

# Doctoral Degrees Conferred

## 2019–2020

### ALABAMA

#### Auburn University (9)

Department of Mathematics & Statistics

*Cortez, Joseph*, The intersection problem for maximum packings of complete graphs with 4-cycles

*Gan, Luyining*, Differential geometry on matrix groups

*Guerngar, Ngartelbaye*, Phase transition for fractional stochastic partial differential equations in bounded domains

*Issa, Tahir Bachar*, Dynamics of chemotaxis models in heterogeneous environments

*Owens, Andrew*, Rainbow cycle forbidding edge colorings

*Park, Jieun*, Rank based group variable selection for functional linear model

*Xu, Chi*, Generalized Lasso problem with equality and inequality constraints using ADMM

*Yang, Minglei*, Probabilistic schemes for semi-linear nonlocal diffusion equations with application in predicting runaway electron dynamics

*Zheng, Yuxiang*, Interior Backus problem with expanded data

#### University of Alabama (3)

Department of Mathematics

*Ahmed Ullah, Sheik*, Pseudo-transient ghost fluid methods for the

Poisson-Boltzmann equation with a two-component regularization

*Homan, Timothy*, A combinatorial proof of the invariance of tangle Floer homology

*Wang, Xuan*, Conjugate operator on variable harmonic Bergman space

#### University of Alabama at Birmingham (4)

Department of Biostatistics

*Hartzes, Anastasia*, Applying Markov processes to model disability in relapsing multiple sclerosis patients

*Pendegraft, Amanda*, Bayesian hierarchical negative binomial and zero-inflated negative binomial models for high-dimensional data with applications to human microbiome count data

Department of Mathematics

*Goudarzi Karim, Ramin*, Tensor decomposition and rank approximation of tensors

*Nayak, Abinash*, Inverse problems, regularization and its applications

### ALASKA

#### University of Alaska Fairbanks (1)

Department of Mathematics & Statistics

*Yourdkhani, Samaneh*, Investigations in Phylogenetics: Tree inference and model identifiability

### ARIZONA

#### Arizona State University (27)

Mathematics, Computational & Modeling Sciences Center

*Agoune, Linda*, Impact of teaching an interdisciplinary course introduction of applied mathematics for the life and social sciences on high school students' skills and attitudes towards mathematics in a JBMSHP program

*Bates, Jordan*, Formation, measurement, and imputation of social ties

*Kwon, Byong*, Lifelong adaptive neuronal learning for autonomous multi-robot demining in Colombia, and enhancing the science, technology and innovation capacity of the Ejercito Nacional de Colombia

*Montalvo, Cesar*, The influence of class nonlinear dynamics and education on socio-economic mobility

*Thakur, Mudgha*, Mathematical modeling of systematic treatment implementation and dynamics of neglected tropical diseases: case studies of visceral leishmaniasis and soil-transmitted helminths

*Yu, Fan*, Attention harvesting for knowledge production

The above list contains the names and thesis titles of recipients of doctoral degrees in the mathematical sciences (July 1, 2019, to June 30, 2020) reported in the 2023 Annual Survey of the Mathematical Sciences by 242 departments in 186 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.

School of Mathematical & Statistical Sciences

*Alghamdi, Reem*, Experimental design issues in functional brain imaging with high temporal resolution  
*Alkhalifa, Loay*, Global optimization using piecewise linear approximation  
*Amulhim, Ahlam*, Estimating low generalized coloring numbers of planar graphs  
*Arumayh, Amani*, Maximin design for event-related fMRI with uncertain error correlation  
*Cupido, Kyran*, Spatial mortality modeling in actuarial science  
*David Parr, Erika*, Students' interpretations of expressions in the graphical register and Its relation to their Interpretation of points on graphs when evaluating statements about functions from calculus  
*Dickman, Lauren*, Analysis of tumor-immune dynamics in an evolving dendritic cell therapy model  
*Gong, Xiaoqian*, Weak measure-valued solutions to a nonlinear conservation law modeling a highly re-entrant manufacturing system  
*Han, Lifeng*, Cancer invasion in time and space  
*Iboi, Enahoro*, Mathematical assessment of control measures against mosquito-borne diseases  
*Jamous, Sara*, Modeling collective motion of complex systems using agent-based models and macroscopic models  
*Joshua, Surani*, Conceptualizing and coordinating frames of reference: Three Studies  
*Khogeer, Hazar*, Locally optimal experimental designs for mixed responses models  
*Liu, Tony*, Optimal sampling for linear function approximation and high-order finite difference methods over complex regions  
*Mitscher, Ian*, Representing certain continued fraction AF algebras as  $C^*$ -algebras of categories of paths and non-AF groupoids

*Rha, Hyungmin*, Optimal sampling designs for functional data analysis  
*Sellers, Morgan*, Students' quantifications, interpretations, and negations of complex mathematical statements from calculus  
*Shapiro, Bruce*, Computational methods for kinetic reaction systems  
*Sipes, Janet*, Undergraduate students' conceptions of multiple analytic representations of systems (of equations)  
*Vazquez Arreola, Elsa*, Essays on the modeling of binary longitudinal data with time-dependent covariates  
*Yoon, Hyunyoung*, Relationships between meanings teachers hold and meanings their students construct  
**University of Arizona (9)**  
 Department of Mathematics  
*Coatney, Ryan*, A responsible softmax layer in deep learning  
*Dai, Yan*, Mirror model and critical percolation  
*Hoskiins, Philip*, Analytical and numerical study of inverse problems arising in some novel imaging modalities  
*Lippitt, William*, Clumping, stick-breaking, and an inhomogeneous Markov chain  
*Lunderman, Spencer*, Feature-based parameter estimation of the nonlinear cloud and rain equation and global bayesian optimization in data assimilation  
*Murphy, Dylan*, Additions for Jacobi operators and the Toda hierarchy of lattice equations  
*Oliver, Rachel*, Superiority of Bayes estimators over the MLE in high dimensional models on compact Riemannian manifolds and its implication for nonparametric Bayes Theory  
*Taylor, J. David*, Extending Oda's theorem to curves with ordinary singularities  
*Tippings, Brandon*, Discrete Painlevé equations, orthogonal polynomials, and counting maps

**ARKANSAS**

**University of Arkansas at Fayetteville (3)**

Department of Mathematical Sciences

*Kalyankar, Vinay*, The Van Hiele analysis of curricular materials—a comparative study  
*Lehman, Rachel*, A structure theorem for 3-orbifolds  
*Mutanguha, Jean Pierre*, Hyperbolic endomorphisms of free groups

**CALIFORNIA**

**California Institute of Technology (3)**

Department of Computing & Mathematical Sciences

*Fernandez-Lado, Agustin*, Wave-scattering by periodic media  
*Garza Gonzalez, Emmanuel*, Boundary integral equation methods for simulation and design of photonic devices  
*Huang, De*, Positive definite matrices: compression, decomposition, Eigensolver, and concentration

**San Diego State University (3)**

Department of Mathematics & Statistics

*Bjorkman, Kaitlin*, The identities of undergraduate mathematics peer tutors within the figured world of a mathematics learning center  
*Voigt, Matt*, Queer-spectrum student experiences and resources in undergraduate mathematics  
*Wynn, Lynda*, Exploring the ways emergent bilingual students' participation in mathematical practices is supported through the teacher-curriculum interaction

**University of California, Berkeley (31)**

Department of Mathematics

*Bertoloni Meli, Alexander*, The local Langlands correspondence, Rapoport-Zink spaces, and Shimura varieties

- Brandt, Madeline*, Tropical geometry of curves
- Eur, Christopher*, The geometry of divisors on matroids
- Kulkarni, Archit*, Random matrix theory in numerical linear algebra
- Kusollerschariya, Chao*, Dirac triples for unital AF algebras
- Nam, Kyeongsik*, Singular stochastic differential equations with elliptic and hypoelliptic diffusions
- Pillai, Mohandas*, Global, non-scattering solutions to energy critical geometric wave equations
- Rusciano, Alexander*, Two geometric results regarding Holder-Brascamp-Lieb inequalities, and two novel algorithms for low-rank approximation
- Sherman, Alexander*, Spherical and symmetric supervarieties
- Tang, Haoran*, Towards informed exploration for deep reinforcement learning
- Wormleighton, Ben*, Numerics and stability for orbifolds with applications to symplectic embeddings
- Xu, Ze*, Density functional perturbation theory and adaptively compressed polarizability operator
- Zhang, Mengyuan*, Liasion of curves and bundles
- Zhang, Yue*, Guts, Dehn fillings and volumes of hyperbolic manifolds
- Department of Statistics**
- Barter, Rebecca*, Visualization, prediction, and causal inference: applications in healthcare
- Bartha, Zsolt*, Replica symmetry breaking in the random regular k-NAE-SAT problem
- Chen, Jianbo*, Towards interpretability and robustness of machine learning models
- Chen, Yuansi*, Fast MCMC algorithms, stability and deep tune
- DeGraaf, Stephanie*, Time-course analysis and clustering of gene expression data
- Fang, Billy*, Shape-constrained regression in misspecified and multivariate settings
- Guerra, Geno*, Statistical inference under the multispecies coalescent: methods and theory
- Hong, Chun Yu*, Latent variable models: maximum likelihood estimation and microbiome data analysis
- Howard, Steven*, Sequential and adaptive inference based on Martingale concentration
- Huang, Yan*, Overcoming the common challenges in differential gene expression analysis studies
- Kuenzel, Soeren Reinhold*, Heterogeneous treatment effect estimation using machine learning
- Lei, Lihua*, Modern statistical inference for classical statistical problems
- Shams Solari, Omid*, Large-scale interpretable multi-view learning for very high-dimensional problems with application to multi-omic data
- Walter, Simon*, High-dimensional and causal inference
- Wu, Jason*, Randomization tests under the potential outcomes framework
- Group in Biostatistics**
- Cai, Weixin*, Targeted learning of high-dimensional parameters and its finite sample inference
- Dufault, Suzanne*, The analysis of cluster-randomized test-negative design: eliminating dengue
- University of California, Davis (15)**
- Department of Mathematics**
- Chen, Ji*, Nonconvex matrix completion: from geometric analysis to algorithmic analysis
- Cuello, William*, Persistence of single and multispecies systems in the face of environmental uncertainty
- Dey, Subhadip*, Discrete isometry groups of symmetric spaces of non-compact type
- Gallup, Nathaniel*, Dots and dominos, zizags and squares
- Lazarus, Tynan*, Step-wise adjustable iterated function systems
- Luo, Yanwen*, The spaces of shapes and geodesic triangulations on surfaces
- Moon, Alvin*, Stable properties of grapped ground state phases of quantum spin chains
- Robey, Jonathan*, On the design, implementation, and use of a volume-of-fluid interface tracking algorithm for modeling convection and other processes in the earth's mantle
- Sanders, Robert*, Complexity zoology
- Schiffman, Benjamin*, Alpha-balanced and efficient branched transport systems and their landscape functions
- Shu, Jingyang*, Sharp fronts for the surface quasi-geostrophic equation
- Witte, Shawn*, Link nomenclature, random grid diagrams, and Markov chain methods in knot theory
- Wright, William*, An improved gauge dual descent algorithm for noisy phase retrieval
- Zhou, Bohan*, From optimal transport to optimal mixing flows and vice versa
- Zhou, Yunshen*, Solution of nonlinear Eigenvalue problems arising from constrained Rayleigh quotient optimization and resonant modes computation of accelerator
- University of California, Irvine (2)**
- Department of Mathematics**
- Ji, Yucheng*, On Kähler manifolds with certain curvature bounds
- Peltzer, Adrien*, The Riemann Zeta distribution and its properties
- University of California, Los Angeles (30)**
- Department of Biostatistics, Fielding School of Public Health**
- Zhang, Lu*, On simplified Bayesian modeling for massive geostatistical datasets: conjugacy and beyond
- Department of Mathematics**
- Boozer, Allen David*, Floer homology theories for knots in lens spaces
- Brightbill, Jeremy*, Perverse equivalences in the Dg-Stable category
- Carlson, Kevin*, 2-categorical Brown representability and the relation between derivators and infinity-categories

- Chang, Shyr-Shea*, Revealing design principles of biological networks through optimization and dynamical system approaches
- Ding, Mengyuan*, Modeling and simulation of thermomechanical elastoviscoplastic material and ductile fracture with the material point method
- Feng, Michelle*, Topological tools for understanding complex systems
- Gilton, Thomas*, On the infinitary combinatorics of small cardinals and the cardinality of the continuum
- Guo, Jiayin*, Geometry of punctured Riemann surfaces moduli
- Guo, Qi*, The material point method for solid and fluid simulation
- Han, Xuchen*, A material point method for simulating frictional contact with diverse materials
- Hannah, Robert*, Fundamental results on asynchronous parallel optimization algorithms
- Jekel, David*, Evolution equations in non-commutative probability
- Kureh, Yacoub*, Nonlinear opinion models and other networked systems
- Kwon, Dohyun*, Mean curvature flows and degenerate parabolic equations
- Lee, Sangchul*, Limit theorems for random walk local time, bootstrap percolation and permutation statistics
- Lin, Alex*, Algorithms for optimal paths of one, many, and an infinite number of agents
- Liu, Jialin*, Learning-based optimization for signal and image processing
- Liu, Yanli*, Operator splitting methods for convex and nonconvex optimization
- Mentus, Cassidy*, Information theoretic and statistical models for spatial transportation networks: total mixing entropy on optimal fluid flow networks and time dependent stochastic block models
- Parkinson, Christian*, Models for human navigation and optimal path planning using level set methods and Hamilton-Jacobi equations
- Pham, Minh*, New algorithms to computational microscopy
- Wang, Stephanie*, A material point method for elastoplasticity with ductile fracture and frictional contact
- Yuan, Baichuan*, Large-scale and deep spatiotemporal point-process models
- Zhang, John*, On shifted-localized derivators
- Program in Applied Mathematics  
GIDP**
- Edwards, Luke*, Receptivity of hypersonic boundary layers to kinetic fluctuations
- Gershuny, Victoria*, Mathematical models of the role of the immune system in FOLFOX therapy for colorectal adenocarcinoma
- Gomez, Kevin*, Two-dimensional traveling waves in population genetics
- Hofstrand, Andrew*, Mathematical aspects of modeling the propagation of intense, long-wavelength laser pulses
- Hui, Guangyu*, Modeling of oil spread on ocean
- University of California,  
Merced (2)**  
School of Natural Sciences
- DeGuchy, Omar*, Large-scale optimization and deep learning techniques for data-driven signal processing
- Roberts, Eric*, A computational geometric approach for an ensemble-based topological entropy calculation in two and three dimensions
- University of California,  
Riverside (1)**  
Department of Statistics
- Xie, Fangjie*, Significance tests for random effects and correction for bias of estimated QTL variances in GWAS
- University of California, San  
Diego (13)**  
Department of Mathematics
- Brivio, Iacopo*, On the problem of deformation invariance of plurigenera
- Chan, Alice*, The Segal-Bargmann transform on classical matrix Lie groups
- Ciotti, Benjamin*, Mathematical studies of electrostatic free energies
- Huang, Rong*, Detection of sparse heterogeneous mixtures: Theory, methods, and algorithms
- Lacini, Justin*, On log del Pezzo surfaces in characteristic different from two and three
- Lenz, David*, Unstructured space-time finite element methods in four dimensions
- Liang, Jingwen*, Sparse recovery and representation learning
- Meyer, Kyle*, Generalizations of the coinvariant algebra
- Mirzaei, Mozghan*, Connections between additive combinatorics, graph theory, and incidence geometry
- Nelson, Aaron*, Modern problems in mathematical signal processing: Quantized compressed sensing and randomized neural networks
- Thamrongpaiboj, Sittipong*, Dowling set partitions and positional marked patterns
- Wear, Peter*, Perfectoid covers of abelian varieties and the weight-monodromy conjecture
- Ying, Andrew*, Statistical inference: global testing, multiple testing and causal inference in survival analysis
- University of California,  
Santa Cruz (8)**  
Statistics Department
- Guha, Sharmistha*, On Bayesian methods in network regression
- Heiner, Matthew*, Bayesian mixture modeling and order selection for Markovian time series
- Kirsner, Daniel*, Nonstationary models for large spatial datasets using multi-resolution process convolutions
- Meng, Rui*, Temporal data models via stochastic process
- Shuler, Kurtis*, Bayesian hierarchical models for count data

*Song, Sisi*, Trajectory planning for autonomous vehicles for optimal exploration of spatial processes

*Spencer, Daniel*, Inference and uncertainty quantification for high-dimensional tensor regression with tensor decompositions and Bayesian methods

### University of Southern California (9)

#### Department of Mathematics

*Demirkaya, Emre*, Reproducible large-scale inference in high-dimensional nonlinear models

*Gang, Bowen*, Large scale inference with structural information

*He, Xinrui*, Asymptotically optimal sequential multiple testing with (or without) prior information on the number of signals

*Kleen, Viktor*, Some stable splittings in motivic homotopy theory

*Li, Shuang*, Estimation of random input to semi-linear abstract parabolic systems with application to quantitative description of drinking behavior based on trans-dermal alcohol concentration

*Ozdemir, Alperen*, On limiting distributions and convergence rates of random processes over discrete structures

*Phansom, Chukiat*, On stochastic integro-differential equations

*Wu, Hao*, Statistical insights into deep learning and flexible causal inference

*Yang, Jiaowen*, Information geometry and optimal transport

## COLORADO

### Colorado School of Mines (2)

#### Department of Applied Mathematics & Statistics

*Danes, Nicholas*, Computational modeling of extravascular platelet aggregation under flow

*Kozak, David*, Iterative stochastic optimization for large-scale machine learning and statistical inverse problems

### Colorado State University (3)

#### Department of Mathematics

*Camacho Navarro, Ana Catalina*, Three projects in arithmetic geometry: Torsion points and curves of low genus

*Gehrtz, Jessica*, Enacted responsiveness as a disposition: Leveraging and valuing student thinking

*Handwerk, Derek*, Mechanism-enabled population balances, and the effects of anisotropies in the complex Ginzburg-Landau equation

### University of Colorado, Boulder (19)

#### Department of Applied Mathematics

*Aurand, Joshua*, Optimal control of Epstein–Zin utility on random time horizons

*Pearson, Antony*, On hidden structures in contaminated symbolic data

*Robinson, Gregor*, Beating the curse of dimensionality of sequential Monte Carlo for Bayesian inverse problems in nonlinear fluids

*Shrestha, Sama*, Mathematical and statistical insights into coupled epizootic dynamics

*Sprenger, Patrick*, Generalized Riemann problems in dispersive hydrodynamics

*Wiens, Ashton*, Using Gaussian processes for registration and nonstationarity emulation

*Zhang, Wenqi*, Statistical approaches to assess high frequency variability of solar irradiance

#### Department of Mathematics

*Adamyk, Katharine*, A classification of  $Q_0$ -local  $A(1)$ -modules

*Bozlee, Sebastian*, An application of logarithmic geometry to moduli of curves of genus greater than one

*Healy, Andrew*, Explicit quasi-isomorphisms between the Koszul and bar resolutions of Weyl algebras

*Jack, Trevor*, Computational complexity of semigroup properties

*Khalili, Saeed*, Stochastic analysis for problems in mathematical finance and economics

*Martin, Daniel*, The geometry of imaginary quadratic fields

*Matson, Caroline*, Multidimensional formal group laws with complex multiplication

*Pullins, Mark*, Generically 2-transitive algebraic group actions with solvable point stabilizers

*Schrock, Tyler*, On the complexity of isomorphism in finite group theory and symbolic dynamics

*Smith, Hanson*, Monogeneity and torsion

*Sparks, Athena*, Clonoids and promise constraint satisfaction problems

*Wang, Zhenhua*, Random processes and stochastic control

### University of Colorado, Colorado Springs (1)

#### Department of Mathematics

*Harmon, Luke*, Lower finite modules over commutative rings with identity

### University of Colorado, Denver (6)

#### Department of Biostatistics & Informatics

*Chaussee, Erin*, Practical issues in the design and analysis of stepped wedge cluster randomized trials

#### Department of Mathematical & Statistical Sciences

*Nelsen, Luke*, Computational methods for graph choosability and applications to list coloring problems

*Patterson, Stephan*, Algorithms for discrete Barycenters

*Paul, Subrata*, Modeling heterogeneity in an association framework for a complex trait through the use of mixture models

*Viss, Charles*, Circuits in optimization

*Yao, Mengjie*, Dual block canonical correlation analysis and its application to genetic association studies

### University of Northern Colorado (3)

#### School of Mathematical Sciences

*Morgan, Michelle*, Standards-based grading practices in middle school

mathematics classrooms: A multi-case study

*Scott-Janda, Elizabeth*, The impact of social and cultural factors on minority students' participation in an international baccalaureate diploma program

*Zakotnik-Gutierrez, Jennifer*, An activity theory approach to examining the implications of developmental mathematics reform at an urban community college

## CONNECTICUT

### University of Connecticut, Storrs (18)

#### Department of Mathematics

*Akgul-Dogruev, Sahinde*, New canonical Jordan bases for H-selfadjoint matrices and their Lipschitz stability

*Lee, Jieun*, Existence of localized pulse solutions to skew-gradient systems

*Lee, Sangjoon*, Asymptotic analysis of quasi-limiting behavior for drifted Brownian motion conditioned to stay positive

*Qian, Junqing*, Modular functions and asymptotic geometry on punctured Riemann spheres

*Quan, Zhiyu*, Insurance analytics with tree-based models

#### Department of Statistics

*Chen, Renjie*, Topological data analysis for clustering and classifying time series

*Hu, Chaoran*, On Brownian motion governed by telegraph process

*Jiao, Jieying*, On Bayesian methods for spatial point processes

*Linder, Matthew*, Linear methods for joint analysis of multivariate genomics data

*Liu, Xiaokang*, Integrative multivariate learning via composite low-rank decompositions

*Liu, Yang*, Bayesian item response theory: methods and applications

*Mao, Disheng*, Unsupervised pattern recognition on large-scale genomics data

*McLaughlin, Paul*, On the topic of spatial capture-recapture modeling

*Meng, Qian*, Scan statistics for detecting a local change in the scale parameter for Gamma random variables

*Sidi, Yulia*, New approaches to the design and analysis of non-inferiority clinical trials

*Wang, Wenjie*, Integrative survival analysis with application to suicide risk

*Ye, Tairan*, On generalization of Tweedie distribution: a Bayesian perspective

*Zheng, Di*, Joint analysis of self-reported and biological measurements

### Wesleyan University (2)

#### Department of Mathematics & Computer Science

*Li, Freda*, Finiteness of strictly  $n$ -regular and almost  $n$ -regular Hermitian lattices

*Sawyer, Noelle*, Partial marked length spectrum rigidity of negatively curved surfaces

### Yale University (7)

#### Biostatistics Department

*Chen, Victoria*, Depth importance in precision medicine (DIPM): a tree and forest based method

*Li, Mo*, Gene-based association analysis for genome-wide association and whole-exome sequencing studies

*Wang, Xiaochen*, Statistical methods for cardiovascular disease risk assessment

#### Department of Mathematics

*Friedenberg, Netanel*, Completion theorems over valuation rings via polyhedral geometry

*Hille, Thomas*, Values of quadratic forms at integer points: bounds for the least solution of quadratic inequalities and the distribution of values of quadratic forms at integral points

*Rasmussen, Alexander*, Hyperbolic actions: Curve graphs, big mapping class groups, and classification

*Zhu, Guangyu*, The Galois group of the category of mixed Hodge-Tate structures

## DELAWARE

### Delaware State University (2)

#### Division of Physics, Engineering, Mathematics, and Computer Science

*Moore, Matthew*, A study on the numerical and analytical solutions of complex-variable partial differential equations

*Tyler, Micah*, Numerical determinations of scattering and bound states via self-consistent field theory

### University of Delaware (2)

#### Department of Mathematical Sciences

*Du, Shukai*, Generalized projection-based error analysis of hybridizable discontinuous Galerkin methods

*Jacavage, Jacob*, A mathematical exploration of phytoplankton blooms in the North Atlantic

## DISTRICT OF COLUMBIA

### George Washington University (1)

#### Department of Mathematics

*Bhattacharya, Debdeep*, Harmonic analysis techniques in nonlinear dispersive equations and signal processing

## FLORIDA

### Florida Atlantic University (6)

#### Department of Mathematical Sciences

*Babun Codorniu, Omar*, Characterization of linear isometries on complex sequence spaces

*Ball, Cory*, The change point problem for two classes of stochastic processes

*Chhetri, Sher*, Parameter estimation for geometric Lévy processes with stochastic volatility

*Gonzalez, Jorge*, Accurate high order computation of invariant manifolds for long periodic orbits of maps and equilibrium states of PDE

*Omairi, Akeel*, H-local rings

*Pham, Hai*, Contribution to quantum-safe cryptography: Hybrid encryption and reducing the T gate cost of AES

### Florida Institute of Technology (12)

#### Department of Mathematical Sciences

*Abu Weden, Amna*, Some free boundary problems for the nonlinear degenerate multidimensional parabolic equations modeling reaction-diffusion process

*Al-Obaidi, Ali*, Generalized random measures on topological spaces

*Alharbi, Talal*, Discrete moment problems with logconcave and logconvex distributions

*Alhawael, Ghadah*, A computational investigation of the biomechanics for platelets aggregation

*Allison, Howard*, Stability analysis of neutral functional differential equations arising in partial element equivalent circuit models

*Alshehri, Hashim*, Computational models for biological locomotion in gels

*Althobaiti, Nesreen*, Numerical simulation of low Reynolds number locomotion in viscoelastic media

*Alzaki, Lamees*, Analysis of interfaces for the nonlinear degenerate second order parabolic equations modeling diffusion-convection processes

*Fu, Shiqiu*, Critical elliptical boundary value problems with singular Trudinger-Moser nonlinearities

*Hagerdiyeb, Ali*, Optimal control of coefficients for the second order parabolic free boundary problems

*Rakala, Nandini*, Multi-objective optimization based machine learning with real-life applications

*Seif, Saleheh*, Optimal control of the second order elliptic equations with biomedical applications

### Florida State University (25)

#### Department of Mathematics

*Barnaby, Johnna*, Mathematical models of prostate cancer progression and response to treatment

*Eady, Carolyn*, On the use of conformal mappings, invariants and warpings in investigations of cortical surface

*Georgiadou, Antigoni*, Global optimization in stellar evolution applications

*Jorgenson, Grayson*, Secant indices, duality defect, and generalizations of Segre zeta function

*Kowan, Thanittha*, Conformal tilings and expansion complexes

*Liu, Feifan*, Novel numerical analysis methods, using the weno and weno-z algorithms, for combining observational data with model predictions for improving forecasts

*Sorribes Rodriguez, Inmaculada Concepcion*, Gliomas diagnosis, progression and treatment: a mathematical approach

*Villemarette, Matthew*, Second order discrete maximum preserving finite difference and finite element methods for nonlinear parabolic equations

*Yan, Heting*, Deep learning for limit order book trading and mid-price movement prediction

#### Department of Statistics

*Basak, Piyali*, Analysis of clustered interval-censored survival data: an application to prostate surgery study

*Dai, Mengyu*, Inference from longitudinal imaging data using SPDM trajectories

*Dasgupta, Sutanoy*, Shape based function estimation

*Deng, Yifang*, Perceived colors analysis and nonparametric regression and anti-regression for data on manifolds with applications to 3D projective shape analysis

*Desai, Apurva*, Multi-rubric models for ordinal spatial data

*Du, Junliang*, Leveraging structural information in regression tree ensembles

*Guo, Xiaoyang*, Geometric tools for statistical analysis on graphical shapes

*Lo, Chun-Chao*, Application of deep learning in text mining and computational structural biology

*Lung, Pei-yau*, Two studies on the application of machine learning for biomedical big data

*Qu, Jinchan*, Applications of machine learning to precision medicine

*Qu, Kai*, Bayesian hierarchical models that incorporate new sources of dependence for boundary detection and spatial prediction

*Sun, Lizhe*, Online feature selection with annealing and its applications

*Wang, Yunfan*, Nonparametric data analysis of Veronese Whitney means and antimeans on planar shape spaces with an application to medical imaging

*Yang, Hou-Cheng*, Bayesian methodologies for big spatial data that avoids covariance matrix inversion

*Zhang, Ruiyi*, Statistical modeling and testing of shapes of planar objects

*Zhao, Weilong*, Model-based depth with applications to functional data

### University of Central Florida (11)

#### Department of Mathematics

*Adu, Nathaniel*, Spatial models with specific error structures

*Bentley, Jason*, Transfunctions and other topics in measure theory

*Blackstone, Elliot*, Spectral properties of the finite Hilbert transform on two adjacent intervals via the method of Riemann-Hilbert problem

*Bosse, Christian*, Hadwiger numbers and Gallai-Ramsey numbers of special graphs

*Dewasurendra, Mangalagama*, Semi-analytical solutions of non-linear differential equations arising in science and engineering

*Gaudiello, Arielle*, Mathematical investigation of the spatial spread of an infectious disease in a heterogeneous environment

*Gupta, Pawan*, Solution of linear ill-posed problems using overcomplete dictionaries

*Juste, Ted*, Frames and phase retrieval

*Nguyen, George*, Variational inclusions with general over-relaxed proximal point algorithm and variational-like inequalities with densely pseudomonotonicity

*Rajapakshage, Rasika*, Estimation and clustering in statistical ill-posed linear inverse problems

*Zhang, Jingmei*, Two Ramsey-related problems

### University of Florida (13)

#### Department of Mathematics

*Binder, Mike*, Analysis of a model of Zika/Dengue co-circulation

*Davila, Trevor*, Infinite-dimensional coarse geometry of groups and spaces

*Diffenderfer, James*, An active set method for nonlinear programming

*Edwards, Parker*, A new palette for persistence landscapes

*Gotti, Marly*, Atomicity and factorization of Puiseux monoids

*Nowell, Jason*, Denjoy Wolff sets

*Shahrtash, Hossein*, The implications of conjugacy class and rational class sizes for the structure of finite groups

*Wagner, Alexander*, Embedding, approximating, and visualizing persistence modules

*Yuan, Ruyue*, Portfolio optimization with no short-selling and a time-consistent solution

#### Department of Statistics

*Backlund, Grant*, Analysis of Markov chain Monte Carlo algorithms for Bayesian regression models with heavy-tailed and skewed error distributions

*Mingyuan, Gao*, Fast and scalable methods for change point analysis in high dimensional data

*Qin, Qian*, Optimal convergence rate bounds for Markov chains based on drift and minorization

*Xing, Zeren*, Spectral gap estimation of Markov chains in Bayesian shrinkage model and covariance estimation for spatio-temporal data

### University of Florida College of Public Health (3)

#### Department of Biostatistics

*Chen, Yichen*, Using U-statistics to compare grouped marginal distributions of right censored event and waiting times in observational studies

*Yeonil, Kim*, Statistical testing procedures for analysis of genetic association studies

*Zahigian, Rachel*, Improvements in the design of novel two-stage adaptive clinical trials

## GEORGIA

### Augusta University (2)

#### Department of Population Health Sciences

*Lundeen, Jordan*, An interactive procedure to select and estimate wavelet based functional linear mixed-effects regression models

*Sun, Jing*, False coverage rate-adjusted smoothed bootstrap simultaneous confidence intervals for selected parameters

### Emory University (8)

#### Department of Biostatistics and Bioinformatics

*Jang, Jeong Hoon*, Statistical methods for evaluating continuous and functional diagnostic markers

*Li, Yunxiao*, Development of statistical methods for multiple hypotheses testing

*Soh, Jae Eui*, Nonparametric regression for assessing time-varying effects in survival analysis

*Wang, Yikai*, Novel statistical and machine learning methods with application to brain imaging data

#### Department of Mathematics

*Barone, Alessandro*, Patient-specific modeling in cardiac electrophysiology: parameter estimation and personalization

*Beneish, Lea*, Connections between mock modular forms and vertex operator algebras

*Elliott, Bradley*, Increasing paths in edge-ordered hypergraphs

*Morrow, Jackson*, Non-Archimedean and tropical techniques in arithmetic geometry

### Georgia Institute of Technology (16)

#### School of Mathematics

*Bock, Bounghun*, Percolation theory: the complement of the infinite cluster and the acceptance profile of the invasion percolation

*Celaya, Marcel*, Lattice points, zonotopes, and oriented matroids

*Chen, Jiangning*, Text-classification methods and the mathematical theory of principal components

*Ghanta, Rohan*, The polaron hydrogenic atom in a strong magnetic field

*Hoyer, Alexander*, On the independent spanning tree conjectures and related problems

*Kieffer, Thomas*, The Maxwell-Pauli equations

*Lanier, Justin*, Small torsion generating sets for mapping class groups

*Lee, Kisun*, Finding and certifying roots of systems of equations

*Mayorga Tatarin, Sergio*, On a classical solution to the master equation of a first order mean field game

*McCullough, Andrew*, Legendrian large cables and non-uniformly thick knots

*Paprocki, Jonathan*, Quantum torus methods for Kauffman bracket skein modules

*Shu, Longmei*, Topics in dynamical systems

*Xie, Shijie*, 6-connected graphs are two-three linked

*Xing, Xin*, The proxy point method for rank-structured matrices

*Zhai, Haoyan*, The applications of discrete optimal transport in path planning and data clustering

*Zhang, Yuze*, Topics on the length of the longest common subsequences, with blocks, in binary random words



### Georgia State University (6)

#### Department of Mathematics & Statistics

*Akossi, Aurelie*, Comparison of various discretization algorithms for stable estimation of disease parameters and forecasting in epidemiology

*Castro Lopez Vaal, Rodrigo*, A category-theoretic compositional framework of perceptron-based neural networks plus an architecture for modeling sequences

*Kastine, Jeremy*, Maximally even tilings: Theory and algorithms

*Rahman, Husneara*, Novel nonparametric methods in functional time series and diagnostic medicine

*Smith, Howard*, A computation study of biofilm development and dispersal

*Wei, Guanhao*, Novel statistical methods for censored medical cost and breast cancer data

### University of Georgia (12)

#### Department of Mathematics

*Mersmann, Clay*, A multivariate spline approach to the Maxwell equations

*Perkerson, Eric*, Learning with noise, sparse errors, and missing data

*Schreyer, Erik*, The hyperbolic center of mass and piecewise circular curves of arbitrary shape

*Wu, Xian*, Stable pair compactification of the moduli space of two special families of Calabi-Yau 3-folds and Chow quotients of Grassmannians by diagonal subtori

*Xu, Yidong*, Multivariate spline method for scattered data fitting, curve and surface reconstruction, and numerical solution to Poisson equations via domain decomposition method

#### Department of Statistics

*Benesi, Tawanda*, Improved EM-Type algorithms for fitting marginal zero-inflated regression models to clustered data with excess zeros

*Chung, Hee Cheol*, Some contributions to statistical inference on small sample size data: small area

estimation and high dimension low sample size data analysis

*Costa Araujo, Natalia*, Partial least squares path modeling for interval-valued variables

*Meng, Cheng*, Data reduction in non-parametric statistical analysis and optimal transport methods

*Poythress, JC*, Regularization techniques for statistical methods utilizing matrix/tensor decompositions

*Washington, Benjamin*, An adapted VAR-EM imputation of climate data and statistical downscaling of temperature, precipitation, and solar radiation in Puerto Rico

*Zhang, Jingyi*, Data fusion for heterogeneous data and its applications

## HAWAII

### University of Hawaii at Mānoa (3)

#### Department of Mathematics

*Hassan Haidar, Jamal*, Shapes of multi-quadratic extensions

*Krasky, Don*, Motile organisms dispersing and tracking chemical signals

*Tobin, Isabella*, Belyi maps and bicritical polynomials

## IDAHO

### University of Idaho (2)

#### Department of Mathematics and Statistical Science

*Decock, Doug*, Vertex-disjoint large cycles

*Reiss, Daniel*, Arithmetic relations between Fourier coefficients of Siegel paramodular forms

## ILLINOIS

### Illinois Institute of Technology (2)

#### Applied Mathematics Department

*Rathinavel, Jagadeeswaran*, Fast automatic Bayesian cubature using matching kernels and designs

*Rumpf, Adam*, Mathematics of civil infrastructure network optimization

### Northern Illinois University (2)

#### Department of Mathematical Sciences

*Shen, Hao*, Applications of Bayesian functional data analysis

*Stoertz, Daniel*, A spider's web of doughnuts

### Northwestern University (6)

#### Department of Mathematics

*Le, Anh*, Nilsequences and multiple correlations along subsequences

#### Engineering Science & Applied Mathematics Dept

*Chen, Yuxin*, Noise-induced tipping under periodic forcing

*Meng, Hongyu*, Modeling of structural plasticity and synchronization in the rodent olfactory bulb

*Menssen, Rebecca*, Quantitative descriptors of particulate dynamics in biological systems

*Sereewattanawoot, Narut*, A parallel localized adaptive domain decomposition scheme for parabolic partial differential equations

*Shah, Sahil*, Statistical methods for the network-based analysis of genomic data

### University of Chicago (28)

#### Department of Mathematics

*Bakytzhan, Nazerke*, Visibility of twists of modular abelian varieties

*Campos, Daniel*, Reconstruction of the magnetic field for a Schrödinger operator in a cylindrical setting

*Chang, Alan*, Besicovitch sets, rectifiability, and projections

*Chen, Lvzhou*, Surfaces in graphs of groups and the stable commutator length

*Cheng, Yun*, Galois representations and modular forms mod 2

*di Fiore, Carlos*, Matrix factorizations for quasi-coherent sheaves of categories

*Gerbelli-Gauthier, Mathilde*, Growth of cohomology of arithmetic groups and the stable trace formula

*Gonzales, Claudio*, On the topology and arithmetic of spaces of

- non-degenerate maps between complex projective spaces
- Harris, Reid*, The kernel of the monodromy of the universal family of degree  $d$  smooth plane curves
- Martin, Oliver*, Zero-cycles and measures of irrationality for abelian varieties
- Montee, MurphyKate*, Cubulating random groups at densities  $d < 3/14$
- O'Connor, Benjamin*, Cohomology of configuration spaces of non-collinear points in the projective plane
- Schaefer, Karl*, Class groups of Kummer extensions via cup products in Galois cohomology
- Trinh, Minh-Tam*, Algebraic braids and geometric representation theory
- Zhou, Yiwen*, Completed cohomology and Iwasawa theory
- Zou, Foling*, A geometric approach to equivariant factorization homology and nonabelian Poincaré duality
- Department of Statistics**
- Eskreis-Winkler, Jonathan*, Multiresolution analysis of discrete spaces
- Han, Yuefeng*, Robust estimation of high dimensional time series
- Kim, Youngseok*, A spike and slab prior and Bayesian variable selection
- Lou, Zhipeng*, High dimensional inference based on quadratic forms
- McKenna, Christopher*, Latent variables in "omic" data
- Naisat, Gregory*, Tropical algebra and algebraic topology of deep neural networks
- Panov, Petr*, Loop soup occupation fields and Poisson cylinders
- Sun, Lei*, Adaptive shrinkage with correlated, heteroskedastic noise in large-scale simultaneous statistical inference
- Wang, Minzhe*, Estimations in topic modeling
- Xu, Changji*, Random walk among Bernoulli Obstacles
- Zhang, Fengshuo*, Theoretical guarantee of variational inference and its applications
- Zhuo, Bumeng*, Topics on Bayesian inference sampling algorithms
- University of Illinois at Chicago (19)**
- Mathematics, Statistics & Computer Science Department**
- Abernethy, Jonathan*, Approximation techniques for scaling up permanent classification
- Chase, Hunter*, Model theory and machine learning
- Chow, Dylan*, The distribution of integral points on the wonderful compactification by height
- Hao, Shuai*, Support points of locally optimal designs for multinomial logistic regression models
- Herndon, William*, Deformation and products of polish groups
- Holmberg-Peroux, Maximilien*, Highly structured coalgebras and comodules
- Hua, Yi*, Extended Youden design in biological assays and optimal design for nonlinear models
- Janhardanan, Mano Vikash*, Algorithms for learning networks and learning from networks
- Jatoba, Victor*, Strong generators in  $D\text{perf}(X)$  for schemes with a separator
- Lazovskis, Janis*, Stability of universal constructions for persistent homology
- Liu, Han*, On the well-posedness and long time behavior of the hall-magnetohydrodynamics system
- Luo, Xiaoyutao*, Convex integration and the Navier-Stokes equations
- Mandal, Sayanta*, Betti numbers of the Moduli space of stable sheaves  $P^2$
- Sartipi, Khashayar*, Paschke category,  $K$ -homology, and the Riemann-Roch transformation
- Seong, See-Hak*, Connectivity and the Nef cone of the Hilbert scheme of hypersurfaces in the Grassmannian
- Suzuki, Fumiaki*, The integral Hodge conjecture and universality of the Abel-Jacobi maps
- Trifunovski, Darko*, Rankin-Selberg  $L$ -functions for the unitary similtude group of order two
- Wang, Xuelong*, Representative approach for big data dimension reduction with binary responses
- Wolf, Jonathan*, Model theory of differential fields and ranks of underdetermined systems of differential equations
- University of Illinois, Urbana-Champaign (38)**
- Department of Mathematics**
- Ahmed, Iftikar*, Mathematical modeling of infectious diseases
- Dunn, Alexander*, Analytic and arithmetic applications of half integral weight automorphic forms
- Fassina, Martino*, Singularities and multiplier algorithms for real hypersurfaces
- Field, Elizabeth*, Trees, dendrites, and the Cannon-Thurston map
- Gao, Xinghua*, Orderability of homology spheres obtained by Dehn filling
- Garland, Christopher*, BiLipschitz embeddings and nonembeddings of metric spaces and related problems
- Harris, Terence*, Restricted projection families and weighted Fourier restriction
- Klajbor-Goderich, Stefanie*, Equivariant dynamics and categories of equivariant vector fields
- Koutsaki, Kalliopi*, Distribution of sequences related to  $L$ -functions
- Li, Lina*, Enumerating combinatorial objects with limited sub-configurations
- Li, Xiao*, On error correcting codes for distributed storage
- Linden, Christopher*, Continued fractions and representations of graphs
- Loving, Marissa*, Least dilatation of pure surface braids
- Luo, Ruth*, Extremal problems for cycles in graphs and hypergraphs
- Menon, Dileep*, Equivariant elliptic cohomology and twisted equivariant  $k$ -theory
- Merriman, Claire*, Geometric and ergodic properties of certain classes of continued fractions
- Nell, Travis*, Distality in pairs

*Obeidin, Malik*, Local properties of random link diagrams

*Penciak, Matej*, A spectral description of the spin Ruijsenaars-Schneider system

*Pynn-Coates, Nigel*, On asymptotic valued differential fields with small derivation

*Rawig, Siraprapa*, Poisson structures and degenerations of integrable systems related to  $Y(gl_2)$

*Rivera-Quinones, Vanessa*, Mathematical models of daphnia epidemics

*Roman-Garcia, Fernando*, Projections, slicings and Fourier transforms in the Heisenberg group

*Schmidt, Arnold James*, Morphisms of networks of hybrid open systems

*Shen, Shiyu*, Tamely ramified geometric Langlands correspondence in positive characteristic

*Shi, Yun*, On motivic Donaldson-Thomas theory on the local projective plane

*Tichenor, Scott*, Annular breadth of hinges & hinge exit paths of annuli

*Tran, Minh*, Model theory of partially random structures

*Wang, Lan*, Dynamics on networks

*Yager, Derrek*, Sufficient degree conditions for graph embeddings

*Zhang, Ningchuan*, L-functions and J-spectra

### Department of Statistics

*Biscarri, William*, Statistical methods for binomial and Gaussian sequences

*Chen, Yinyin*, Identifiability for latent class models

*Man, Albert*, A mode-jumping algorithm for exploratory factor analysis with continuous and binary responses

*Nute, Michael*, Statistical estimation problems in phylogenomics and applications in microbial ecology

*Xue, Fei*, Variable selection for high-dimensional complex data

*Yang, Xinming*, Bayesian high dimensional modeling with group structures

*Yuan, Yubai*, Approximate likelihood for dependent networks and hyper-link predictions

## INDIANA

### Indiana University, Bloomington (15)

#### Department of Mathematics

*Hussung, Steven*, Pluripotential theory associated with convex bodies and related numerics

*Lei, Mengda*, The spectrum of a solenoid

*Lim, Geunho*, Enhanced bounds for rho-invariants for both general and spherical 3-manifolds

*Martinez-Granado, Didac*, Smoothings: A study of curve functionals

*Qin, Xuqiang*, Moduli spaces of instanton sheaves on fano threefolds

*Scott, Maxime*, Minimal stretching for topological branched covers

*Shi, Yi*, The Lebesgue decomposition of the free multiplicative convolution of two probability distributions

*Sozer, Kursat*, Two-dimensional extended homotopy quantum field theories

*Tang, Pengfei*, Bernoulli percolation and uniform spanning forest on nonunimodular transitive graphs

*Thompson, Brady*, The spectrum of unitarily invariant random matrix models with increasingly many spikes

*Vitale, Ryan*, Planar algebra presentations of  $URep_{\mathbb{C}}(\mathbb{C}^+)$  and  $URep_{\mathbb{F}_p}(\mathbb{F}_p^+)$

*Zhang, Yining*, Cyclic pairings and noncommutative Poisson structures

*Zhou, Cong*, Limit results for R-diagonal random variables

#### Department of Statistics

*Ding, Lei*, Supervised learning and outlier detection for high-dimensional data utilizing principal component

*Hu, Xixi*, Graph comparison with applications in neuroscience

*Yang, Zikun*, Gaussian regression model selection in high dimension

### Indiana University-Purdue University Indianapolis (10)

#### Department of Mathematical Sciences

*Chan, Virgil*, An explicit formula for the Loday assembly

*Cheung, Thomas*, A-optimal subsampling for big data general estimating equations

*Chio, Ivan*, Some connections between complex dynamics and statistical mechanics

*Gharakhloo, Roozbeh*, Asymptotic analysis of structured determinants via the Riemann-Hilbert approach

*Marcal, Patricia*, Ricci curvature of Finsler metrics by warped product

*Pereira Bezerra, Luan*, Quantum toroidal superalgebras

*Prokhorov, Andrei*, Connection problem for Painlevé Tau functions

*Silvestri, Stefano*, The dynamics of semigroups of contraction similarities on  $\mathbb{C}$

*Tang, Ziting*, Robust A-optimal subsampling for massive data robust linear regression

*Zhou, Dali*, Massive data K-means clustering and bootstrapping via A-optimal subsampling

### Purdue University (28)

#### Department of Mathematics

*Ahmadi, Lida*, Asymptotic analysis of the  $k$ th subword complexity

*Brubaker, Katherine*, A priori estimates for the homogeneous Monge-Ampère equation on Kähler manifolds

*Cai, Difeng*, Robust and explicit a posteriori error estimation techniques in adaptive finite element method

*Cao, Duo*, High accuracy numerical methods for boundary value problems

*Costantini, Alessandra*, Rees algebras and special fiber rings of modules

*Dahlin, Kyle*, Mathematical models for mosquito-borne infectious diseases of wildlife

*Eikmeier, Nicole*, Spectral properties and generation of realistic networks

*Figuerola, Andres*, Quasi-Toroidal varieties and rational log structures in characteristic 0

*Gu, Yiqi*, Spectral methods for boundary value problems in complex domains

*Kim, Daesung*, Stability for functional and geometric inequalities and a stochastic representation of fractional integrals and nonlocal operators

*Moses, Nathan*, Approximate roots and the hidden geometry of polynomial coefficients

*RabieniaHaratbar, Siamak*, Inverse scattering and tomography, and delay differential equations in cyber-physical testings

*She, Dongming*, Local Langlands correspondence for the twisted symmetric and exterior square  $\epsilon$ -factors of  $GL_n$

*Spitler, Ryan*, Profinite completions and representations of finitely generated groups

*Weld, Ellen*, Connective Bieberbach groups

*Xu, Ling*, Harmonic maps into Teichmüller spaces and superrigidity of mapping class groups

*Yang, Jingwen*, The error estimations in finite element methods for low regularity elliptic equations

*Yuan, Xiaokai*, Direct and inverse problems in elastic scattering

#### Department of Statistics

*Cheng, Ching-Wei*, Enhancing multi-model inference with natural selection

*Gerber, Eric*, A mixed effects multinomial logistic-normal model for forecasting baseball performance

*Goossens, Emery*, On the interplay between statistical concepts and computational models in omics applications model-based high-dimensional network inference: theory and methods

*Hao, Botao*, Statistical guarantee for non-convex optimization

*Keaton, Timothy*, Dismembering the multi-armed built

*Maia Rodrigues Gomes, Guilherme*, Hypothesis testing and community detection on networks with missingness and block structure

*Matangi, Evidence*, Handling complexity via statistical methods

*Sudyanti, Putu Ayu*, Nonparametric mixture modeling on constrained spaces

*Xu, Yixi*, Understanding deep neural networks and other nonparametric methods in machine learning

*Yang, Jiasen*, Statistical learning and model criticism for networks and point processes

#### University of Notre Dame (18)

##### Applied and Computational Mathematics and Statistics

*Baker, Cody*, Second order moments of activity in large neural network models

*DiPietro, Kelsey*, Moving mesh methods for two dimensional partial differential equations

*Eugenio, Evercita*, Some methods for differentially private data synthesis

*Horr, Christina*, Creation of breast cancer subtypes: A consensus-based network approach

*Pyle, Ryan*, Dynamics and computations in recurrent neural networks

##### Department of Mathematics

*Cousins, Gregory*, Some model theory of fields and differential fields

*Kjaer, Jens*, Homology of the derivatives of the identity functor of spaces

*Li, Yichao*, Asymptotic expansions of solutions of the Yamabe equation near isolated singular points

*Mann, Jeremy*, Applications of factorization homology to Riemannian field theories

*Moreno, Adam*, The Alexandrov geometry of leaf spaces

*Mulholland, Brian*, Holomorphic polar coordinates and Segal-Bargmann space

*Murray, Laura*, Equivariant factorization algebras: an  $\infty$ -operadic approach

*Orton, Danny*, Cluster structures on the affine space of rectangular matrices

*Pastrana Chiclana, Jose*, Regularity properties of the solution map of the incompressible Euler equations

*Perlman, Michael*, Equivariant D-modules on spaces of tensors and applications to local cohomology

*Timchenko, Kostiantyn*, Characteristic cycles for K-orbits on Grassmannians

*Weisshaar, Rose*, Some results in computability theory

*Yan, Fanchi*, Well-posedness of a higher dispersion KdV equation on the half-line

## IOWA

### Iowa State University (5)

#### Department of Mathematics

*Jauch, Erich*, A study of Galois and flag orders

*Maimaitiyiming, Wumaier*, Positive and energy stable schemes for Poisson-Nernst-Planck equations and related models

*Nowak, Alex*, Linear aspects of equational triality in quasigroups

*Wass, Isaac*, A treatise on pansophy

#### Department of Statistics

*Chakraborty, Abhishek*, Some Bayes methods for biclustering and vector data with binary coordinates

### University of Iowa (12)

#### Applied Mathematical & Computational Sciences

*Muhammad, Ruqiah*, A new dynamic model for non-viral multi-treatment gene delivery systems for bone regeneration: parameter extraction, estimation, and sensitivity

*Nguyen, Anh*, Information processing in the auditory cortex: the case studies of perceptual alternation in auditory streaming and laminar origin of surface evoked response to sounds

### Department of Biostatistics

*Dai, Biyue*, Projection-based inference and model selection for penalized regression

*Welhaven, Anne*, Pacing modification by incorporation of lag in early phase designs

### Department of Mathematics

*Bungula, Wako*, Bifiltration and stability of TDA mapper for point cloud data

*Gommel, Maria*, A machine learning exploration of topological data analysis applied to low and high dimensional fMRI data

*Ignacio, Paul Samuel*, Stability of persistent directed clique homology on dissimilarity networks

*MacKinnon, Rebeccah*, An equivalence between combinatorial tangle Floer and contact categories

*Messmore, Mitchell*, On the linking skein of a 3-manifold: Derived 3-manifold invariants

*Park, Jeungeun*, Traveling wave solutions of nonlinear conservation laws arising from image processing and from chemotaxis

*Sabree, Aqeeb*, Positive definite kernels, harmonic analysis, and boundary spaces: Drury-Arveson theory, and related

*Sucpikarnon, Wanchalerm*, Classification of tensor decomposition for  $II_1$  factors

## KANSAS

### Kansas State University (8)

#### Department of Mathematics

*Bressie, Phillip*, Globular PROs and the weak  $\omega$ -categorification of algebraic theories

*Grossnickle, Keely*, Non-k-equal configuration and immersion spaces

*Hoppis, Jared*, Reciprocity of p-modulus and consequences in metric spaces

*Melikyan, Anna*, Random spanning trees on homogenous graphs

*Mikheev, Vikenty*, Modulus on temporal graphs

*Peabody, Jamie*, The GIT fan for a Mori dream space and the  $\mu$ -secondary polytope

*Thomson, Alexander*, Leiboiz-type rules Triebel-Lizorkia and Besov spaces

*Wang, Qiang*, Wall-crossing structures in Seiberg-Witten integrable systems

### University of Kansas (5)

#### Department of Mathematics

*Cui, Yanhao*, A general stochastic volatility model on VIX options

*Hadadifard, Fazel*, Sharp time asymptotics for the quasi-geostrophic equation, the Boussinesq system and near plane waves of reaction-diffusion models

*Lyle, Justin*, Homological properties of structures in commutative algebra and algebraic combinatorics

*Ma, Nicholas*, Rate of convergence for the weighted Hermite variation of the fractional Brownian motion

*Malhi, Satbir*, Energy decay for the linear damped Klein-Gordon equation on unbounded domain

### University of Kansas Medical Center (7)

#### Department of Biostatistics

*Duan, Jiawei*, Statistical evaluation of drug safety in clinical trials

*Liu, Junhao*, Bayesian approaches for clinical trial monitoring

*Meier, Richard*, Methodological developments for the analysis of biological samples in the presence of compositional effects

*Montgomery, Robert*, Novel statistical methods for missing data and multiplicity in Alzheimer's research

*Rotich, Duncan*, Methods for improving inference in clinical outcomes

*Wang, Zhiwen*, Prediction of random effects in mixed effects models under violations of the normality assumption for the random-effects and a graphical approach to detect violations

*Zhang, Xuan*, Measuring individual treatment benefits using longitudinal outcomes from clinical trials or hospital data

### Wichita State University (4)

#### Department of Mathematics, Statistics, and Physics

*Balu, Raja*, Numerical methods for Riemann-Hilbert problems in multiply connected circle domains

*Nguyen, Nam H*, Quantum neural networks

*Wang, Lei*, Advanced forecasting model on land market value based on USA real estate market

*Wang, Yufei*, Stochastic monotonicity of a distribution family associated with matrix projections and its applications

## KENTUCKY

### University of Kentucky (20)

#### Department of Mathematics

*Al Ghalfi, Maryam*, An inverse Eigenvalue problem for the Schrödinger equation on the unit ball of  $\mathbb{R}^3$

*Antrobus, Jared*, The state of lexicode and Ferrers diagram rank-metric codes

*Brodie, Benjamin*, Eigenvalue statistics and localization for random band matrices with fixed width and Wegner orbital model

*Clark, Shane*, Periodic points on tori: vanishing and realizability

*Helfrich, Kyle*, Orthogonal recurrent neural networks and bath normalization in deep neural networks

*Maraj, Aida*, Algebraic and geometric properties of hierarchical models

*Petrik, Rachel*, Solutions to systems of equations over finite fields

*Sawyer, Kalila*, Scollar invariants of tropical chains of loops

*Slye, Jeffrey*, Undergraduate mathematics students' connections between their group homomorphism and linear transformation concept images

*Vega, Julianne*, Graph-theoretic simplicial complexes, Hajos-type constructions, and  $k$ -matchings

*Zhuge, Jinping*, Boundary layers in periodic homogenization

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*Ke, Chenlu*, A new independence measure and its applications in high dimensional data analysis

*Li, Yuntong*, Semiparametric and nonparametric methods for comparing biomarker levels between groups

*Ren, Weihang*, Moment kernels for T-central subspace

*Villasante Tezanos, Alejandro*, Composite nonparametric tests in high dimension

*Weng, Jiaying*, Transforms in sufficient dimension reduction and their applications in high dimensional data

*Xu, Li*, Estimation of the treatment effect with Bayesian adjustment for covariates

*Zhai, Tingting*, Cancer phylogenetic analysis based on RNA-SEQ data

*Zhang, Xu*, Bayesian kinetic modeling for tracer-based metabolomic data

*Zou, Yixuan*, Statistical intervals for various distributions based on different inference methods

University of Louisville (4)

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*Cartor, Ryann*, A study of big field multivariate cryptography

*Christensen, Katie*, Algebraic properties of neural codes

*Leach, Trevor*, Characterizing majority rule on various discrete models of consensus

*Pervenecki, Timothy*, Allee effects introduced by density dependent phenology

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LSU Health Science Center, New Orleans (4)

Department of Biostatistics

*Fisher, Paige*, Inference in the linear random coefficient model with missing covariates

*Wang, Xinnan*, Overlapping group Lasso screening tests and applications in genomic data analysis

*Watters, Christine*, Extension, investigation, and comparison of methods of inverse prediction to

general models for heteroscedastic multivariate responses

*Zhu, Lin*, Bayesian adaptive designs for phase III clinical trials

Louisiana State University, Baton Rouge (5)

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*Adili, Abiti*, Design of metamaterials for optics

*Chang, Yu-Chan*, Dehn functions of Bestvina–Brady groups

*Fife, Tara*, On selected subclasses of matroids

*Salmoiraghi, Federico*, Equivalence of contact gluing maps in sutured Floer homology

*Trampel, Kurt*, Quantum cluster algebras at roots of unity, Poisson-Lie groups, and discriminants

Louisiana Tech University (1)

Program of Mathematics & Statistics

*Wilson, Joshua*, ABC method and fractional momentum layer for the FDTD method to solve the Schrödinger equation on unbounded domains

Tulane University (5)

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*Boniece, Benjamin Cooper*, On scale invariance and wavelet analysis

*Le, Tien*, Diagonal orbits in double flag varieties

*Lopez-Merizalde, Jaime*, Optimized reduced models for discrete fracture networks used in modeling particle flow and transport

*O'Rourke, Jonathan*, Local cohomology and regularity of powers of monomial ideals

*Qu, Zhe*, High-dimensional statistical data integration

University of Louisiana at Lafayette (4)

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*Bai, Yunxiang*, Analysis and applications of Caputo fractional impulsive differential equations

*Hoang-Nguyen-Thuy, Ngan*, On construction of two-sided tolerance intervals and confidence intervals for probability content

*Hossain, Istiaq*, Examining population and evolutionary dynamics in predator-prey models

*Waguespack, Dustin*, Inference for two-parameter Rayleigh distributions based on uncensored or censored samples

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Johns Hopkins University (9)

Department of Biostatistics

*Ackerman, Ben*, Statistical methods for transportability: addressing external validity and measurement error concerns in randomized trials

*Cristiano, Stephen*, Modeling cancer risk from genomic data

*Fiksel, Jacob*, Quantification learning with application to mortality surveillance

*Ji, Zhicheng (Jason)*, Statistical methods for decoding gene regulation in single cells

*Johns, Jordan*, Statistical methods in applications with complex data structures

*Kundu, Prosenjit*, Statistical methods for integrating disparate data sources

*Qi, Guanghao*, Statistical methods for analysis of genome-wide association studies across multiple traits

*Wang, Zeyi*, Statistical analysis of functional connectivity in brain imaging: measurement reliability and clinical applications

*Yang, Yuchen*, Analyzing benefit-risk data in the presence of a primary endpoint and secondary measurements

Johns Hopkins University, Baltimore (2)

Department of Mathematics

*Paschke, Jordan*, Uniform Weyl asymptotics for off-diagonal spectral projections

*Yu, Si*, On moduli description of local models for ramified unitary groups and resolution of singularity

### Morgan State University (2)

#### Department of Mathematics

*Bandpey, Zeinab*, Topological properties using  $a$ -sets, some combinatorial problems of Stanley, along with applications to counterterrorism and snow removal

*Brindle, Darin*,  $S$ -asymptotically  $\omega$ -periodic functions and sequences and applications to some evolution equations

### University of Maryland, Baltimore County (6)

#### Department of Mathematics & Statistics

*Arsham, Aryana*, Some contributions to aggregate and individualized cost-effectiveness analysis

*Hogan, Janita*, The disruption of bursting behavior in pancreatic islets: a network and dynamical systems analysis of multicellular clusters

*Ji, Qing*, Computational methods for hidden Markov models with applications

*Lu, Wenxin*, Analysis of longitudinal interval reported binary recurrent event data & statistical model for subgroup identification in enrichment design

*Mousavi, Seyedahmad*, Topics in sparse recovery via constrained optimization: least sparsity, solution uniqueness, and constrained exact recovery

*Ye, Aijun*, Efficient designs for cyclic data generated by multivariate harmonic mixed models

### University of Maryland, College Park (22)

#### Department of Mathematics

*Chong, Jacky*, Application of dispersive PDE techniques to the studies of the time-dependent Hartree-Fock-Bogoliubov system for Bosons

*Daniels, Patrick*, A Tannakian framework for  $G$ -displays and Rapoport-Zink spaces

*Dellatorre, Matthew*, Analytic approaches in Lagrangian geometry

*Fernandes, Jonathan Francis*, Special unipotent Arthur packets for real reductive groups

*Gao, Yijie*, Center of pro- $p$ -Iwahori-Hecke algebra

*Goldblum, Micah Isaac*, Adversarial robustness and robust meta-learning for neural networks

*Hebbar, Pratima*, Branching diffusion processes in periodic media

*Kirk, Ryan Timothy*, Positive tuples of flags, piecewise circular wavefronts, and the 3-dimensional Einstein universe

*Kirsch, Ariella*, Ranks of  $p$ -class groups in cyclic  $p$ -extensions of anti-cyclotomic  $\mathbb{Z}_2$ -extensions

*Lin, Hsin-Yin*, Dispersion properties of transport equations and applications

*Lin, Kung-Ching*, Nonlinear sampling theory and efficient signal recovery

*Middlebrooks, Danielle*, Quantifying flows in the time-irreversible Markov chains

*Peters, Cara*, Modeling Imatinib-treated chronic myelogenous leukemia and the immune system

*Ren, Yixin*, Regression analysis of recurrent events and measurement errors

*Shi, Yousheng*, Generalized special cycles on locally symmetric spaces and the cohomology of the Weil representation

*Sun, Guowei*, Topics in stochastic optimization

*Sun, Luyu*, Developments in Lagrangian data assimilation and coupled data assimilation to support earth system model initialization

*Wang, Weikun*, Moduli spaces of sheaves on Hirzebruch orbifolds

*Wyatt, Asia*, Mathematical models of underlying dynamics in acute and chronic immunology

*Zhang, Tao*, Stable pair theory in toric orbifolds and colored reverse plan partitions

*Zhang, Tianhui*, Markov multipstate models for survival analysis with recurrent events

*Zhao, Chenzi*, Applications of nonharmonic Fourier analysis and single pixel camera design

## MASSACHUSETTS

### Boston College (4)

#### Department of Mathematics

*Cengiz, Mustafa*, Heegaard splittings and complexity of fibered knots

*Goluboff, Justin*, Genus six curves,  $K3$  surfaces, and stable pairs

*Krishna, Siddhi*, Taut foliations, positive braids, and the  $L$ -space conjecture

*Mullican, Cristina*, Bounded powers extend

### Boston University (5)

#### Department of Mathematics & Statistics

*Atanasova, Diana*, Transit orbits and long-term dynamics in the near-parabolic restricted three-body problems

*Choi, Brian*, Weighted Fourier analysis and dispersive equations

*de Frutos Fernandez, Maria Ines*, Modularity of elliptic curves defined over function fields

*Zhang, Ying*, Particle-based stochastic reaction-diffusion methods for studying T-cell signaling

*Zheng, Xiao*, Equivariant Lagrangian Floer theory and mirror symmetry

### Boston University School of Public Health (6)

#### Department of Biostatistics

*Ansari, Soudeh*, Estimating the causal effect of dynamic treatment strategies on pregnancy using electronic medical records or adaptive clinical

*Leavitt (Van Ness), Sarah*, Exploration of infectious disease transmission dynamics using the relative probability of direct transmission between patients

*Lei, Lanyu*, Sample size recalculation in three-arm inferiority trials

*Mitani, Aya*, Modeling dental disease progression in a longitudinal study

*Weir, Isabelle*, New statistical methods with restricted mean survival time for randomized controlled trials

*Yuyin, Liu*, Novel statistical methods for multi-stage designs in clinical trials with high placebo response

### Brandeis University (3)

#### Department of Mathematics

*Eike, Joshua*, Combinatorially contracting geodesics

*Ma, Langte*, Gluing and surgery for the Casson-Seiberg-Witten invariant of integral homology  $S^1 \times S^3$

*Morris-Wright, Rose*, Geometric structures on infinite type Artin groups

### Harvard University (21)

#### Department of Mathematics

*Aggarwal, Amol*, Asymptotic phenomena in the six-vertex model

*Barton, Reid*, A model 2-category of enriched combinatorial premodel categories

*Fung, Jun Hou*, Strict units of commutative ring spectra

*Lopatto, Patrick*, Universality of Lèvy matrices

*Marcinek, Jake*, High dimensional normality of noisy eigenvectors

*Smith, Alexander*,  $\ell^\infty$ -Selmer groups in degree  $\ell$  twist families

*Smith, Geoffrey*, Measures of irrationality and vector bundles on trees of rational curves

*Spink, Hunter*, Applications of combinatorics to problems of geometry

*Tseng, Dennis*, Applications of equivariant cohomology to enumerative geometry

#### School of Engineering & Applied Science

*Choi, Pui Tung*, Metamaterials, morphometrics, morphogenesis, and mappings

*Kang, Wanying*, Two atmospheric general circulation problems on earth and high obliquity exoplanets

#### T. H. Chan School of Public Health, Department of Biostatistics

*Cook, Kaitlyn*, Monitoring and analysis of cluster-randomized trials with interval-censored endpoints

*Ferlic, Jeremy*, Quantitative approaches to cancer and cellular differentiation

*Guan, Zoe*, Statistical and machine learning methods for clinical risk prediction

*Hujoel, Margaux*, Statistical inferences about the genetic architecture of disease

*Kennedy-Shaffer, Lee*, Statistical methods for the design and analysis of infectious disease studies

*Kolokotronis, Thomas*, Topics in causal inference

*Ma, Siyuan*, Statistical methods for population structure discovery in meta-analyzed 'omics studies

*Ocampo, Alex*, Breaking the MAR paradigm: estimation, bounding, and sensitivity when data are missing not at random

*Thomas, Emma*, Bayesian methods for multi-outcome analysis and a study of gender bias in medical articles

*Zemplenyi, Michele*, Functional data methods for environmental epidemiology and Bayesian experimental design for inferring causal structure

### Massachusetts Institute of Technology (26)

#### Department of Mathematics

*Ahn, Andrew*, The method of moments in convolved random matrix models and discrete analogues

*Arul, Vishal*, Explicit division and torsion points on superelliptic curves and Jacobians

*Boixeda Alvarez, Pablo*, Affine Springer fibers and the representation theory of small quantum groups and related algebras

*Chatham, Robert Hood*, An orientation map for height  $p - 1$  real  $E$  theory

*Christensen, Atticus*, A topology on points on Stacks

*Couchman, Miles*, The stability of bound states in pilot-wave hydrodynamics

*Grande Izquierdo, Ricardo*, Analysis of infectious disease incidence and complex survey data in space and time

*Hewett, Campbell*, Computability of rational points on curves over function fields in characteristic  $p$

*Jaffe, Ethan*, Asymptotic description of the formation of black holes from short-pulse data

*Jain, Vishesh*, Quantitative invertibility of random matrices: a combinatorial perspective

*Kadets, Borys*, Arboreal representations, sectional monodromy groups, and abelian varieties over finite fields

*Kubrak, Dmitry*, Cohomologically proper stacks over  $\mathbb{Z}_p$ : algebra, geometry and representation theory

*Li, Zhenkun*, Contributions to sutured monopole and sutured instanton Floer homology theories

*Makarova, Svetlana*, Strange duality on elliptic and K3 surfaces

*Mason-Brown, Lucas*, Unipotent representations of real reductive groups

*McKinley, Gweneth*, Probabilistic and extremal behavior in graphs and matrices

*Padurariu, Tudor*, K-theoretic hall algebras for quivers with potential

*Park, Jiewon*, Convergence of complete Ricci-flat manifolds

*Pfeffer, Joshua*, Frontiers of Liouville quantum gravity

*Ryba, Christopher*, Stable characters of symmetric groups and wreath products

*Sun, Ao*, Singular behaviour and long time behaviour of mean curvature flow

*Tran, Brandon*, Building and using robust representations in image classification

*Turton, Sam*, Theoretical modeling of pilot-wave hydrodynamics

*Wellens, Jake*, Assorted results in boolean function complexity, uniform sampling and clique partitions of graphs

*Yuan, Allen*, On the higher Frobenius

*Yue, Guangyi*, Combinatorics of affine Springer fibers and combinatorial wall-crossing



### Northeastern University (3)

#### Department of Mathematics

*He, Zhuang*, Birational geometry of blow-ups of toric varieties and projective spaces along points and lines

*Liu, Yucheng*, Stability conditions on higher dimensional projective varieties

*Sultan, Saif*, On the 2d Euler equation in asymptotic spaces

### Tufts University (3)

#### Department of Mathematics

*Lyman, Rylee*, Train tracks on graphs of groups and outer automorphisms of hyperbolic groups

*Ohm, Peter*, Stabilized discretizations and robust preconditioners for the poroelastic equations

*Shrestha, Sunrose*, Statistics of square-tiled surfaces

### University of Massachusetts, Amherst (10)

#### Department of Biostatistics & Epidemiology

*Peterson, Emily*, Bayesian methods for the assessment of reporting errors for data-sparse population-periods with applications to estimating mortality

#### Department of Mathematics & Statistics

*Bates, Matthew*, Bruhat-Tits buildings and a characteristic  $p$  unimodular symbol algorithm

*Duan, Lian*, Comparison of three dimensional selfdual representations by Faltings-Serre method

*Feng, Jinchao*, Model-form uncertainty quantification for predictive probabilistic graphical models

*Hu, Weilong*, Exploiting unlabeled data and query strategy optimization with adversarial attacks in active learning

*Kang, Shuaimin*, Latent class models for at-risk populations

*Nguyen, Vy*, Elliptic curves and power residues

*Wang, Jie*, Scalable uncertainty quantification bounds for predictive modeling

*Xie, Feifei*, Compactifications of cluster varieties associated to root systems

*Yu, Jiahui*, Joint asymptotics for smoothing spline semiparametric nonlinear models

### Worcester Polytechnic Institute (2)

#### Mathematical Sciences Department

*Hao, Zhaopeng*, High-order numerical methods for integral fractional Laplacian: algorithm and analysis

*Yereniuk, Michael*, Global approximations of agent-based model state changes

## MICHIGAN

### Central Michigan University (3)

#### Department of Mathematics

*Barco, Matthew*, Experiencing active calculus: A mixed methods investigation of student perceptions in a networked active-learning calculus environment

*Gill, Jordan*, Mathematics self-efficacy, mathematical mindset and their relationship to study habits and perseverance

*Matar, Nancy*, A study of minimum semidefinite rank of signed graphs

### Michigan State University (10)

#### Department of Statistics & Probability

*Banerjee, Chittrak*, Minimax lower bounds in high order tensor models with application to neuroimaging

*Banik, Asish*, Bayesian variable selection and functional data analysis: application to brain imaging

*Goo, Juna*, A spatio-temporal model for white matter tractography in diffusion tensor imaging

*Hao, Yuning*, Adaptive least trimmed square with application to cancer immunology data

*Karim, Rejaul*, Advanced classification methods for large spatial-temporal data: applications to neuroimaging

*Le, Thien*, Estimation and statistical inference for network structures

*Lee, Cheuk-Yin*, Sample path properties of Gaussian random fields and stochastic partial differential equations

*Lee, Jeong Hwa*, Statistical inference on self-similar and increment stationary processes and random fields

*Shen, Xiaoxi*, Asymptotic properties for neural network sieve estimators with application to genetics

*Yang, Kaixu*, Statistical machine learning theory and methods for high-dimensional low sample size data

### Michigan Technological University (6)

#### Department of Mathematical Sciences

*Azzam, Joy*, Sub-sampled matrix approximations

*Crane, Daniel*, The singular value expansion for compact and non-compact operators

*Feng, Ge*, Bayesian hypothesis testing in linear regression models

*Huang, Ray*, Novel computational methods for Eigenvalue problems

*Liu, Yun*, Statistical methods for mixed frequency data sampling models

*Zhang, Duo*, Bayesian analysis for the intraclass model and for the quantile semiparametric mixed-effects double regression models

### Oakland University (2)

#### Department of Mathematics & Statistics

*Lun, Zhixin*, Some contributions to multivariate non-normality: simulation, computations and missing data imputation

*Wu, Brian*, Computationally efficient order identification for models of big time series data

### University of Michigan (48)

#### Department of Biostatistics

*Benedetti, Marco*, On issues of scale and dependence in spatial and spatio-temporal data

*Dutta, Diptavo*, Statistical methods for multiple phenotypes and gene-set association analysis

*Fei, Zhe*, New statistical methods for drawing inference based on high dimensional regression models  
*Guo, Cui*, Spatial Bayesian computing and modeling with application to neuroimaging data  
*Lee, Christopher*, Improvements and developments in gene regulation and single-cell gene expression data analysis  
*Liang, Qixing*, Causal inference in health science research  
*Sun, Yilun*, Novel flexible statistical methods for missing data problems and personalized health care  
*Tan, Adrian*, Statistical and computational methods for the unified analysis of short genetic variants  
*Wei, Boxian*, Bayesian methods in phase I trials and small  $n$  sequential multiple assignment randomized trials  
*Zhu, Danting*, Matching methods for estimating effects of time-dependent treatment on survival outcomes

Department of Mathematics

*Chen, Ruian*,  $E_\infty$ -rings and modules in Kan spectral sheaves  
*Chen, Yuanyuan*, Filtration theorems and bounding generators of symbolic multi-powers  
*Gandini, Francesca*, Ideals of subspace arrangements  
*Gill, Montek Singh*, Stabilizations of  $\mathbb{E}_\infty$  operads and  $p$ -Adic stable homotopy theory  
*Holler, John Edward*, Learning dynamics and reinforcement in stochastic games  
*Huang, Han*, High dimensional phenomenon in convex geometry and spectral theory of random graphs  
*Hyde, Trevor Glen*, Polynomial statistics, necklace polynomials, and the arithmetic dynamical Mordell-Lang conjecture  
*Ingermanson, Gracie*, Cluster algebras of open Richardson varieties  
*Irvine, Daniel*, Symplectic embeddings of toric domains  
*Lee, Harry*, Topics in viscous shear flow dynamics

*Lutz, Bob*, Electrical networks, hyperplane arrangements and matroids  
*Mi, Rongxiao*, Gromov-Witten theory and type II extremal transitions  
*Siddiqi, Salman*, Decay of correlations for certain isometric extensions of Anosov flows  
*Stevenson, Matthew*, Applications of canonical metrics on Berkovich spaces  
*Su, Qingtang*, Long time behavior of 2d water waves  
*Sun, Yitong*, Random features methods in supervised learning  
*Tosteson, Philip*, Representation stability, configurations spaces, and Deligne-Mumford compactifications  
*Varma, Umang*, A paucity of data in machine learning: applications in single cell RNA sequencing and ranking  
*Webb, Rachel*, Functoriality and the moduli of sections, with applications to quasimaps  
*Wu, Bobbie*, Spectrally-accurate close evaluation schemes for Stokes boundary integral operators  
*Wu, Hao*, New applications of random matrices theory in spin glass and machine learning  
*Zhang, Ming*, Quantum  $K$ -theory with level structure  
*Zhu, Feng*, Relatively dominated representations

Department of Statistics

*Deeke, Julie*, Approaches for identifying biases in single-cell RNA-sequencing data  
*Deng, Yanzheng*, Group sparsity in regression and PCA  
*Gu, Yuqi*, Statistical analysis of structured latent attribute models  
*Guo, Xinzhou*, Subgroup analysis: risk quantification and debiased inference  
*Hall, Adam*, A unified price index for spatial comparisons  
*Jung, Young Hun*, New directions in online learning: boosting, partial information, and non-stationarity

*Kim, Yura*, Statistical tools for samples of weighted networks with applications to neuroimaging  
*Liao, Peng*, Just-in-time adaptive interventions: experiment, inference, and online learning  
*Liu, Boang*, Statistical learning for networks with node features  
*Lu, Zhiyuan*, Large data approaches to thresholding problems  
*NeCamp, Timothy*, Design and analysis of sequential randomized trials with applications to mental health and online education  
*Shen, Jinqi*, Local structure of random fields-properties and inference  
*Wu, Wenyi*, Scalable classification methods with applications to healthcare claims and automotive dealership data  
*Zhang, Xuefei*, Statistical analysis for network data using matrix-variate models and latent space models  
*Zhao, Ruofei*, Convergence and consistency results in spectral clustering and Gaussian mixture models

Western Michigan University (2)

Department of Mathematics

*Gauthier, Jason*, Reflective teacher change processes in the presence of a mathematics professional development intervention  
*Hallas, James*, Extremal problems on induced graph colorings

MINNESOTA

University of Minnesota (20)

Division of Biostatistics, School of Public Health

*Brown, Roland*, A statistical framework for harnessing human activity data to understand behavior, health, and well-being  
*Deng, Yangqing*, Genetic testing with conditional analysis and summary statistics  
*Eaton, Anne*, Non-parametric estimation of probability in disease states, restricted mean time in disease states, and mean cumulative marker process

*Jin, Jin*, Voxel-wise classification of prostate cancer using multi-parametric MRI data

*Kotalik, Ales*, Incorporation of supplemental data into the design and analysis of randomized trials

*Normington, James*, Bayesian hierarchical difference-in-differences models

*Park, Jun Young*, Statistical modeling and inference for neuroimaging and genomics data

*Wang, Zhenxun*, Statistical methods for arm-based Bayesian network meta-analysis

*Yang, Yi*, Bayesian hierarchical models for multi-variant and multi-trait genome-wide association studies

School of Mathematics

*Chan, Pak Yeung*, Curvature estimates and applications for steady and expanding Ricci solitons

*Collazos, Steven*, Coding properties of firing rate models with low-rank synaptic weight matrices

*Diroff, Daniel*, On the super Mumford form in the presence of Ramond and Neveu-Schwarz punctures

*Earls, Ashley*, Flexoelectricity and three-dimensional solitons in nematic liquid crystals

*Hess, Daniel*, Highly structured multiplication & the Miller spectral sequence

*Loper, Michael*, Properties of virtual resolutions over toric varieties

*Stewart, Samuel*, A 1D fluid model on the circle, an algorithm for simulating dense crowds, and stability for programs with seminorm objective and linear constraints

*Strasser, Benjamin*, A Hecke algebra approach to  $p$ -adic functionals

*Tao, Tianyu*, Applications of functional-analytic methods in non-local and dynamical system problems

*Yang, Bo*, Robin boundary conditions for the Hodge Laplacian and Maxwell's equations

*Yastrzhembskiy, Timur*, On the Wong-Zakai and support theorems for stochastic partial differential equations

## MISSISSIPPI

### Jackson State University (3)

Department of Mathematics and Statistical Sciences

*Akhter, Mahzabin*, Spectral analysis of node associations in complex networks

*Parra Bautista, Yohn Jairo*, Sentiment analysis of consumer complaints: an examination of Lexicon-based and deep learning approaches

*Rahman, Md*, Application of centrality metrics for complex network analysis

### Mississippi State University (3)

Department of Mathematics & Statistics

*Alotaibi, Trad*, Analysis of positive solutions for singular  $p$ -Laplacian problems via fixed point methods

*Jones, Chartese*, Speckle image denoising using total variation and non-local means

*Riahi, Sheida*, Measuring bivariate asymmetry and testing bivariate symmetry

### University of Mississippi (2)

Department of Mathematics

*Beknazaryan, Aleksandr*, Cramér type moderate deviations for random fields and mutual information estimation for mixed-pair random variables

*Ge, Zhenchao*, Topics in analytic and combinatorial number theory

### University of Southern Mississippi (1)

Department of Mathematics and Natural Sciences

*Mitchell, Candice*, A dynamic F5 algorithm

## MISSOURI

### St Louis University (1)

Department of Mathematics & Statistics

*Wessel, Brent*, Wavelet representations and a Calderon condition on odd degree oscillator groups

### University of Missouri-Columbia (9)

Department of Mathematics

*Abdelhafid, Farah*, Mathematical and computational modeling of fluid flow with applications in ophthalmology and geoscience

*Das, Suprajo*, Epsilon multiplicity for graded algebras

*Farzannia, Amineh*, Biangular frames

*Ghoreishi, Dorsa*, Phase retrieval in frame theory

*Le, Hung*, Capillary-gravity water waves with vorticity: steady wind-driven waves and waves with a submerged dipole

*Maddox, Kyle*, Frobenius closure and prime characteristic singularities

*Qin, Liuyu*, Adams inequality with exact growth condition on  $\mathbb{R}^n$  and the Heisenberg group

*Tran, Tin*, Frames with desired angle properties

Department of Statistics

*Chen, Jiaxun*, Decision theory and sampling algorithms for spatial and spatio-temporal point processes

### University of Missouri-Kansas City (2)

Department of Mathematics & Statistics

*Barker, Colin*, Modeling HIV-1 infection in the brain: the effect of the blood-brain barrier

*Zarzour, Nasir*, Sequential test allocation for estimating software reliability with associated cost

### University of Missouri-St Louis (4)

Department of Mathematics & Computer Science

*Alzahrani, Jawaher*, High-order adaptive synchrosqueezing transform

*Brummond, William*, Kirkman triple systems of order  $n$  with minimum block sum equal to  $n$ , for access balancing in distributed storage

*Gerules, George*, Enhancing scalability in genetic programming with adaptable constraints, type constraints and automatically defined functions

*Hussen, Abdulmtalb*, Recover data in sparse expansion forms modeled by special basis functions

### Washington University (7)

Department of Mathematics

*Garcia German, Luis*, Computation of Knudsen diffusivity in domains with boundary microstructure

*Jabbari, Mohammad*, Index theory for Toeplitz operators on algebraic spaces

*Li, Tiansi*, A study of lexicographic shellable posets

*Mancuso, Mark*, Operator noncommutative function theory and partial matrix and operator convexity

*Stockdale, Cody*, A different approach to endpoint weak-type estimates for Calderón-Zygmund operators

*Wang, Qi*, Bayesian posterior and LAN property of Lévy processes

*Zhang, Qiyiwen*, Bayesian variable selection and post-selection inference

## MONTANA

### Montana State University (3)

Department of Mathematical Sciences

*Perry, Daniel*, Homotopy groups of contact 3-manifolds

*Theobald, Allison*, Supporting data-intensive environmental science research: data science skills for scientific practitioners of statistics

*Tran, Tan*, Monothetic cluster analysis with extensions to circular and functional data

### University of Montana - Missoula (4)

Department of Mathematical Sciences

*Brown, Richard*, Semivariogram methods for modeling Whittle-Matern priors in Bayesian inverse problems

*Cao, Quy*, Methods for analyzing high dimensional data with applications

to the wearable and microbiome data

*Downs, Jacob*, The application of contemporary numerical methods to the modeling, analysis, and uncertainty quantification of glacier dynamics

*Palencia-Infante, Kevin*, A natural rank problem for homogeneous polynomials and connections with the theory of functions of several complex variables

## NEBRASKA

### University of Nebraska Medical Center (1)

Department of Biostatistics

*Hein, Nicholas*, Beta regression models for repeated-measures data analysis

### University of Nebraska-Lincoln (10)

Department of Mathematics

*Becklin, Andrew*, Hadamard well-posedness for two nonlinear structure acoustic models

*Drabkin, Benjamin*, Symbolic powers in algebra and geometry

*Jamieson, William*, Individual based model to simulate the evolution of insecticide resistance

*Packauskas, Nicholas*, Quasi-polynomial growth of Betti sequences over complete intersection rings

*Pollitz, Joshua*, The derived categories of a locally complete intersection ring

*Tucker, Katherine*, The  $T_3$ ,  $T_4$ -conjecture for links

*Uhing, Karina*, Exploring pedagogical empathy of mathematics graduate student instructors

Department of Statistics

*Adams, Jason*, Plant segmentation by supervised machine learning methods and phenotypic trait extraction of soybean plants using deep convolutional neural networks with transfer learning

*Hitt, Brianna*, Group testing identification: Objective functions, implementation, and multiplex assays

*Roslan, Nur Firyal*, Genpareto-Negbin model in finding relationship between text data and quantitative data

## NEW JERSEY

### Montclair State University (2)

Mathematical Sciences Department

*Basu, Debasmita*, Examining students covariational reasoning through mathematical modeling activities embedded in the context of the greenhouse effect

*Bonaccorso, Victoria*, Video case studies and the development of collective professional knowledge

### New Jersey Institute of Technology (5)

Department of Mathematical Sciences

*Bandegi, Mahdi*, Convex relaxations of a continuum aggregation model, and their efficient numerical solution

*Datta, Subha*, Dimension reduction techniques for high dimensional and ultra-high dimensional data

*de Stefan, Andrew*, Optimal sampling paths for autonomous vehicles in uncertain ocean flows

*Moye, Matthew*, Data assimilation for conductance-based neuronal models

*Zhang, Yan*, Topics on high dimensional selective inference

### Princeton University (12)

Department of Mathematics

*Miller, Maggie*, Extending fibrations from knot complements to ribbon disk complements

*Nie, Zipei*, On (1,1)-knots and L-space conjecture

*Pasqualotto, Frederico*, Nonlinear waves in general relativity and fluid dynamics

*Qiu, Congling*, The Gross-Zagier-Zhang formula over function fields

*Thackeray, Henry (Maya)*, A birch and Swinnerton-Dyer formula for high-weight modular forms

### Program in Applied & Computational Mathematics

*Cooney, Daniel*, PDE models of multi-level selection: The evolution of cooperation and the shadow of lower-level selection

*Drohan, Sarah*, Mathematical methods for optimal resource allocation in public goods problems

*Felker, Kyle*, High-order finite volume methods for magnetohydrodynamics with applications in computational astrophysics

*Graves, Christy*, Non-atomic games and an application to jet lag

*Liu, Yuan*, Algorithms in cryo-electron tomography

*Ma, Chao*, Mathematical theory of neural network models for machine learning

*Zhang, Linfeng*, Machine learning for multi-scale molecular modeling: theories, algorithms, and applications

### Rutgers University - New Brunswick (12)

#### Department of Statistics & Biostatistics

*Li, Benjamin*, Finite mixture models in survival data analysis

*Thornton, Suzanne*, Advanced computing methods for statistical inference

*Wang, Lewei*, Contributions to crossover designs and quantile analysis for computer experiments

*Yan, Xi*, Statistical analysis of dynamic risk neutral density, dynamic cross-sectional distribution and portfolio optimization

*Zhu, Yijun*, Test for serial correlation under high dimensionality and improved convergence rate for normal extremes

#### Mathematics Department

*Biers-Ariel, Yonah*, Flexible schemes and beyond: Experimental enumeration of pattern avoidance classes

*Fu, Xin*, Geometry of complex Monge-Ampère equations

*Park, Jinyoung*, Problems in combinatorics: Hamming cubes and thresholds

*Semonsen, Justin*, Some combinatorial results on matrices and polynomials

*Spendlove, Kelly*, Computational connection matrix theory

*Wang, Chengxi*, On exceptional collections of line bundles on toric Deligne-Mumford stacks

*Yao, Yukun*, An experimental mathematics approach to several combinatorial problems

### Stevens Institute of Technology (4)

#### Department of Mathematical Sciences

*Choi, Youngjun*, Analysis of host-parasitoids systems

*Indyk, Ihor*, Counter-adversarial machine learning

*Lin, Yang*, Kernel smoothing in sample-based optimization

*Ovchinnikov, Denis*, Diophantine problems in groups and rings

## NEW YORK

### Binghamton University, State University of New York (6)

#### Department of Mathematics & Science

*Bayes, Kyle*, Index theorems for closed geodesics

*Chen, Liang*, Goodness of fit test for spatial cluster point process models

*Chen, Yinsong*, Counting and sampling ribbon tilings of rectangles

*Cyr, Amelia*, Deficiency in signed graphs

*Cyr, Joseph*, Subdirectly irreducible binary modes

*Meng, Haomiao*, Machine learning methods on selected topics of precision medicine

### Columbia University (29)

#### Department of Biostatistics

*Hu, Xinyu*, Personalized policy learning with longitudinal health data

*Ling, Wodan*, Quantile regression for zero-inflated outcomes

*Wrobel, Julia*, Functional data analytics for wearable device and neuroscience data

*Wu, Peng*, Machine learning methods for personalized medicine using electronic health records

*Xie, Shanghong*, Statistical methods for constructing heterogeneous biomarker networks

*Zhu, Huichen*, Statistical learning methods for depression screening and intervention, and structured missing imputation

#### Department of Mathematics

*An, Yang*, Comparison between motivic periods with Shalika periods

*Cheng, Zhechi*, Jones grading from symplectic Khovanov homology

*Danilenko, Ivan*, Quantum cohomology of slices of the affine Grassmannian

*Hayward, Laura*, Polygenic adaptation after a sudden change in the environment

*Kim, Donghan*, Topics in stochastic portfolio theory: pathwise generation of trading strategies, and portfolio theory in open markets

*Kravets, Oleksandr*, Homotopy coherent actions on A-infinity categories

*Li, Zhi*, Arbitrage theory under portfolio constraints

*Liang, Carl*, On the enumerative geometry of branched covers of curves

*Marinescu, Monica*, Moduli of surfaces and applications to curves

*Pirozhkov, Dmitrii*, Admissible subcategories of del Pezzo surfaces

*Wu, Xuan*, Weak noise limits of directed polymers and Gibbsian line ensembles

#### Department of Statistics

*Dieng, Adji*, Deep probabilistic graphical modeling

*Fang, Guanhua*, Latent variable models in measurement: theory and applications

*Ghosal, Promit*, Time evolution of the Kardar-Parisi-Zhang equation

*Huang, Sihan*, Community detection in social networks: multilayer networks and pairwise covariates

*Jones, Timothy*, Scalable community detection in massive networks using aggregated relational data

*Lee, Jin Hyung*, Spike sorting for large-scale multi-electrode array recordings in primate retina

*Ling, Hok Kan*, Statistical analysis of complex data in survival and event history analysis

*Loaiza Ganen, Gabriel*, Advances in deep generative modeling with applications to image generation and neuroscience

*Stebegg, Florian*, Linear constraints in optimal transport

*Wang, Shuaiwen*, High-dimensional asymptotics: new insights and methods

*Wu, Jing*, Point process models for heterogeneous event time data

*Yousuf, Kashif*, Essays in high dimensional time series analysis

### Cornell University (11)

#### Center for Applied Mathematics

*Dong, Kun*, Randomized numerical linear algebra for large-scale matrix data

*Gorokh, Artur*, Fairness and efficiency in online allocation of goods

*Novitzky, Sophia*, Queueing systems via delay differential equations

*Uly, Wayne Isaac*, Forward and backward uncertainty quantification: methods, analysis, and applications

#### Department of Mathematics

*Hoffman, Benjamin*, Polytopes and Hamiltonian geometry: Stacks, toric degenerations, and partial tropicalization

*Hou, Qi*, Rough hypoellipticity for local weak solutions to the heat equation in Dirichlet spaces

*Li, Pak-Hin*, A Hopf algebra from preprojective modules

#### Department of Statistics and Data Science

*Gilbert, Daniel*, Luck, fairness, and Bayesian tensor completion

*Sun, Yiming*, High dimensional data analysis with dependency and under limited memory

*Tan, Hui Fen (Sarah)*, Interpretable approaches to opening up black-box models

*Ye, Zi*, Functional single index model and Jensen effect

*Zhu, Liao*, The adaptive multi-factor model and the financial market

### Graduate Center, City University of New York (15)

#### PhD Program in Mathematics

*Adamski, John*, Symmetric rigidity for circle endomorphisms with bounded geometry and their dual maps

*Admasu, Fikreab Solomon*, Zeta functions of classical groups and class two nilpotent groups

*Basias, John*, On the divisor class group and special units of multi-quadratic real fields

*Bradley, Tai-Danae*, At the inference of algebra and statistics

*Gjaldbaek, Kaare*, Quadratic packing polynomials on sectors of  $\mathbb{R}^2$

*Guan, Bin*, Averages and nonvanishing of central values of triple product  $L$ -functions via the relative trace formula

*Heller, Simon*, Modest automorphisms of Presburger arithmetic

*Kwon, Alice*, Geometric properties of closed three manifolds and hyperbolic links

*Lopez Cruz, Laura*, Model theory of monoids and groups

*Nandi, Santanu*, Dynamics of the family  $\lambda \tan z^2$

*Russell-Madonia, Jacob*, Convexity and curvature in hierarchically hyperbolic spaces

*Stas, Alexander*, Translation distance and fibered 3-manifolds

*Vu, An Hoa*, Hermitian Maass lift for general level

*Yassiyevich, Gennady*, Arithmetic of binary cubic forms

*Zheng, Yizhong*, Uniform Lipschitz continuity of the isoperimetric profile of compact surfaces under normalized Ricci flow

### New York University, Courant Institute (11)

#### Courant Institute of Mathematical Sciences

*Alexander, Romeo*, Kernel analog forecasting with applications to tropical atmosphere dynamics

*Bernstein, Brett*, Sparse recovery beyond compressed sensing

*DallaSanta, Kevin*, Forced and unforced variability in the zonal-mean circulation

*Gaal, Alexis*, Decision making and learning in artificial physical systems

*Gupta, Aman*, Impact of numerics on circulation and transport in atmospheric GCMs

*Jiang, Yuwei*, First principles metalens design

*Kaye, Jason*, Integral equation-based numerical methods for the time-dependent Schrödinger equation

*Leger, Tristan*, Quadratic NLS with potentials

*McDonald, Joseph*, A sampling theorem for deconvolution in two dimensions

*Petersen, Kellen*, Numerical studies of droplets on superhydrophobic surfaces

*Wang, Xinyang*, Dynamics-informed machine learning approaches for El Niño prediction and its teleconnection to Antarctica

### Stony Brook University (29)

#### Department of Applied Mathematics & Statistics

*Anderson, Joel*, Relativistic ground state calculations in an adaptive multiwavelet basis

*Barnwal, Avinash*, Network elastic net, stochastic accelerated gradient boosting and accelerated failure time in XGBoost

*Carter, Jason*, Single-cell sequencing, machine learning, and statistical modeling provide insight into the paired  $\alpha\beta$  TCR repertoire and cancer genomics

*Chen, Mingshen*, Deep learning and application in disease prediction and precipitation forecasting

*Comden, Joshua*, Algorithms for on-line and distributed optimization and their applications

*Elkin, Rena*, Regularized dynamical optimal mass transport for medical image analysis and visualization

*Guan, Yuhang*, Polymodel: Application in risk assessment and portfolio construction

*Huang, Sijia*, Mathematical modeling of soft colloids and membranes in nanoscale confinement: molecular and continuum-level analyses

*Jun, Kyung-Taek*, Alignment theory of parallel-beam CT image reconstruction for various types

*Kuang, Yao*, Systematic risk prediction with concavity and ETF rating from polymodel

*Li, Qian*, Vision-based sensor coverage in uncertain geometric domains

*Ren, Xu*, Statistical methods for RNA-seq and DNA methylation data

*Sam-ang, Panu*, Projector-based electron transport calculations

*Shang, Yuan*, Discrete simulation optimization using Bayesian method

*Shu, Min*, Identification and forecasts of bubbles and crashes in stock market

*Song, Ge*, Estimation of financial market bubbles using Kalman filter

*Telang, Gaurish*, Package delivery problems with coordinating agents

*Tuznik, Stanley*, Invariant methods for problems in medical imaging

*Yao, Sijie*, High-dimensional GARCH with  $\ell_1$  regularization

*Ye, Zeyang*, Route recommendations by parallel simulated annealing

*Yin, Donglei*, Incorporating the effect of transcription factors into cancer survival prediction

*Zhang, Qi*, Adaptive random search algorithms for simulation optimization

### Department of Mathematics

*Albanese, Michael*, The Yamabe invariant of Inoue surfaces and their blowups

*Chakraborty, Apratim*, Invariants of transverse and annular links in combinatorial link Floer homology

*Ghinassi, Silvia*, Higher order rectifiability via Reifenberg theorems for sets and measures

*Hu, Xuntao*, Variational formulas and stratas of abelian differentials

*Jaracz, Jaroslaw*, The charged Penrose inequality for manifolds with cylindrical ends and related inequalities

*Sun, Yuhan*, Lagrangian submanifolds near Lagrangian spheres

*Taskent Koca, Selin*, Rotationally symmetric Kähler metrics with extremal condition

### Syracuse University (3)

#### Department of Mathematics

*Ballard, Laura*, Properties of the toric rings of a chordal bipartite family of graphs

*Diethorn, Rachel*, Koszul homology and resolutions over commutative rings

*Farnham, Stephen*, Blaschke decomposition on weighted Hardy spaces and unwinding series

### The University of Albany, SUNY (6)

#### Department of Mathematics & Statistics

*Clark, James*, The unrolled quantum group of  $\mathfrak{sl}(2)$  with connections to topological quantum field

*Klyachko, Kseniya*, Random processes of the form  $X_{n+1} = AX_n + B_n \pmod{p}$

*Munshi, Sachin*, Maxwell's equations and Yang-Mills equations in complex variables: new perspectives

*Natole, Jr, Michael*, Fast optimization algorithms for AUC maximization

*Tran, Mai*, Non-euclidean metric on the resolvent set

*Wauchope, Joshua*, Permutation orbifolds of fermionic vertex superalgebras

### University at Buffalo-SUNY (6)

#### Department of Biostatistics

*Ding, Yuxin*, Contributions to the theory of statistical distances with applications to safety of medical products

*Feng, Yingdong*, Recent developments in biomarker evaluation with applications in lung and ovarian cancer

*Hua, Jia*, Recent developments of statistical methods in classification, biomarker evaluation and beyond

*Peng, Xuan*, Confidence interval methods of association parameters for correlated bilateral data

*Xue, Yuqing*, Likelihood-based inferential methods of effect measure parameters for correlated binary data in stratified bilateral-sample design

#### Department of Mathematics

*Zhou, Chen*, Lefschetz theorem for holomorphic one-forms on weakly 1-complete manifolds

### University of Rochester (16)

#### Department of Biostatistics & Computational Biology

*Lu, Xiang*, Model selection and variable selection for mixtures of factor analyzers

*Ma, Shiyang*, Methods for improving efficiency in clinical trials

*Sherina, Valeriia*, Statistical methods for qPCR data near the limit of detection

*Sun, Hao*, Statistical methods for treatment evaluation with application to longitudinal studies

*Wang, Bokai*, A novel variable selection procedure in biomedical research

#### Department of Mathematics

*Birklbauer, Philipp*, Theoretical and computational explorations in vector spaces over finite fields

*Chatzikonstantinou, Nikolaos*, Configurations in fractals

*Grell, George*, Iterated Galois groups of quadratic rational functions

*Guner, Murat*, Degenerating translators

*Huang, Keping*, Topics in arithmetic dynamics

*Lungstrum, Clayton*, The distribution of values of the logarithmic derivative of the Riemann Zeta function

*Peng, Jun-Wen (Wayne)*, Topics on dynamical systems

*Shen, Qibin*,  $v$ -adic multiple Zeta values over function fields

*Witz, Evan*, New results for generalized Boussinesq equations

*Yigit, Ugur*, The  $C_2$ -equivariant unstable homotopy theory

*Zhu, Qiaofeng*, On the rational Bredon cohomology

### Yeshiva University (1)

Department of Mathematical Sciences

*Hu, Yunyun*, Qualitative properties for positive solutions of nonlocal equations

## NORTH CAROLINA

### Duke University (14)

Department of Mathematics

*Beckett, Matthew*, Equivariant Nahm transforms and minimal Yang–Mills connections

*Cao, Yu*, Analytical and numerical study of Lindblad equations

*Cruz, Joshua*, Examples of the local  $L^2$ -cohomology of algebraic varieties

*Duncan, William*, Homeostasis-bifurcation singularities and identifiability of feedforward networks

*Malik, John*, A geometric approach to biomedical time series analysis

*Ordog, Erika*, Minimal resolutions of monomial ideals

*Tran, Do*, Sampling from stratified spaces

*Tran, Thomas*, Secondary terms in asymptotics for the number of zeros of quadratic forms

Department of Statistical Science

*Burriss, Kyle*, Advances in survey methodology and sports science

*Gorsky, Shai*, Nonparametric methods for analysis and modeling of complex multivariate distributions

*Jauch, Michael*, Random orthogonal matrices with applications in statistics

*Lavine, Isaac*, Bayesian computation for variable selection and multivariate forecasting in dynamic models

*Moran, Kelly*, Advances in Bayesian factor modeling and scalable Gaussian process regression

*Patra, Sayan*, Constrained Bayesian inference through posterior projection with applications

### North Carolina State

#### University (21)

Department of Mathematics

*Ahrens, Katherine*, Combinatorial applications of the  $k$ -Fibonacci numbers: A cryptographically motivated analysis

*Bravo, Nikolas*, Synthesis of uncertainty quantification, surrogate modeling, and robust control design for PZT bimorph actuators

*Brayfindley, Evangelina*, Automated defect detection in spent nuclear fuels in wet storage using machine learning and image analysis techniques

*Coleman, Kayla*, Active subspace techniques, Bayesian inference, and uncertainty propagation for nuclear neutronics and chemistry models

*Coss, Owen*, Analyzing the equilibria of coupled oscillators: Finding, stability of, and counting equilibria for the generalized Karamoto model

*Crifo, Suzanne*, Some maximal dominant weights and their multiplicities for affine Lie algebra representations

*Guy, Hayley*, Efficient dimension reduction and uncertainty quantification for complex physical and biological systems

*Hossain, Chetak*, Quotients derived from posets in algebraic and topological combinatorics

*Lynch, Molly*, Topological and algebraic combinatorics of crystal posets

*Nikas, Ariel*, Morphoelastic modeling applied to stomach bending and lung branching

*Owen, Hailey*, A machine learning approach to predict loan default

*Pasley, Lillian Faye*, Determinantal representations, the numerical range and invariance

*Petroske, Katrina*, Efficient methods for image reconstruction and uncertainty quantification with application to photo-acoustic tomography

*Randall, Eric*, Mathematical analysis of autonomic control of blood pressure and heart rate

*Riggs, Brittany*, An improved degree bound on exactifying multipliers for Descartes' Rule of Signs

*Ruddy, Michael*, The equivalence problem and signatures of algebraic curves

*Sorrell, Emma*, Mechanical modeling of cylindrical packing and pattern detection as applied to the Notochord

*Stanley, Caprice*, Markov chain mixing times

*Waddell, Cleveland*, Parametric linear system solving with error correction

*Warrier, Sangeeta*, Predicting biomedical time series data using neural networks

*Zajaczkowski, Claire*, Surgery obstructions for Seifert fibered integral homology spheres

### University of North Carolina at Chapel Hill (9)

Department of Mathematics

*Barrett, Aaron*, An adaptive viscoelastic fluid solver: formulation, verification, and applications to fluid structure interaction

*Guider, Colin*, Methods of ensemble data assimilation on adaptive moving meshes

*He, Yunyan*, Hierarchical loop structures regulate chromosome organization

*Kiers, Claire*, Rate-induced tipping in applied dynamical systems: multi-dimensional flows and maps

*Kiers, Joshua*, Geometric invariant theory and applications to tensor products and the saturation conjecture

*Lai, Yanni*, Multigrid methods for the Bidomain equations

*Morgan, Katrina*, Wave decay in the asymptotically flat stationary setting



*Shen, Chen*, Lagrangian fibrations by Prym varieties

*Swygert, Sterling*, Analysis of thin films related to flows in cylindrical geometries

### University of North Carolina at Charlotte (3)

Department of Mathematics & Statistics

*Chen, Chen*, Goodness-of-fit tests under permutations

*Elder, Jasmine*, Quantum resistant Reed-Muller codes on a McEliece encryption scheme variant

*Yin, Weitong*, Unifying estimation of varying-coefficient models

### University of North Carolina at Greensboro (1)

Department of Mathematics & Statistics

*Luo, Bin*, Robust penalized regression for complex high-dimensional data

## NORTH DAKOTA

### North Dakota State University, Fargo (1)

Department of Mathematics

*Martin, Cody*, Knot groups and bi-orderable HNN extensions of free groups

## OHIO

### Air Force Institute of Technology (3)

Department of Mathematics & Statistics

*Anderson, Timothy*, Statistical L-moment and L-moment ratio estimation and their applicability in network analysis

*Lopez, Jennifer*, Sample size requirements and considerations for multi-level models as applied to human-machine system performance

*Seiders, Matthew*, Dimension-breaking for traveling waves in interfacial flows

### Bowling Green State University (11)

Department of Mathematics & Statistics

*Alabiso, Audry*, Linear mixed model selection by partial correlation

*Bounds, Jordan*, On the quasi-isometric rigidity of a class of right-angled Coxeter groups

*Carolus, Samuel*, Properties of higher order cohomology

*Ge, Wentao*, Bootstrap-adjusted quasi-likelihood information criteria for mixed model selection

*Hokamp, Samuel*, Weak\*-closed unitarily and Moebius invariant spaces of bounded measurable functions on a sphere

*Lee, Yi-Ching*, An approach to estimation and selection in linear mixed effects models with missing data

*Opperman, Logan*, Sequential inference and goodness-of-fit tests for certain types of skewed distributions

*Polin, Afroza*, Multiple comparisons for high dimensional and correlated data

*Roll, James*, Inferring RNA 3D motifs from sequence

*Wonkye, Yaa Tawiah*, Innovations of random forests for longitudinal data

*Yousef, Mohammed*, Two-stage SCAD Lasso for linear mixed model selection

### Case Western Reserve University (1)

Department of Mathematics, Applied Mathematics & Statistics

*Glasgow, Victor*, Some structural results for convex bodies: gravitational illumination bodies and stability of floating bodies

### Kent State University, Kent (6)

Department of Mathematical Sciences

*Alqarni, Mohammed Zaidi*, Preconditioners for PDE-constrained optimization problems

*Li, Lingjun*, Statistical inference for change points in high-dimensional off line and online data

*Matar, Mona*, Node and edge importance in networks via the matrix exponential

*Merchan Rodriguez, Tomas*, Singular integrals and rectifiability

*Park, Yonggi*, Parameter selection rules for ill-posed problems

*Pasha, Mirjeta*, Krylov subspace type methods for the computation of non-negative or sparse solutions of ill-posed problems

### Ohio State University, Columbus (17)

Department of Mathematics

*Antonioni, Austin*, On product and sum decompositions of sets: The factorization theory of power monoids

*Beckwith, Alexander*, Moments of automorphic  $L$ -functions at special points

*Guo, Sheng*, On Neumann problems for fully nonlinear elliptic and parabolic equations on manifolds

*Horst, Michael*, Cohomology of Picard categories

*Khalil, Osama*, On the dimension of certain divergent trajectories on homogeneous spaces and Diophantine approximation

*Kim, Woojin*, The persistent topology of dynamic data

*Meehan, Sean*, On some universality problems in combinatorial random matrix theory

*Mernik, Luka*, Positivity conditions in several complex variables

*Ohl, Trent*, The first-order theory of expansions of o-minimal structures by the image of a fast sequence

*Okutan, Osman*, Persistence, metric invariants, and simplification

*Ritchey, Katherine*, Computational topology for configuration spaces of disks in a torus

*Singhal, Kritika*, Geometric methods for simplification and comparison of data sets

*Wang, Jun*, A quantum Lefschetz theorem without convexity

*Xu, Chao*, Non-conformal geometry on noncommutative 2-tori

*Ye, Rongqing*, Explicit formulas for local factors of supercuspidal representations of  $GL_n$  and their applications

*Zhang, Runlin*, Translates of homogeneous measures associated with observable subgroups

*Zhang, Yu*, Homotopy pro nilpotent structured ring spectra and TQ localization

### Ohio University, Athens (3)

#### Department of Mathematics

*Muhammad, Rebin*, On amenable and congenial bases for infinite dimensional algebras

*Owusu-Mensah, Isaac*, Algebraic structures on the set of all binary operations over a fixed set

*Prathom, Kiattisak*, Stability regions of cyclic solutions under negative feedback and uniqueness of periodic solutions for uneven cluster systems

### University of Cincinnati (6)

#### Department of Mathematical Sciences

*Jones, Rebekah*, A characterization of quasiconformal maps in terms of sets of finite perimeter

*Li, Miaoqi*, Statistical models and algorithms for large data with complex dependence structures

*Ortiz Lugo, Alvaro*, Qualitative analysis of pathogen dynamics with cyclic and time-varying water networks

*Richard, Abigail*, Quasihyperbolic distance, pointed Gromov-Hausdorff distance, and bounded uniform convergence

*Zang, Huaiyu*, A Bayesian nonparametric approach for causal inference with missing covariates

*Zhang, Na*, Limit theorems for random fields

### Wright State University,

#### Dayton (1)

#### Mathematics & Statistics Department

*Holoway, Ian*, Supersonic Euler and magnetohydrodynamic flow past cones

## OKLAHOMA

### Oklahoma State

#### University (2)

#### Department of Mathematics

*Bhat, Ashwini*, Associated primes and Betti splittings of some generalized Borel ideals

*Larson, Scott*, Small resolutions of closures of  $K$ -orbits in flag varieties

### University of Oklahoma (6)

#### Department of Mathematics

*Pacheco, Elizabeth*, New representations of Leavitt path algebras

*Regier, Paul*, The impact of creativity on student self-efficacy and motivation in upper level mathematics

*Roy, Manami*, Elliptic curves and paramodular forms

*Sunkula, Mahesh*, Geometric quantization of a semi-global model of a focus-focus singularity

*Vernooy, Colin*,  $K$ -types and invariants for representations of  $GS_p(4, \mathbb{R})$

*Wagh, Siddesh*, Maass space for lifting to  $GL(2, B)$  over a division quaternion algebra

### University of Tulsa (1)

#### Department of Mathematics

*Dawkins, Bryan*, Novel metrics and theoretical properties of nearest-neighbor distance-based feature selection in high-dimensional bioinformatics data

## OREGON

### Oregon State University (6)

#### Department of Mathematics

*Arnold-Roksandich, Allison*, Establishing several infinite families of mock and quantum modular forms

*Dong, Zheting*, On the structure of the orbit spaces of almost torus manifolds with non-negative curvature

*Jiang, Huangun*, Stochastic and numerical analysis for optimization problems

*Renne, Michael*, Designing and using multiplayer tabletop mathematics learning games

*Somasunderam, Naveen*, Fourier analysis and equidistribution on the  $p$ -adic integers

*Umhoefer, Joe*, Modeling flow and transport at pore scale with obstructions

### Portland State University (6)

#### Fariborz Maseeh Department of Mathematics & Statistics

*Baldivieso, Sebastian*, Sensitivity diagnostics and adaptive tuning of the multivariate stochastic volatility model

*Bergman, Anna Marie*, Identifying a starting point for the guided reinvention of the classification of chemically important symmetry groups

*Daneshi, Naghmeh*, Estimation of association between a longitudinal marker and interval-censored progression times

*Petersen, Matthew*, Mathematical silences

*Rhodes, Anthony*, Leveraging model flexibility and deep structure: non-parametric and deep models for computer vision processes with applications to deep model compression

*Tran, Tuyen*, Convex and nonconvex optimization techniques for multifacility location and clustering

### University of Oregon (7)

#### Department of Mathematics

*Buursma, Doeke*, Some extension algebras of standard modules over Khovanov-Lauda-Rouquier algebras of type  $A$ , including  $A$ -infinity structure

*Dethier, Christophe*, A special family of binary forms, their invariant theory, and related computations

*Hazel, Christy*, The  $RO(C_2)$ -graded cohomology of  $C_2$ -surfaces and equivariant fundamental classes

*Herstedt, Paul*, AT-algebras associated to zero-dimensional dynamical systems

*Jenne, Helen*, Combinatorics of the double-dimer model

*Takahashi, Ryan*, A categorical  $sl_2$  action on some moduli spaces of sheaves

*Wray, Andrew*, Moduli spaces of twisted Hermite-Einstein connections over K3 surfaces

## PENNSYLVANIA

### Carnegie Mellon

#### University (9)

Department of Mathematical Sciences

*Chakraborti, Debsoumya*, Topics in extremal and random discrete structures

*Feng, Yuanyuan*, Dissipation enhancement by mixing

*Ramazanli, Ilqar*, Adaptive matrix completion

*Remond-Tiedrez, Antoine*, Nonlinear partial differential equations in fluid dynamics: interfaces, microstructure, and stability

*Shi, Xiaofei*, Equilibrium asset pricing with transaction costs

*Xu, Yan*, An optimal transport problem with backward Martingale constraint motivated by equilibrium with insider

*Ye, Weicheng*, Bandit methods and selective prediction in deep learning

*Yu, Xiaofeng*, Diffusion scaling of a limit-order book: the asymmetric case

*Zhang, Linan*, Sparse recovery for extracting time-dependent models from data

#### Drexel University (6)

Department of Mathematics

*Carmichael, Joshua*, Long wave approximations of the Fermi-Pasta-Ulam-Tsingou lattice under planar motion

*Jackson, Joshua*, Minimal realizations and determinantal representations in the indefinite setting

*Jones, Felix*, High and infinite-dimensional filtering methods

*Pangburn, Tayler*, The effect of boundary correctors on scattering by a periodic obstacle

*Thomas, James*, Three problems in the asymptotic order of group elements

*Yaroslavskiy, Aleksandr*, Central limit theorems for tableaux related to the partially asymmetric simple exclusion process

#### Lehigh University (2)

Department of Mathematics

*Cameron, Alex*, Combinatorial index formulas for Lie algebras of seaweed type and the unbroken spectrum of Frobenius seaweeds

*Mayers, Nicholas*, The index and spectrum of Lie poset algebras

#### Pennsylvania State

#### University (19)

Department of Mathematics

*Batista, Juan*, Analysis and robust preconditioning for numerical implementations of Richards' equations in groundwater flow

*Blanda, Stephanie*, Interfacial waves between two fluids with a shear flow

*Chao, Matthew*, Measurable Livsic theorem for expanding maps of the circle with an indifferent fixed point

*Chu, Weiqi*, The first-principle based model reduction methods with applications in molecular dynamics

*Das, Anirban*, Modeling and mathematical analysis of neural avalanches

*Hughes, David*, Entropy of the Lorentz gas and other results

*Kirshtein, Arkadz*, Energetic variational approaches and numerical analysis in complex fluids

*Kowalski, James*, On the squarefree values of polynomials

*Kunin, Alex*, Properties and applications of convex neural codes

*Levine, Daniel*, Cohomology of general sheaves in moduli and existence of semistable sheaves on del Pezzo surfaces

*Nishikawa, Shintaro*, Direct splitting method for the Baum-Connes conjecture and groups acting on  $CAT(0)$ -cubical spaces

*Passary, Donny*, Studies of partition functions with conditions on parts and parity

*Roman, Angel*, Mackey bijection for some reductive groups and

continuous fields of reduced group  $C^*$ -algebras

*Wei, Daren*, Slow entropy, Kakutani equivalence and parabolic flows

*Wright, William*, An algebraic perspective on computing with data

*Wu, Simo*, Temperature effects in general diffusion

*Wu, Yangqingxiang*, Numerical solutions of indefinite problems and aquatic invasive species modeling

*Yi, Zelin*, Spinors and the tangent groupoid

*Zelerowicz, Agnieszka*, Thermodynamic formalism beyond uniformly hyperbolic systems

#### Pennsylvania State University, University Park (12)

Department of Statistics

*Awan, Jordan*, Optimizing finite sample utility of differential privacy

*Bopp, Gregory*, Statistical modeling of extreme values with applications in climatology

*Li, Changcheng*, Topics in high-dimensional statistical inference

*Liu, Wanjun*, New statistical tools for high-dimensional data modeling

*Mirshani, Ardalan*, Regularization methods in functional data analysis

*Nandy, Debmalaya*, Covariate information: a novel approach to sufficient dimension reduction and feature screening for ultrahigh-dimensional covariates in supervised problems

*Park, Jaewoo*, Computational methods for models with intractable normalized function

*Parsons, Jacob*, The integration and evaluation of multiple data sources

*Peng, Jiayu*, New development in design of experiments

*Shen, Frank*, Statistical analysis of chromosome conformation data and other omic data

*Yang, Ching-chi*, Dimensional analysis for response surface methodology

*Zhao, Ge*, Semiparametric dimension reduction model and application

## Temple University (3)

### Department of Mathematics

*Ng, Thomas*, Uniform exponential growth of non-positively curved groups

*Ramadan, Rabie*, Non-equilibrium dynamics of second order traffic models

*Yu, Xinli*, Multiple interval methods for ODEs with an optimization constraint

## University of Pennsylvania (23)

### Applied Mathematics & Computational Science

*Dong, Jinshuo*, Gaussian differential privacy and related techniques

*Hansen, Jakob Kristian*, Laplacians of cellular sheaves: theory and applications

*Liu, Mingyang*, New machine learning methods for genomics and metagenomics applications

*Zhang, Gengyuan*, A new approach to multiple hypothesis testing: finite-sample strong control with arbitrary dependence

### Department of Biostatistics, Epidemiology and Informatics

*Caswell, Carrie*, Measurement error and missing data methods in biomarker research

*Duan, Rui*, EHR + X: expanding the reach of EHR through data integration

*Sun, Wenli*, Knowledge-guided Bayesian support vector machine methods for high-dimensional data

*Suttner, Leah*, Statistical methods for censored and missing data in survival and longitudinal analysis

*Wang, Lu*, Statistical methods for analyzing the electronic health records data

### Department of Mathematics

*Crew, Logan*, Vertex-weighted generalizations of chromatic symmetric functions

*Goodman, McFeely*, Moduli spaces of Riemannian metrics with positive

and nonnegative Ricci and sectional curvature

*Ionita, Matei*, Spectral networks and non-abelianization for reductive groups

*Karatapanis, Konstantinos*, Certain systems arising in stochastic gradient descent

*Morrissey, Benedict*, Nonabelianization, spectral data, and camera data

*Mrcela, Antonijo*, On the compatibility of derived structures on critical Loci

*Zeng, Zhen*, Decay properties of multilinear oscillatory integrals

*Zhang, Jianru*, Moduli of certain wild covers of curves

### Wharton Statistics Department

*Balocchi, Cecilia*, Bayesian nonparametric analysis of spatial variation with discontinuities

*Banerjee, Debapratim*, The method of dense cycle conditioning, its application, computation and a result on concentration

*Huang, Mo*, A statistical framework for denoising single-cell RNA sequencing data

*Kuchibhotla, Arun*, Unified framework for post-selection inference

*Li, Shaokun*, Statistical estimation and inference for permutation based model

*Neel, Seth*, Towards ethical machine learning: new algorithms for fairness and privacy

## University of Pittsburgh (4)

### Department of Statistics

*Gao, Xing*, Covariate-driven factorization by thresholding for multi-block data

*Gong, Chen*, Particle Gibbs method in stochastic volatility models

*Wang, Zheng*, Longitudinal multivariate normative comparisons and accuracy improvement metrics for competing endpoints

*Zhu, Xiaonan*, High-dimensional bias-corrected inference, with applications to fMRI studies

## PUERTO RICO

### University of Puerto Rico, Rio Piedras (4)

#### Department of Mathematics

*Aragones, Ernes*, On the approximate controllability of fractional differential equations

*Diaz Salgado, Alexander*, The equivariant coarse geometric lp-Novikov conjecture for subspaces of non-positively curved manifolds

*Seoanes Correa, Fabian*, Fractional Gaussian estimates and holomorphy of semigroups

*Serna Rapello, Cesar*, Value distribution of elementary symmetric polynomials and their perturbations over finite fields

## RHODE ISLAND

### Brown University (22)

#### Department of Biostatistics

*Hu, Menghan*, Statistical methods for structural imaging data

*Shan, Mingyang*, Record linkage and causal inference with applications to health services research

*Wang, Youdan*, Hierarchical models for combining N-of-1 trials

*Wu, Xiaotian*, Dimension reduction for single cell RNA sequencing

*Xu, Yizhen*, Bayesian machine learning for predictive and causal inference

*Zhai, Ruoshui*, Multiple imputation and computational methods for design and analysis of cluster randomized trials

#### Department of Mathematics

*George, Terrence*, Cluster integrable systems and statistical mechanics

*Inchiostro, Giovanni*, Wall-crossing morphisms for moduli of stable pairs

*Kakaroumpas, Spyridon*, Sharp weighted estimates in harmonic analysis

*Wang, Yuhan*, On the algebraic aspects of complex hyperbolic triangle groups

*Xiao, Yang*, Incompressible surfaces in hyperbolic four-punctured sphere bundles

*Zhang, Zhiyuan*, Stability problems in fluids and plasmas

### Division of Applied Mathematics

*Cao, Xuefei*, Brain connectivity analysis using fMRI data

*Jiang, Shuai*, Preconditioning the p-FEM mass matrix: theory, implementation, and applications

*Larson, Karen*, Data-driven uncertainty quantification for problems in systems biology

*Lee, Taehee*, State-space models and Gaussian processes in paleoceanography and paleoclimatology

*Li, Zongyuan*, Elliptic boundary value problems on rough domains

*Lu, Lu*, Theory, algorithms, and software for physics-informed deep learning

*McGuirl, Melissa*, Quantifying patterns in dynamical systems and biological data

*McSwiggen, Colin*, Theory and applications of Harish-Chandra integrals

*Parker, Ross*, Nonlinear waves in the fifth-order Korteweg de-Vries equation

*Wang, Kunrui*, The incompressible Navier-Stokes equations: two regularity criteria

### University of Rhode Island (5)

#### Department of Mathematics

*Guillaume, Jean*, Closure under the majorization relation and the distinguishing chromatic number of circulant graphs

*Lantz, Benjamin*, On the Havel-Hakimi residue of degree sequences and its relation to the independence number

*Marcotte, James*, Global Dynamics of Discrete Monotone Maps in the Plane and in  $\mathbb{R}^N$

*Peterson, Eric*, Two variants of cops and robbers with asymmetric movement rules

*Van Beaver, Sarah*, Global dynamics of some discrete dynamical systems in mathematical biology

### SOUTH CAROLINA

#### Clemson University (10)

##### Department of Mathematical Sciences

*Ahmad, Sanwar*, Analytical and iterative regularization using mollifier and Gauss Newton approach for nonlinear ill-posed problems applications to diffuse

*Baumbaugh, Travis*, Codes and sequences for information retrieval and stream ciphers

*Bentley, Alistair*, A computational framework for axisymmetric linear elasticity and parallel iterative solvers for two-phase Navier-Stokes

*Case, Benjamin*, Homomorphic encryption and cryptanalysis of lattice cryptography

*Clevenger, Thomas Conrad*, A parallel geometric multigrid method for adoptive finite elements

*Feng, Haotian*, Performance of latent Dirichlet allocation with different topic and document structures

*Green, Andrew*, The uncertainty principle in control theory for partial differential equations

*Joyner, Chase*, From mixed effects modeling to spike and slab variable selection: a Bayesian regression model for group testing data

*Self, Stella*, Bayesian spatio-temporal modeling for forecasting, trend assessment and spatial trend filtering

*Zerfas, Camille*, Data assimilation and long time behavior of nonlinear PDEs

#### Medical University of South Carolina (4)

##### Department of Public Health Sciences

*Boaz, Raymond*, Air pollution and respiratory health in South Carolina: multivariate sparse prediction and variable selection

*Miller, Cameron*, Modeling spatially-referenced MALDI imaging data using a process convolution approach

*Muhammad, Lutfiyya*, Parameter estimation for data with lower limit of detection values under the truncated model—EM solutions

*Yu, Zhenning*, Unified approaches for frequentist and Bayesian methods in two-sample clinical trials with binary endpoints

### University of South Carolina (21)

#### Department of Epidemiology & Biostatistics

*Hossain, Md Akhtar*, Multivariate joint models and dynamic predictions

#### Department of Mathematics

*Bethea, Candace*, An equivariant count of nodal orbits in an invariant pencil of conics

*Grice, Joshua*, Finite axiomatisability in nilpotent varieties

*Lamarque, Alicia*, Rationality questions and the derived category

*Liu, Shuang*, Numerical methods for a class of reaction-diffusion equations with free boundaries

*Mehta, Harsh*, Counting number fields by discrimination with Galois group containing a normal abelian subgroup

*Olsen, Trevor*, Distance related graph invariants in triangulations and quadrangulations of the sphere

*Palmer, Erik*, A non-linear parallel model for reversible polymer solutions in steady and oscillating shear flow

*Reiswig, Josiah*, A few problems on the Steiner distance and crossing numbers of graphs

*Singh, Inne*, Diameter of 3-colorable graphs and some remarks on the midrange crossing constant

*Southwick, Jeremiah*, Two inquiries related to the digits of prime numbers

*Vandermolen, Robert*, Windows and generalized drinfeld kernels

*Wang, Zhiyu*, Connections between extremal combinatorics, probabilistic methods, Ricci curvature of graphs, and linear algebra

*Yuan, Shuai*, An ensemble-based projection method and its numerical investigation

*Zhang, Chenfei*, Unconditionally energy stable linear schemes for a two-phase diffuse interface model with Peng-Robinson equation of state

Department of Statistics

*Gu, Ennan*, Flexible regression models for survival data

*Kim, Taeho*, Investigations on multiple interval estimators

*Mou, Xichen*, Estimation problems for pooled data

*Wang, Chunling*, Bayesian analysis of binary diagnostic tests and panel count data

*Zhang, Yifan*, Multivariate probit models for interval-censored failure time data

*Zheng, Qiang*, Statistical analysis of interval-censored data subject to additional complications

**SOUTH DAKOTA**

**South Dakota State University (1)**

Department of Mathematics & Statistics

*Abdalla, Abdelbaset*, Finite mixture of regression models for complex survey data

**TENNESSEE**

**University of Memphis (5)**

Department of Mathematical Sciences

*Calle Cadavid, Diego*, Unique maximal ideal in the algebra  $\mathcal{L}((\Sigma \ell_q)_{c_0})$  with  $1 < q < \infty$

*Charoenphon, Sutthirut*, Vanishing relaxation time dynamics of the Jordan-Moore-Gibson-Thompson (JMGT) equation in high frequency ultrasound (HFU)

*Herrman, Rebekah*, Walks and games on graphs

*Olufadi, Yunusa*, Approaches for analyzing multivariate mixed endpoints with high-dimensional covariates

*Shi, Lei*, Truncated and aggregated P value test

**University of Tennessee, Knoxville (16)**

Department of Mathematics

*Aslan, Ibrahima Halil*, Leptospirosis models: vaccination of cattle and early detection in humans

*Berry, Kileen*, An energy-based blending of classical elasticity and peridynamics

*Daws, Joseph*, Applications of nonlinear approximation for problems in learning theory and applied mathematics

*Dinh, Khoa*, Effects of changing step edge energy on step flow instability for crystals growth in molecular beam epitaxy

*Fox, Lindsey*, Two applications of mathematical modeling: Control mechanisms of heart rate variability and contribution of environmental pathways in disease transmission

*Heningburg, Vincent*, Numerical methods for radiative transport equations

*Li, Delong*, Denominators of the Weierstrass coefficients of the canonical lifting

*Micucci, Cassie*, Persistence diagram cardinality and its applications

*Nguyen, Vy*, From isomorphism identities to Levy measure of non-negative infinitely divisible processes

*Perry, Logan*, Modeling the effects of cognition on cooperation

*Phillips, Tricia*, Data-driven modeling of the heroin and fentanyl epidemic and the harvesting of trees in West Africa

*Scott, James*, Mathematical analysis of a nonlocal system of equations arising in peridynamics

*Spannaus, Adam*, Advanced statistical methods for atomic-level quantification of multi-component alloys

*Taylor, Montgomery*, The diffusion phenomenon for dissipative wave equations in metric measure spaces with time-dependent operators

*Wieczorek, Margaret*, Modular forms, partitions, and q-series

*Wise, Michael*, Finite element methods for nonlinear, dispersive equations

**Vanderbilt University (3)**

Department of Mathematics

*Feigenbaum, Ahram*, Applications of modular forms to geometry and interpolation problems

*Jakobson, Bryan*, Two projections on equations over generalization of hyperbolic groups

*Solava, Ryan*, On the fine structure of graphs avoiding certain complete bipartite minors

**Vanderbilt University, School of Medicine (1)**

Department of Biostatistics

*Eden, Svetlana*, Estimating Spearman's correlation with bivariate right-censored data

**TEXAS**

**Baylor University (3)**

Department of Statistical Sciences

*Innerst, Grant*, Contributions to computational algebraic statistics

*Innerst, Melissa*, Lehmann ROC regression and spatial classification

*Lawler, Andrew*, Detecting episodes of star formation using Bayesian model selection

**Rice University (15)**

Computational & Applied Mathematics Department

*Doyle, Bryan*, A hybrid numerical scheme for immiscible two-phase flow

*Mikesell, Derek*, Monitoring on graphs: an exploration into k-Cores, zero forcing, and power domination

### Department of Mathematics

*Dai, Xian*, Geodesic coordinates for the pressure metric at the Fuchsian locus

*Jun, Hyunkyuu*, Cantor Spectrum of CMV matrices, Jacobi matrices with dynamically defined coefficients and potentials

*Ouyang, Charles*, Degeneration of minimal surfaces in the bidisc

### Department of Statistics

*Chen, Zhongyuan*, Association studies in human cancers: metabolic expression subtypes and somatic mutations/germline variations

*Kook, Jeong Hwan*, Variational inference for Bayesian variable selection with applications to biomedical data

*Lee, Kyung Hyun*, Stochastic modeling of telomere biology: probabilistic analysis of telomere shortening and network-based approach to gene expression analysis

*Liu, Yusha*, Statistical approaches to large-scale and complex omics data

*Miao, Yinsen*, Scalable Bayesian algorithms for quantitative geosteering

*Raath, Kim*, Dynamic multivariate wavelet signal extraction and forecasting with applications to finance

*Schedler, Julia*, Advances in the analysis of spatially aggregated data

*Stewart, Jonathan*, Consistent estimation of high-dimensional random graph models with dependent edge variables

*Taylor, Joshua*, Learning from SOM Voronoi tessellations applications to density estimation and clustering

*Xia, Yizhou*, On longest consecutive patterns in Markov chains

### Southern Methodist University (5)

#### Department of Mathematics

*Chen, Jiahui*, Parallel multipole expansion algorithms and their biology applications

*Copeland, Austin*, Nonlinear photonics in twisted and nonlocal structures

*Wang, Sihao*, The boundary element method for parabolic equation and its application in BEM++

*Zhang, Anyu*, Model selection and experimental design of biological networks with algebraic geometry

*Zhang, Lu*, A new class of discontinuous Galerkin methods for wave equations in second-order form

### Texas A&M University (26)

#### Department of Mathematics

*Brysiwicz, Taylor*, Newton polytopes and numerical algebraic geometry

*Cantu, Justin*, Periodic groups via orbital groups

*Cheung, Siu Wun*, Model reduction Bayesian and deep learning approaches for flows in fractured porous media

*Conner, Austin*, New results in the complexity of matrix multiplication

*Corbin, James*, Convergence of spectra of laplacian on open book structures

*Gezmiş, Oğuz*, Special values of  $L$ -series over Tate algebras

*Hua, Yuchen*, High order invariant domain preserving finite volume schemes for nonlinear hyperbolic conservation laws

*King, Harold*, Parking functions on trees and directed graphs

*Lan, Ruomeng*, On the spectral stability of solitary waves

*Li, Yanbo*, Generalized multiscale finite element methods for transport problems with heterogeneous media

*Ma, Xin*, Topological dynamical systems and regularity properties of reduced crossed product  $C^*$ -algebras

*Mitchell, Zachary*, Fatou-Bieberbach domains: A new construction and a theme on the Runge property

*Owen, Justin*, Finite element approximation of eigenvalues and eigenfunctions of the Laplace-Beltrami operator

*Tian, Geng*, Stong relative Novikov conjecture

*Tsai, Wei-Lun*, The distribution of Fourier coefficients of weak Maass forms

*Tyler, Jonathan*, Mathematical modeling of biological clocks

*Wang, Min*, Multiscale model reduction and learning

*Wei, Peng*, Numerical approximation for time dependent fractional diffusion with drift and its applications to surface quasi-geostrophic dynamics and electroconvection systems

*Ying, Li*, Stability of Heisenberg coefficients

*Zhang, Qing*, Super-modular categories

*Zhu, Yuyu*, Tress, point counting beyond fields, and root separation

### Department of Statistics

*Dai, Guorong*, Efficient estimators for expectations in nonlinear parametric regression models with responses missing at random and data integration in high dimension with multiple quantiles

*Ghosh, Rhiddi*, Bayesian estimation of correlation matrices of longitudinal data and variable clustering

*Kravitz, Eli*, Scoring and relative risk analysis in nutrition and physical activity

*Metheney, Erica*, Simulating networks with heavy-tailed degree distributions

*Niu, Yabo*, Topics on Bayesian Gaussian graphical models

### Texas Christian University (2)

#### Department of Mathematics

*Islam, Md*, Leafwise Morse-Novikov cohomological invariants of foliations

*Rabby, Fazle*, Multiplicity structures on conics

### Texas State University (2)

#### Department of Mathematics

*Fagan, Joshua*, Assessing ITP student's argument validating ability: framing, developing and validating a pilot assessment

*Salazar, Teresa Lynn*, Exploring prospective elementary teacher's peer-interviewer verbal interactions in a mathematics content course

**Texas Tech University (9)**

**Department of Mathematics & Statistics**

*Asik, Lale*, Environmental variations in stoichiometric predator-prey models

*Gruber, Anthony*, Curvature functionals and p-Willmore energy

*Guo, Mengmeng*, Statistical analysis of shape and functional data

*Hassan, Md Nazmul*, Ecotoxicological dynamics subject to stoichiometric constraints

*Nandi, Aadrita*, Stochastic models of emerging and re-emerging infectious diseases: Probability of outbreak, epidemic duration and final size

*Pathmanathan, Sureka*, Boundary optimal control problems with integral control constraints for fluid and solid mechanics

*Perera, Alahendra Acharige Chamila*, Coherent multi-task feature selection and prediction from pharmacogenomics databases and the linearly decreasing stress Weibull (LDSWeibull): A new Weibull-like distribution

*Ratnavale, Saikanth*, Boundary optimal control problems with inequality constraints

*Samarasiri, Supem*, Harmonic measure and its application to steady state heat distribution

**University of Houston (10)**

**Department of Mathematics**

*Assi, Sabrine*, Geometric multiscale representations and application to the analysis of retinal fundus images

*Bicol, Kayla*, Advances in algorithms for atmospheric sciences

*Ding, Junyu*, A novel statistical method to examine the cancer disparities and the effectiveness of cancer intervention

*Duong, Nguyen*, Statistical properties of high dimensional non-stationary dynamical systems

*Gao, Kuikui*, Statistical inference in age period and cohort models

*Karantzas, Nikolaos*, Compactly supported frame wavelets and applications

*Stanaityte, Rita*, ILU and machine learning based preconditioning for the discretized incompressible Navier-Stokes equations

*Tepsan, Worawit*, Functional analysis and operator algebras

*Zhang, Peng*, Diffeomorphic shape matching based on an operator splitting method

*Zhang, Xiao*, Modeling of NBA game data and their correlation structure

**University of North Texas (7)**

**Mathematics Department**

*Brophy, Edmond*, Prophet inequalities for multivariate random variables with cost for observations

*Craft, Colin*, Applications of a model-theoretic approach to Borel equivalence relations

*Crone, Logan*, Determinacy of Schmidt's game and other intersection games

*Drescher, Chelsea*, Invariants of polynomials modulo Frobenius powers

*Ragland, Robin*, Winning sets and the Banach-Mazur-McMullen game

*Rajendran, Rajanikanth*, A novel two-stage adoptive method for estimating large covariance and precision matrices

*Wu, Di*, A global spatial model for loop pattern fingerprints and its spectral analysis

**University of Texas at Arlington (10)**

**Department of Mathematics**

*Beach, Janessa*, Examining the concept images of function held by preservice secondary mathematics teachers with varying levels of prior mathematical experiences

*Charkrit, Sita*, Liutex analysis by POD and DMD for vortex formations in boundary layer transition

*Leslie, Ariel*, Mathematical modeling of a network of neurons regarding glucose transport deficiency induced epileptic seizures

*Mastriana, Anthony*, Some quadratic regular algebras on four generators with a 1-dimensional nonreduced line scheme

*Mogultay, Omer*, Optimal treatment strategies for cancer patients in terms of survival months and socio-economic factors

*Sozucok, Izzet*, Prediction of remaining lifetime distribution from functional trajectories under censoring data

*Su, Sumeyye*, Precision medicine: gene and clinical data analysis of renal cancer

*Williams, Dwight*, Bases of infinite-dimensional orthosymplectic Lie superalgebras

*Zahid, Mondal Hasan*, Impact of domestic animals on prevalence of vector-borne diseases in humans

*Zhou, Zicong*, Image analysis based on differential operators with applications to brain MRIs

**University of Texas at Austin (27)**

**Computational Science, Engineering & Math**

*Alghamdi, Amal*, Bayesian inverse problems for quasi-static poroelasticity with application to ground water aquifer characterization from geodetic data

*Estes, Samuel*, Uncertainty quantification in reservoirs with faults using a sequential approach

*Hiemstra, Rene*, Enabling higher order isogeometric analysis for applications in structural mechanics

*Lei, Qi*, Provable effective algorithms for min-max optimization

*Ly, Long*, Visibility optimization for autonomous exploration and surveillance-evasion games

*Mood, Charles*, Coupled SGBEM-FEM for efficient simulation of height-contained hydraulic fractures

*Myers, Aaron*, Particle methods for Bayesian inverse problems governed by partial differential equations (PDEs)



*Nguyen, Hieu*, Parallel-in-time methods for wave propagation in heterogeneous media

*Portone, Teresa*, Representing model-form uncertainty from missing microstructural information

*Tharakan, Sameer*, Using global low-rank kernel matrix approximations in machine learning and uncertainty quantification

*Wahal, Siddhant*, Novel algorithms for uncertainty quantification in large scale systems

*Zhang, Jiong*, Efficient deep learning for sequence data

### Department of Mathematics

*Carney, Sean*, Numerical multiscale methods for boundary layer problems in fluid dynamics

*Carruth, Jacob*, Extremal problems in Fourier analysis, Whitney's theorem, and the interpolation of data

*Dussinger, Milica*, Numerical methods for averaging and homogenization

*Krupa, Sam*, The  $L^2$  theory of well-posedness for hyperbolic systems of conservation laws

*Leeman, Ethan*, Andre-Quilen (co)homology and equivariant stable homotopy theory

*Lin, Yuqing*, Non-unique sofic entropy and a von Neumann algebra multiplicative ergodic theorem

*O'Reilly, Elizabeth*, Repulsion of determinantal point process and stationary Poisson tessellations in high dimensions

*Oldfield, Thomas*, On the dual complexes of certain Log Calabi-Yau pairs

*Pennie, Clark*, Conservative spectral methods for Fokker-Planck-Landau type equations: simulations, long-time behavior and error estimates

*Reyes, Nicolas*, The moduli space of objects in differential graded categories glued along bimodules and a presentability result in the homotopy theory of commutative differential graded algebras

*Rosenzweig, Matt*, Old and new perspectives on effective equations: a

study of quantum many-body systems

*Stokols, Logan*, The De Giorgi method: applications to degenerate PDE

*Tulli, Ivan*, The Ooguri-Vafa space as a moduli space of framed wild harmonic bundles

*Wu, Yingying*, Comparison theorems of phylogenetic spaces and algebraic fans

*Zhou, Yan*, Admissible groups and cluster structures of families of log Calabi-Yau surfaces

### University of Texas at Dallas (7)

#### Department of Mathematical Sciences

*Adabrah, Anani Komla*, Quadrics in Pseudo-Euclidean spaces, integrable billiards and extremal polynomials

*Chika, Charles*, A non-iterative construction of a class of 2-D wave speed from forward scattering data

*Dey, Asim*, Role of local geometry in resilience and functions of complex networks

*Islambekov, Umar*, Utility of Betti sequences as persistent homology-based topological descriptors in application to inference for space-time processes and time series of complex networks

*Kravets, Pavel*, Applications of topological and perturbation methods to analysis of periodic solutions in delay-differential equations classification of symmetries, asymptotic approximation and stabilization

*Ranomenjanahary, Roger*, Geometric and combinatorial properties of nets in plane and higher dimensions

*Yu, Shi*, Existence and bifurcation of periodic solutions in second order nonlinear systems: Brouwer equivariant degree method

## UTAH

### Brigham Young University (6)

#### Department of Mathematics

*Adams, Joseph*, A matched payout model for investment, consumption, and insurance with a risky annuity income

*Andersen, Michael*, Almost homeomorphisms and inscrutability

*Callor, Nickolas*, Coordinated persistent homology and an application to seismology

*Hettinger, Christopher*, Hyperparameters for dense neural networks

*Hills, Tyler*, An equivalence of shape and deck groups

*Ko, Hankun*, Locations of real zeros of new forms

### University of Utah (18)

#### Department of Mathematics

*Astephan, Hanna*, Semiduality of Rank-1 lattices

*Chen, Huachen*, Some applications of Bridgeland stability of K3 categories

*Fan, Gaoyang*, A mathematical investigation of quorum sensing in bacterial and communication networks

*Fu, Erjuan*, Lefschetz pencils and nets for hyperplane sections of a complex projective surface

*Hull, John*, Differential graded aspects of local cohomology and cosupport for group-graded triangulated categories

*Kenkel, Jennifer*, Local cohomology of thickenings

*Letz, Janina*, Generation time in derived categories

*Linebarger, Erin*, Combining multiple sources of information in algorithms for autonomous perception and decision-making

*Link, Kathryn*, Mathematical models of flow-mediated intravascular and extravascular blood clotting

*McAfee, Sean*, Twisted cells of real reductive lie groups

*Moraga, Joaquin*, On weak Zariski decompositions and termination of flips

*Mu, Dapeng*, Stability conditions on projective spaces, asymptotic stability and space curves

*Murphy, Patrick*, Cellular diffusion in heterogeneous and age-structured switching environments

*Rota, Franco*, Moduli spaces of sheaves: generalized Quot schemes and Bridgeland stability conditions

*Smolkin, Daniel*, Subadditivity of test ideals and diagonal F-regularity

*Utsey, Kiersten*, Bistability in epigenetic and genetic regulation

*Xia, Qing*, Robust numerical algorithms with applications to interface problems and chemotaxis models in biology

*Zhu, Ziwen*, K-stability and equivariant K-stability

### Utah State University (3)

Department of Mathematics & Statistics

*Bean, Brennan*, Interval-valued Kriging models with applications in design ground snow load prediction

*Lewis, Hannah*, Implementation and effects of university college algebra growth mindset structured assessments in large lectures

*Lundell, Jill*, Tuning hyperparameters in supervised learning models and applications of statistical learning in Genome-Wide association studies with emphasis on heritability

## VERMONT

### University of Vermont (2)

Department of Mathematics & Statistics

*Dewhurst, David*, Essays on modeling and analysis of dynamic sociotechnical systems

*Gray, Tyler*, Measuring linguistic and cultural evolution using books and tweets

## VIRGINIA

### College of William & Mary (1)

Department of Mathematics

*Sweigart, Daniel*, Optimization approaches for open locating-dominating sets

### Old Dominion University (3)

Department of Mathematics & Statistics

*Alqawba, Mohammed*, Copula-based zero-inflated count time series models

*Radio, Michelle*, Investigating the feasibility and stability for modeling acoustic wave scattering using a time-domain boundary integral equation with impedance boundary condition

*Song, Pai*, Electrohydrodynamic simulations of the deformation of liquid-filled capsules

### University of Virginia (10)

Department of Statistics

*Cook, Heather*, Characterizing standard variable importance measures and growth modeling of Bangladeshi children over two years of life

*Li, Huazhang*, Mapping epileptic directional brain networks using state space approaches

*Lin, Ye*, Estimating the dynamic diarrhea effects on childhood growth with statistical models

*Liu, Alice*, Errors-in-variables and random forests: theory and application to eyewitness identification data

*Pan, Karen*, Covariance estimation for small sample data with applications to forensic glass

*Weinstock, Justin*, Improving evaluations of cancer screening through better methods of estimating pre-clinical duration distributions

Department of Mathematics

*Kobin, Andrew*, Wild ramification and stacky curves

*Morgan, Aleksander*, Bounded generation of some linear groups

*Sale, Thomas*, Quantum symmetric pairs and quantum supergroups at roots of 1

*Schrecengost, Mark*, Finite generation of RGD systems with exceptional links

### Virginia Commonwealth University (6)

Department of Mathematics and Applied Mathematics

*Almusawa, Hassan*, Symmetry algebras of the canonical Lie group geodesic equations in dimension five

Department of Statistical Sciences & Operations Research

*Almusawa, Hassan*, Symmetry algebras of the canonical Lie group geodesic equations in deminsion five

### Virginia Commonwealth University, Medical Center (6)

Department of Biostatistics

*Bradbrook, Keighly*, Estimating responder statuses in sequential multiple assignment randomized trials

*Cresswell, Kellen*, Spectral methods for the detection and characterization of topologically associated domains

*Donahue, Erin*, Natural lead-in approaches to response-adaptive allocation in clinical trials

*Johns, Alicia*, Methods for estimating the optimal time log in longitudinal medication analysis

*Liu, Jin*, Estimating knots in bilinear spline growth models with time-invariant covariates in the framework of individual measurement occasions

*Stromberg, Katharine*, Adjusting for dropout in adaptive randomized clinical trials

### Virginia Polytechnic Institute and State University (16)

Department of Mathematics

*Bura, Andrei Cortiso*, Mathematical frameworks for quantitative network analysis

*Kadelka, Mirjam Sarah*, Mathematical and numerical investigation of immune system development and function

*Munster, Drayton*, Robust parameter inversion using stochastic estimates  
*Zhang, Jiaqi*, Finite-element simulations of interfacial flows with moving contact lines

*Zhuang, Qiao*, Immersed finite elements for a second order elliptic operator and their applications

### Department of Statistics

*Fadikar, Arindam*, Stochastic computer model calibration and uncertainty quantification

*Huang, Jianguang*, Sequential learning, large-scale calibration, and uncertainty quantification

*Jin, Zhongnan*, Statistical methods for multivariate functional data clustering, recurrent event prediction, and accelerated degradation data analysis

*Lu, Ruijin*, Scalable estimation and testing for complex, high-dimensional data

*Mao, Huiying*, Optimal driver risk modeling

*Metzger, Thomas*, Detection of latent heteroscedasticity and group-based regression effects in linear models via Bayesian model selection

*Quevedo Candela, Ana Valeria*, Statistical methods for non-linear profile monitoring

*Shen, Sumin*, Contributions to structured variable selection towards enhancing model interpretation and computation efficiency

*Slifko, Matthew*, The Cauchy-net mixture models for clustering with anomalous data

*Sun, Furong*, Some advances in local approximate Gaussian processes

*Tang, Man*, Statistical methods for variant discovery and functional genomic analysis using next-generation sequencing data

## WASHINGTON

### University of Washington (33)

#### Applied Mathematics Department

*Barger, Weston*, A partial differential equation approach to three problems in finance: barrier option

pricing, optimal asset liquidation and insider trading

*Champion, Kathleen*, From data to dynamics: discovering governing equations from data

*de Silva, Brian*, Data-driven discovery and model reduction of complex systems

*Upsal, Jeremy*, Stability of solutions of integrable partial differential equations

*Zheng, Peng*, Algorithm design for nonconvex and nonsmooth problems and its applications

### Biostatistics Department

*Dong, Qi*, Analysis of infectious disease incidence and complex survey data in space and time

*Gao, Lucy*, Statistical inference for clustering

*Grinde, Kelsey*, Statistical inference in admixed populations

*Humbert, Andrew*, Finite sample bias reduction for misspecified models with extensions to high dimensional data

*Price, Brenda*, Estimating optimal surrogate endpoints by machine learning and targeted minimum loss-based estimation in two-phase sampling studies

*Sondhi, Arjun*, Statistical miscellany: causality, networks, and bandits

*Tian, Xiaowen*, Population genetic inference with identity for decent

*Vu, Phuong*, Dimension reduction for spatially-misaligned and multipollutant data with missing observations

*Williamson, Brian*, A unified approach to model-agnostic variable importance

*Wu, Jiacheng*, Statistical methods for surrogacy and hypothesis testing in HIV research

*Xia, Fan*, Mediation analysis with complex intermediate causal structure

*Yin, Jiaqi*, Multiplicative effect modeling

*Zhuang, Rui*, Theory and algorithms for penalization, graphical models, and surrogate marker evaluation

### Department of Mathematics

*Cheng, Chi-yu*, Variation of instability in invariant theory

*Eptaminitakis, Nikolaos*, Geodesic X-ray transform on asymptotically hyperbolic manifolds

*Griffin, Sean*, Combinatorics and representation theory of rank varieties, Springer fibers, and hyperplane arrangements

*MacPhee, Kellie*, Geometry and algorithms for signal recovery: from convex duality to non-convex formulations

*Wicks, Elizabeth*, On weak quantum symmetry and Frobenius-Perron theory

### Department of Statistics

*Aicher, Christopher*, Scalable learning in latent state sequence models

*Director, Hannah*, Space-time contour models for sea ice forecasting

*Jewell, Sean*, Estimation and inference in changepoint models

*Laha, Nilanjana*, Estimation and testing under shape constraints

*Lee, Wesley*, Latent variable models for prediction and inference with proxy network measures

*Li, Yicheng*, Bayesian hierarchical models and moment bounds for high-dimensional time series

*Pan, Mengjie*, Inferring network structure from partially observed graphs

*Tang, Mingwei*, Fitting stochastic epidemic models to multiple data types

*Wang, Bowen*, Realized genome sharing in random effects models for quantitative genetic traits

*Yu, Shiqing*, Non-Gaussian graphical models: estimation with score matching and causal discovery under zero-inflation

### Washington State University (11)

#### Department of Mathematics & Statistics

*Glassett, Jillian*, Spectrally arbitrary patterns over various rings

*Hilliard, Zachary*, Generalizing the Cahn-Hilliard equation with applications in migration modeling

*Huang, Rui*, Higher order trail dependence of Archimedean copulas with rapidly varying tails

*Jobrack, Matthew*, The non-vanishing of the derivative of  $L$ -functions at the central point

*Morrison, Jillian*, Ordinal data: inference and simulation

*Oles, Vladyslav*, Feature extraction from network data

*Rapone, Benjamin*, Minimal homotopies and robust feasibility using topological degree theory

*Wendler, Enzo*, Alpha-adjacency: A generalization of adjacency matrices

*Wendler, Megan*, Semimonotone matrices

*Ye, Min*, Dependent competing risks modeling using multivariate Weibull distribution and process monitoring with classification techniques and real-time contrast

*Zhang, Yueqiao*, Rank one perturbations and applications

## WISCONSIN

### Marquette University (2)

Department of Mathematics & Statistical Sciences

*Milali, Masabho*, Machine learning and data mining-based methods to estimate parity status and age of wild mosquito vectors of infectious diseases from near-infrared spectra

*Wu, Zhou*, Dependable and scalable public ledger for policy compliance, a blockchain based approach

### Medical College of Wisconsin (1)

Division of Biostatistics

*DeVogel, Nicholas*, Adjustment of familial relatedness and population structure in linear mixed models

### University of Wisconsin, Madison (18)

Department of Mathematics

*Cao, Yunbai*, The Vlasov-Poisson-Boltzmann system in bounded domains

*Edwards, Thomas*, Atmospheric water in the saturated precipitating quasi-geostrophic equations

*Ehlert, Kurt*, Numerical methods for stochastic reaction network models

*Elduque, Eva*, Alexander-type invariants of hypersurface complements

*Fang, Di*, Numerical analysis and computational methods for non-adiabatic quantum dynamics and biological models

*Geske, Christian*, Algebraic intersection spaces

*Hu, Bingyang*, Sparse domination of singular Radon transforms

*Huang, Hang*, Defining equations and syzygies of some  $G$ -varieties and their thickenings

*Julian, Ryan*, Postmodern coding theory

*Laudone, Robert*, Representation stability and combinatorial approaches to noetherianity up to symmetry: applications to 0-Hecke modules and Plucker-embedded Grassmannians

*Li, Mao*, Construction of Poincaré sheaf on stack of rank 2 Higgs bundles

*Li, Wanlin*, Frobenius action on Jacobians of curves over finite fields

*Liu, Yuan*, The realizability problem with prescribed inertia conditions

*Lynch, John*, Pseudo-Anosov homeomorphisms with large topological entropy

*Ongay Valverde, Ivan*, Relations between set theory and computability Theory: the case for localization numbers and sets closed under Turing equivalence

*Powers, Michael*, A theory of difference modules in algebraic geometry

*Schwend, Jeremy*, Lebesgue inequalities for convolution with surface measure on prototypical hypersurfaces in three dimensions

*Yuan, Chaojie*, Stochastic models for chemical reaction network

### University of Wisconsin, Milwaukee (1)

Department of Mathematical Sciences

*Suruliraj Ratnam, Ponmalar*, Smooth quantiles for claim frequency models with applications to risk measurement

## WYOMING

### University of Wyoming (5)

Department of Mathematics & Statistics

*Christopherson, Bryce*, Stability in common and uncommon places

*Curtis, Bryan*, Sign patterns of row orthogonal matrices

*Hu, Hiukun*, GPU accelerated sequential quadratic programming and a data assimilation enabled dual porosity Stokes model

*Shang, Justin "Zongbo"*, Model assessments in logistic regression

*Shavlik, Kristen*, Numerical methods for computing solutions to the non-linear Schrödinger equation