PROGRAM

Sixteenth International Conference on Approximation Theory

Nashville, TN **** May 19–22, 2019

	Sunday Morning, May 19	
	Session M-1A Chair: *Roza Aceska*	**Session C-1B** Chair: *Leslaw Skrzypek*
8:15	**Matthew Fickus**, *Air Force Institute of Technology*, Harmonic Equiangular Tight Frames Comprised of Regular Simplices	**Vera Babenko**, *Drake University*, Optimal Recovery of Monotone Operators in Quasi-normed Spaces
8:35	**John Jasper**, *South Dakota State University*, Equiangular Tight Frames from Group Divisible Designs	**Volodymyr Chelyshkov**, *Eastern Kentucky University*, An Algorithm for Shape Preserving Approximation
8:55	**Yeon Hyang Kim**, *Central Michigan University*, Time-variant System Approximation via Later-time Samples	**Yuliya Babenko**, *Kennesaw State University*, On Multivariate Ostrowski Type Inequalities and Their Applications to Optimal Recovery of Integrals
9:15	**Richard Lynch**, *Texas A&M University*, Recovering Low-rank Matrices from Binary Measurements	**Friedrich Littmann**, *North Dakota State University*, Marcinkiewicz Inequalities for Hermite-Biehler Weights
9:35	**James Murphy**, *Tufts University*, Data-dependent Distances for Unsupervised Learning	**Doron Lubinsky**, *Georgia Institute of Technology*, Distribution of Eigenvalues of Toeplitz Matrices with Smooth Entries
9:55	**Armenak Petrosyan**, *Oak Ridge National Laboratory*, Rearranged Fourier Series and Generalizations to Non-commutative Groups	**Elena Berdysheva**, *Justus-Liebig-Universität Gießen, Germany*, Metric Approximation of Set-valued Functions of Bounded Variation
10:15	**Coffee Break**	
	Session P-2 Chair: *Mike Neamtu*	
11:00	**Gerlind Plonka**, *University of Göttingen, Germany* On the Impact of Prony's Method	
12:00	**Lunch**	

	Sunday Afternoon, May 19	
	Session M-3A Chair: *Armenak Petrosyan*	**Session M-3B** Chair: *Akil Narayan*
13:30	**Giang Tran**, *University of Waterloo, Canada*, Polynomial Recovery from Mixing Data with Outliers	**Akil Narayan**, *University of Utah*, Least-squares Approximation with General Distributional Data
13:50	**Jiahua Jiang**, *Virginia Tech*, Offline-enhanced Reduced Basis Method through Adaptive Construction of the Surrogate Training Set	**Dongbin Xiu**, *Ohio State University*, Sequential Approximation Methods for Function Approximation with Big Data
14:10	**Anton Dereventsov**, *Oak Ridge National Laboratory*, The Natural Greedy Algorithm for Reduced Bases in Banach Spaces	**Giovanni Migliorati**, *Sorbonne University, France*, Adaptive Approximation by Optimal Weighted Least-squares Methods
14:30	**Hoang Tran**, *Oak Ridge National Laboratory*, Null Space Conditions for Sparse Recovery via Nonconvex, Non-separable Minimizations	**Guannan Zhang**, *Oak Ridge National Laboratory*, ResNet-based Isosurface Learning for Dimensionality Reduction in High-dimensional Function Approximation
14:50	**Joseph Daws**, *University of Tennessee, Knoxville*, A Deep Neural Network Architecture Inspired by Polynomial Approximation	**Clayton Webster**, *University of Tennessee and Oak Ridge National Laboratory*, Learning High-dimensional Systems from Data by Nonlinear Reconstruction and Deep Learning
15:10	**Nick Dexter**, *Simon Fraser University, Canada*, High-dimensional Function Approximation with ReLU Deep Neural Networks	**Lutz Kämmerer**, *Chemnitz University of Technology, Germany*, An FFT Approach for High Dimensional Approximation using Multiple Rank-1 Lattices
15:30	**Coffee Break**	
	Session P-4 Chair: *Larry Schumaker*	
16:15	**Michael Unser**, *Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland* Splines and Learning: From Kernel Methods to Deep Neural Nets	
	Session C-5A Chair: *Boris Shekhtman*	**Session C-5B** Chair: *Doron Lubinsky*
17:15	**Michael Rehme**, *University of Stuttgart, Germany*, Stochastic Collocation with Hierarchical Extended B-splines on Spatially Adaptive Sparse Grids	**Ralf Hielscher**, *TU Chemnitz, Germany*, Fast Cross-validation in Harmonic Approximation
17:35	**Espen Sande**, *University of Rome Tor Vergata, Italy*, Explicit Constants in Tensor Product Spline Approximations	**Xingping Sun**, *Missouri State University*, Approximation Powers of Fourier Multiplier Operators
17:55	**Ziteng Wang**, *Northern Illinois University*, Recent Advances of L^1 Splines	**Maria van der Walt**, *Westmont College*, Deep Learning Approach to Diabetic Blood Glucose Prediction
18:15	**Wu Li**, *NASA Langley Research Center*, Topology Preserving Approximation for Aircraft Conceptual Design	**Ran Zhang**, *Shanghai University of Finance and Economics, China*, Learning Physics by Data for the Motion of a Sphere Falling in a Non-Newtonian Fluid
18:45	**Welcoming Reception** — Wilson Hall Lobby	

	Monday Morning, May 20	
	Session M-6A Chair: *Ming-Jun Lai*	**Session M-6B** Chair: *Joachim Stöckler*
8:15	**Ming-Jun Lai**, *University of Georgia*, On DC Based Methods for Phase Retrieval	**Joachim Stöckler**, *Technische Universität Dortmund, Germany*, Sharp Sampling Theorems in Shift-invariant Spaces
8:35	**Zhiqiang Xu**, *Chinese Academy of Sciences, China*, The Performance of the Quadratic Model for Phase Retrieval	**Ewa Matusiak**, *University of Vienna, Austria*, Gabor Frames on Model Sets
8:55	**Dan Edidin**, *University of Missouri*, Recovering Partially Known Signals from Few Fourier Intensity Measurements	**Ilya Krishtal**, *Northern Illinois University*, A Prony-Laplace Method for Identifying Burst-like Forcing Terms
9:15	**Cheng Cheng**, *Duke University and SAMSI*, Phase Retrieval of Complex and Vector-valued Signals	**Sui Tang**, *Johns Hopkins University*, Recovery of Linear Dynamics from Undersampled Time Series Data
9:35	**Mark Iwen**, *Michigan State University*, Phase Retrieval from Windowed Fourier Measurements with Associated Lower Bounds	**Longxiu Huang**, *Vanderbilt University*, CUR Decompositions and Perturbations
9:55	**Chris Dock**, *University of Maryland*, Lipschitz Analysis of Noisy Quantum Inference as Phase Retrieval	**Akram Aldroubi**, *Vanderbilt University*, Local-to-global Frames and Applications to Dynamical Sampling Problem
10:15	**Coffee Break**	
	Session P-7 Chair: *Peter Binev*	
11:00	**John A. Evans**, *University of Colorado Boulder* Geometry, Mesh Parameterization, and High-order Spline Approximation	
12:00	**Lunch**	

	Monday Afternoon, May 20	
	Session M-8A Chair: *Toni Karvonen*	**Session M-8B** Chair: *Espen Sande*
13:30	**Toni Karvonen**, *Aalto University, Finland*, Computational Methods for Kernel-Based Cubature	**Cesare Bracco**, *University of Florence, Italy*, BPX Preconditioners for Isogeometric Analysis based on Hierarchical Splines
13:50	**Henry Chai**, *Washington University St. Louis*, Improving Bayesian Quadrature for Constrained Integrands	**Michael DiPasquale**, *Colorado State University*, Improving Dimension Bounds for Splines: The Homological Term
14:10	**Ryunosuke Oshiro**, *University of Tokyo, Japan*, Point-exchanging Methods for Obtaining Kernel Quadrature Formula	**Nelly Villamizar**, *Swansea University, UK*, Improving Dimension Bounds for Trivariate Splines on Cells
14:30	**Hans Kersting**, *University of Tübingen, Germany*, Convergence Rates of Gaussian ODE Filters	**Deepesh Toshniwal**, *University of Texas at Austin*, Non-uniform Degree Splines on T-meshes: Combinatorial Bounds on the Dimension
14:50	**Filip Tronarp**, *Aalto University, Finland*, Probabilistic Solutions to Ordinary Differential Equations as Non-linear Bayesian Filtering	**Francesco Patrizi**, *SINTEF, Norway*, A Quasi-interpolation Method Based on LR B-splines
15:10	**Bharath Sriperumbudur**, *Pennsylvania State University*, Approximate Kernel PCA: Computational vs. Statistical Trade-off	**Chong-Jun Li**, *Dalian University of Technology, China*, The Construction of Multivariate Spline Interpolation Bases for FEM
15:30	**Coffee Break**	
	Session P-9 Chair: *Joseph Ward*	
16:15	**Deanna Needell**, *University of California Los Angeles* Simple Approaches to Complicated Data Analysis	
	Session C-10A Chair: *Tatyana Sorokina*	**Session C-10B** Chair: *Xingping Sun*
17:15	**Peter Binev**, *University of South Carolina*, Adaptive Approximations on Conforming Partitions	**Scott Kersey**, *Georgia Southern University*, Approximation of Multivariate Functions on Sparse Grids by Quasi-interpolation Based on Radial Basis Functions
17:35	**James Hateley**, *UC Santa Barbara*, Frozen Gaussian Approximation for High Frequency Elastic Waves	**Lei-Hsin Kuo**, *University of West Florida*, Localized Meshless Methods for Solving Telegraph Equations
17:55	**Nick Fisher**, *Colorado School of Mines*, Convergence Analysis of the ADI Extrapolated Crank-Nicolson Orthogonal Spline Collocation Scheme for Burgers' Equation in 2 Space Variables	**Heather Wilber**, *Cornell University*, Rational Approximation in Superfast Rank-structured Solvers
18:15	**Smita Sonker**, *NIT Kurukshetra, India*, Degree of Approximation of the Function (Signal) with Almost Riesz Means	**Wenwu Gao**, *Anhui University, China*, Optimality of Quasi-interpolation: A Stochastic Perspective

	Tuesday Morning, May 21	
	Session M-11A Chair: *Grady Wright*	**Session M-11B** Chairs: *Simon Foucart*
8:15	**Elisabeth Larsson**, *Uppsala University, Sweden*, Localized Radial Basis Function Methods for PDEs in Thin Volumes	**Boris Hanin**, *Texas A&M University*, Nonlinear Approximation and Deep ReLU Networks
8:35	**Víctor Bayona**, *Universidad Carlos III de Madrid, Spain*, On RBF-FD Approximations Augmented with High-degree Polynomials	**Or Sharir**, *Hebrew University of Jerusalem, Israel*, On the Suitability of Neural Networks for the Simulation of Quantum Many-body Systems
8:55	**Varun Shankar**, *University of Utah*, Automatic Hyperviscosity-based Stabilization of RBF-FD Discretizations	**Philipp Petersen**, *University of Oxford, UK*, Approximation of High-dimensional PDEs by Neural Networks
9:15	**Francis Narcowich**, *Texas A&M University*, Enhanced Meshfree Near-boundary Approximation via Extrapolation	**Randall Balestriero**, *Rice University*, A Spline Theory of Deep Networks
9:35	**Thomas Hangelbroek**, *University of Hawaii*, Nonlinear and Anisotropic Approximation with Gaussian Mixtures	**Alex Cloninger**, *University of California San Diego*, Manifold Learning with Diffusion Variational Autoencoders
9:55	**James Curtis**, *Colorado School of Mines*, Interpolation of PDE Data Using a Designer Kernel	**David Rolnick**, *University of Pennsylvania*, The Power of Deeper Networks for Expressing Natural Functions
10:15	**Coffee Break**	
	Session P-12 Chair: *Greg Fasshauer*	
11:00	**Rodrigo Platte**, *Arizona State University* Node Generation for High-order Approximation	
12:00	**Lunch**	

	Tuesday Afternoon, May 21	
	Session M-13A Chair: *Varun Shankar*	**Session M-13B** Chair: *Alessandra Sestini*
13:30	**Grady Wright**, *Boise State University*, Localized Meshfree Semi-Lagrangian Advection Schemes for Transport on Surfaces	**Tatyana Sorokina**, *Towson University*, Piecewise Harmonic Splines
13:50	**Christian Rieger**, *RWTH Aachen, Germany*, Kernel Methods for Parametric Equations	**Oleg Davydov**, *University of Giessen, Germany*, Error Bounds for a Least Squares Meshless Finite Difference Method on Closed Manifolds
14:10	**Joseph Ward**, *Texas A&M University*, A High Order Meshless Galerkin Method for Semilinear Parabolic Equations on Spheres	**Sara Remogna**, *University of Torino, Italy*, Optimal Spline Quasi-interpolation on Type-1 Triangulations
14:30	**Nathaniel Trask**, *Sandia National Laboratories*, Mimetic Conservation Principles for Meshfree Approximation	**Jan Grošelj**, *University of Ljubljana, Slovenia*, Quasi-interpolation with Cubic Powell-Sabin Splines
14:50	**Mauro Perego**, *Sandia National Laboratories*, Advances in the Approximation Theory of Generalized Moving Least Squares	**Alessandra Sestini**, *University of Firenze, Italy*, Quadrature Rules Based on Quasi-interpolation for B-spline Weighted Singular and Hypersingular Integrals
15:10	**Ben Gross**, *UC Santa Barbara*, Meshless Methods for Manifolds: GMLS Approximations of Hydrodynamic Responses in Curved Fluid Interfaces	**Maria Lucia Sampoli**, *University of Siena, Italy*, An Application of QI-based Quadrature Rules to Isogeometric Boundary Element Methods
15:30	**Coffee Break**	
	Session P-14 Chair: *Francis Narcowich*	
16:15	**Frances Kuo**, *University of New South Wales, Australia* High-dimensional Integration and Approximation: The Quasi-Monte Carlo (QMC) Way	
17:15		
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18:15		
18:30	**Conference Dinner for ticket holders** — Holiday Inn	

	Wednesday Morning, May 22	
	Session M-16A Chair: *Sergiy Borodachov*	**Session M-16B** Chair: *Daan Huybrechs*
8:15	**Sergiy Borodachov**, *Towson University*, Optimal Multivariate Spline Method for Recovery of Functions of Smoothness Three	**Daan Huybrechs**, *KU Leuven, Belgium*, Frames and Numerical Approximation
8:35	**Aleksandr Reznikov**, *Florida State University*, Discrete Energy and Polarization on Fractal Sets	**Mikael Slevinsky**, *University of Manitoba, Canada*, On Symmetrizing the Ultraspherical Spectral Method for Self-adjoint Problems
8:55	**Oleksandr Vlasiuk**, *Florida State University*, Minimization of p-Frame Energies	**Alex Townsend**, *Cornell University*, Error Localization of Best L_1 Polynomial Approximants
9:15	**Boris Shekhtman**, *University of South Florida*, On the Gradient Conjecture and Some Density Problems	**Vincent Coppé**, *KU Leuven, Belgium*, Pointwise and Uniform Convergence of Fourier Extensions
9:35	**Simon Foucart**, *Texas A&M University*, Determining Projection Constants of Univariate Polynomial Spaces	**Josiah Park**, *Georgia Institute of Technology*, Old and New Bounds for Projective Cubature Formulas
9:55	**Fatma Zürnacı**, *Dokuz Eylül University, Turkey*, Non-polynomial Divided Differences and Generalized Taylor Series	**Francesca Pitolli**, *University of Roma La Sapienza, Italy*, Quasi-interpolants and the Solution of Fractional Differential Problems
10:15	**Coffee Break**	
	Session P-17 Chair: *Oleg Davydov*	
11:00	**Costanza Conti**, *University of Florence, Italy* Non-stationary Subdivision Schemes: Potentialities and Perspectives	
12:00	**Lunch**	

	Wednesday Afternoon, May 22	
	Session C-18A Chair: *Thomas Hangelbroek*	**Session C-18B** Chair: *Elisabeth Larsson*
13:30	**Dimitri Papadimitriou**, *University of Antwerp, Belgium*, Nonlinear Approximation by Function Composition with Multi-Layer Neural Networks	**Nadav Dym**, *Duke University*, Approximation of Iterative Function Systems Through Neural Network Functions
13:50	**Julien Fageot**, *Harvard University*, Reconstructing Analog Signals from Discrete Measures: A General Regularization-based Approach	**Barak Sober**, *Duke University*, Approximation of Manifolds from Scattered Data by Manifold Moving Least-squares
14:10	**Ingeborg Keller**, *University of Göttingen, Germany*, Reconstruction of Non-Stationary Signals by the Generalized Prony Method	**Robert Womersley**, *University of New South Wales, Australia*, Good Covering of the Sphere by Spherical Caps
14:30	**John Paul Ward**, *North Carolina A&T State University*, Localized Basis Functions on Graphs and Applications	**Michael Quellmalz**, *Technische Universität Chemnitz, Germany*, The Cone-beam Transform and Spherical Convolutions
14:50	**Matthias Beckmann**, *University of Hamburg, Germany*, Approximation of Bivariate Functions by Filtered Back Projection	
15:10		
15:30	**Coffee Break**	
	Session P-19 Chair: *Larry Schumaker*	
16:15	**Doug Hardin**, *Vanderbilt University* Linear Programming Bounds for Packing and Energy on the Sphere	
17:15	**End of Conference**	