, Ji*, Persistence and foliation theory for random dynamical systems and their application to geometric singular perturbation

*Luo, Yi*, Spread option pricing with stochastic interest rate

*Turner, Emma*,  $k$ - $S$ -rings

### University of Utah (3)

DEPARTMENT OF MATHEMATICS

*Bannish, Brittany*, Mathematical models of fibrinolysis

*Graham, Erica*, Mathematical models of mechanisms underlying long-term type 2 diabetes progression

*Wood, Aaron*, A minimal type of the 2-adic Weil representation

## VIRGINIA

### George Mason University (4)

DEPARTMENT OF MATHEMATICAL SCIENCES

*Beagley, Jonathan*, Extremal combinatorics in geometry and graph theory

*Berry, Tyrus*, Model free techniques for reduction of high-dimensional dynamics

DEPARTMENT OF STATISTICS

*Parhat, Parwen*, Randomization tests for regression models in clinical trials

*Wang, Yang*, Optimal randomization procedures for clinical trials

### Old Dominion University (3)

DEPARTMENT OF MATHEMATICS AND STATISTICS

*Jayatillake, Rasika*, A statistical model to determine multiple binding sites of a transcription factor on DNA using ChIP-seq data

*Mushti, Sirisha*, Analysis of continuous longitudinal data with ARMA(1,1) and antependence correlation structures

*Ravi, Bhaskara*, Analysis of discrete probit models with structured correlation matrices

### University of Virginia (13)

DEPARTMENT OF MATHEMATICS

*Baltera, Constance*, Coinvariant algebras and fake degrees for spin Weyl groups

*Dobbs, Daniel*, Properties of measures and processes related to Brownian motion on infinite-dimensional Heisenberg-like groups

*Droms, Sean*, Constructions of Stein fillings

*Emerick, Timothy*, A group-theoretic characterization of the unipotent radical

*Graber, Philip*, The wave equation with generalized nonlinear acoustic boundary conditions

*Johnson, Joseph*,  $K(X)$ : An equivariant K-theory functor from spaces to lambda-rings

*Kleski, Craig*, Boundaries for operator systems

*Mazur, Kristen*, On the structure of Mackey functors and Tambara functors

*McCarty, Jason*, The mod 2 homology of infinite loopspaces

*Peng, Yung-Ning*, Parabolic presentations of the super Yangian  $Y(\mathfrak{gl}_{M/N})$  and applications

*Pollio, Timothy*, The multinorm principle

*Webster, Justin*, Analysis of flow-plate interactions: Semigroup well-posedness and long-time behavior

*Yarnall, Carolyn*, The slices of suspensions of  $H\mathbb{Z}$  for cyclic  $p$ -groups

### Virginia Commonwealth University, Medical Center (4)

BIOSTATISTICS DEPARTMENT

*Carrico, Caroline*, Characterization of a weighted quantile sum approach for highly correlated data in risk analysis scenarios

*Carrico, Robert*, Unbiased estimation for the contextual effect of duration of adolescent height growth on adulthood obesity and health outcomes via hierarchical linear and nonlinear models

*Sheldon, Emily*, Choosing the cut-point for a restricted mean in survival analysis, a data driven method

*Sima, Adam*, Accounting for model uncertainty in linear mixed-effects models

### Virginia Polytechnic Institute and State University (14)

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*Cao, Zhenwei*, Quantum evolution: The case of weak localization for a 3D alloy-type Anderson model and application to Hamiltonian based quantum computation

*Farlow, Kasie*, The reflected quasipotential: Characterization and exploration

*Foster, Erich*, Finite elements for the quasi-geostrophic equations of the ocean

*Leite Dos Santos Nunes, Vitor*, Fréchet sensitivity analysis and parameter estimation in groundwater flow models

*Mattox, Wade*, Homology of group von Neumann algebras

*Murrugarra Tomairo, David*, Algebraic methods for modeling gene regulatory networks

*Zhang, Xu*, A posteriori error analysis for a discontinuous Galerkin method applied to hyperbolic problems on tetrahedral meshes

DEPARTMENT OF STATISTICS

*Fang, Zaili*, Some advanced model selection problems on nonparametric/semiparametric models for high dimensional data

*Han, Chao*, Bayesian visual analytics: Interactive visualization for high-dimensional data

*Johnson, Nels G.*, Semiparametric regression methods with covariate measurement error

*Kensler, Jennifer*, Analysis of reliability experiments with random blocks and subsampling

*Maiti, Dipayan*, Model selection and averaging and interactive visual analytics for high-dimensional data

*Xiao, Pei*, Robust MEWMA-type control charts for monitoring the covariance matrix of multivariate processes

*Xu, Liaosa*, The design of GLR control charts for process monitoring

WASHINGTON

University of Washington (30)

APPLIED MATHEMATICS DEPARTMENT

*Cain, Nicholas*, Probabilistic, statistical, and dynamical models of neural decision making

*Jacobs, Joshua*, Vortex dynamics of geostrophically adjusted density perturbations in stratified incompressible fluids

*Lemoine, Grady*, Numerical modeling of poroelastic-fluid systems using high-resolution finite volume methods

*Zhang, Yun*, ETG-ETL portfolio optimization

*Zhou, Jiansong*, Climate response to solar variation: Cyclic and secular

*Zhou, Ying*, Geographic range shifts under climate warming

BIOSTATISTICS DEPARTMENT

*Bryan, Matthew*, Methodology for examining differential rates of change for longitudinal data

*Cheung, Charles Yin Kiu*, Using interactive vectors to impute genotypes and detect genotyping errors

*Chi, Peter*, Problems in pedigrees and phylogenies

*Danaher, Patrick*, Methods for the estimation and application of biological networks

*Gabriel, Erin*, Education of potential surrogate endpoints

*Levin, Gregory*, An evaluation of adaptive clinical trial designs with pre-specified rules for modifying the sampling plan

*Pashova, Hristina*, Methods for detection of interactions with multiple components

*Ross, Michelle*, The Bayesian analysis of data arising from complex sampling designs

*Saegusa, Takumi*, Weighted likelihood estimation under two-phase sampling

*Teeple, Elizabeth*, Adjusting for misclassified outcomes in a multistate model

*Zhao, Shanshan*, Covariate measurement error correction methods in mediation analysis with failure time data

*Zheng, Xiuwen*, Covariate measurement error correction methods in mediation analysis with failure time data

DEPARTMENT OF MATHEMATICS

*Aholt, Christopher*, Polynomials in multi-view geometry

*Blair-Stahn, Nathaniel*, A geometric perspective on first-passage competition

*Grigg, Nathan*, Deformations of categories of coherent sheaves and Fourier-Mukai transforms

*Ning, Weiyang*, Markov chain mixing time, card shuffling and spin systems dynamics

*Patrolia, Lee*, The radiative transfer equation in photoacoustic imaging

*Wang, Wenhan*, Isolated curves for hyperelliptic curve cryptography

*Wong, Chun Wai Carto*, Smoothness of Loewner slits

DEPARTMENT OF STATISTICS

*Bauer, Cici*, Bayesian modeling of health data in space and time

*Maravina, Tatiana*, Tests for differences between least squares and robust regression parameter estimates and related topics

*Palacios Roman, Julia*, Bayesian nonparametric inference of effective population size trajectories from genomic data

*Perrault-Joncas, Dominique*, Learning and manifolds: Leveraging the intrinsic geometry

*Wheldon, Mark*, Bayesian population reconstruction: A method for estimating age- and sex-specific vital rates and population counts with uncertainty from fragmentary data

Washington State University (5)

DEPARTMENT OF MATHEMATICS

*Smith, Gavin*, Simplicial complexes and the Optimal Homologous Chain Problem

*Trinh, Giang Bang*, Computation of multivariate normal probabilities using bivariate conditioning with simulation

*Van Dyke, Benjamin*, Directional direct-search optimization methods with polling directions based on equal angle distributions

*Van Dyke, Heather*, A study of  $p$ -variation and the  $p$ -Laplacian for  $0 < p < 1$  and finite hyperplane traversal algorithms for signal processing

*Wu, Peiling*, Tail densities of copulas and their applications to extremal dependence analysis of vines

WEST VIRGINIA

West Virginia University (7)

DEPARTMENT OF MATHEMATICS

*Li, Ping*, Cycles and bases of graphs and matroids

*Liang, Yanting*, Cycles, disjoint spanning trees and orientations of graphs

*Wenliang, Tang*, Circuits, perfect matchings, and paths in graphs

*Wu, Yezhou*, Integer flows and modulo orientations

*Yao, Senmei*, Group connectivity of graphs

*Ye, Dong*, Perfect matching and circuit cover of graphs

*Zhang, Zheng*, Optimal portfolio and consumption with transaction costs

WISCONSIN

Marquette University (2)

DEPARTMENT OF MATHEMATICS, STATISTICS AND COMPUTER SCIENCE

*Haque, Md*, Mobile based symptom management for palliative care

*Rahman, Farzana*, Ensuring application specific security, privacy and performance goals in RFID systems

University of Wisconsin, Madison (33)

DEPARTMENT OF MATHEMATICS

*Amorim, Lino*, A Künneth theorem in Lagrangian Floer theory

*Bao, Erkao*, On  $J$ -holomorphic curves in almost complex manifolds with asymptotically cylindrical ends

*Beros, Achilles*, Applications of arithmetic complexity and priority arguments in algorithmic learning theory

*Beros, Konstantinos*, Descriptive group theory

*Boonkasame, Anakewit*, On propagation and stability of internal waves

*Brown, George*, Leonard triples associated with the anticommutator spin algebra

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*Durfee, Christina*, Groups with a character of large degree relative to a normal subgroup

*Garton, Derek*, Random matrices and Cohen-Lenstra statistics for global fields with roots of unity

*Li, Qin*, Modeling and computation methods for multi-scale quantum dynamics and kinetic equations

*Ling, Jie*, Arithmetic intersection and resultants

*Lock, Michael*, Index theorems for anti-self-dual and self-dual orbifolds

*Qi, Peng*, Surface hopping and related problems

*Seal, David*, Discontinuous Galerkin methods for Vlasov models of plasma

*Tumasz, Sarah*, Topological mixing

*Vincent, Christelle*, Drinfeld modular forms modulo  $P$  and Weierstrass points on Drinfeld modular curves

*Wang, Li*, Numerical methods for multi-scale hyperbolic and kinetic equations

*Wang, Rui*, The contact triad connection and contact instantons

*Wang, Zhan*, Dynamics of strongly nonlinear water waves with capillary and flexure effects

*Zhao, Luanlei*, Period integral of automorphic Green functions

#### DEPARTMENT OF STATISTICS

*Chung, Dongjun*, Statistical methods and software for ChIP-seq data analysis

*Chung, Yujin*, Inference of gene tree discordance and recombination

*Dai, Bin*, Multivariate Bernoulli distribution and its applications

*Ding, Shilin*, Learning graph structure with parametric and non-parametric models

*He, Qiuling*, Model-based analysis methods in statistical genomics

*Hwang, Youngdeok*, Topics on the design and analysis on computer experiments

*Jin, Chongyang*, Statistical modeling and inference for spatial categorical data

*Li, Quefeng*, High dimensional classification and variable selection

*Lin, Yunzhi*, Model selection methods for cancer staging and other disease stratification problems

*Moon, Jee Young*, A causal gene network with genetic variations incorporating biological knowledge and latent variables

*Tao, Minjing*, Large volatility matrix estimation based on high-frequency financial data

*Yang, Fan*, On high dimensional data analysis and biomedical genomics

*Yu, Xinxin*, Testing hypotheses under covariate-adaptive randomization in linear and generalized linear models

## Doctoral Degrees Conferred

### University of Wisconsin, Milwaukee (3)

DEPARTMENT OF MATHEMATICAL SCIENCES

*Gaddis, Jason*, PBW deformations of Artin-Schelter regular algebras and their homogenizations

*Masaros, America*, Category  $\mathcal{O}$  representations of the Lie superalgebra  $\mathfrak{osp}(3, 2)$

*Olivas Saunders, Rolando*, Improved estimation of PM2.5 using Lagrangian satellite-measured aerosol optical depth

## WYOMING

### University of Wyoming (5)

DEPARTMENT OF MATHEMATICS

*Cerwinsky, Derrick*, Algebraic multigrid (AMG) methods with an introduction to AMGLab

*Lenth, Kevin*, Application of a perturbation method to nonlinear stochastic PDEs

*Quade, Eric*, A new construction of viscous weak detonation profiles

DEPARTMENT OF STATISTICS

*Gemoets, Darren*, Bayesian parameter estimation in dynamic ecological models

*Singh, Sarabdeep*, Statistical analysis of gene duplication data