Basic Research Innovation and Collaboration Center (BRICC)
4075 Wilson Blvd., Suite 350 | Liberty Room
Arlington, VA 22203

Agenda Day 1 | Monday, August 14, 2017

Time	Title	Speaker
	Registration	
8:00	**Welcome**	Jean-Luc Cambier
8:30	Extracting sparse high-dimensional dynamics from limited data	Hayden Schaeffer (CMU)
9:00	Computational Methods for Data-Driven and Reduced-Order Modeling of Multiscale Physics	Nathan Kutz (U Washington)
9:30	Data-driven Physics-constrained Model Reduction of the Navier-Stokes Equations	Maciej Balajewicz (UIUC)
10:00	**BREAK**	
10:15	Dimensional Reduction of Highly Nonlinear Multiscale Models	Charbel Farhat (Stanford)
10:45	Koopman Mode Analysis of Spatially Extended Dynamical Systems with Applications to Agent-based models	Maria Fonoberova (AIMDyn Inc.)
11:15	**LUNCH**	
13:00	A Unified Mathematical and Algorithmic Framework for Managing Multiple Information Sources of Multi-physics Systems	Karen Willcox (MIT)
13:30	Optimization of Complex Systems	Jason Hicken (RPI)
14:00	Multi-Fidelity Methods for Computational Design	Phil Beran (AFRL/RQ)
14:30	Quantification of Epistemic and Model-form Uncertainty for Complex Systems	Dongbin Xiu (OSU)
15:00	**BREAK**	
15:15	LES Modeling of Non-local effects using Statistical Coarse-graining	Karthik Duraisamy (U Michigan)
15:45	Compatible-Strain Mixed Finite Element Methods for 2D Compressible Nonlinear Elasticity	Arash Yavari (Ga Tech)

16:15	An Integrated Computational Framework for Modeling Materials with Complex and evolving microstructures	Soheil Soghrati (OSU)
16:45	**MEETING ADJOURN**	

Agenda Day 2 | Tuesday, August 15, 2017		
Time	**Title**	**Speaker**
	Registration	
8:00	Tensor-structured Techniques for Large-scale Electronic-structure Calculations	Vigram Gavini (U Michigan)
8:30	Operational Dynamical Modelling: Towards Efficient Model-Building and Simulation of Complex Systems	Denys Bondar (Princeton)
9:00	Stochastic Algorithms in Sparse Antisymmetrized Hilbert Spaces	George Booth (King's College)
9:30	Quantum Computational Mathematics for Efficient Computational Physics	Jeffrey Yepez (U Hawaii)
10:00	**BREAK**	
10:15	Quantum Information Transfer Between Energy Scales	Brian Swingle (UMd)
10:45	Particle systems and the Dynamics and Functionality of Networks	A. Tannenbaum (Stony Brook), G. Tryphon (UCI)
11:15	**LUNCH**	
13:00	Model Inversion via Machine Learning: Algorithms and Applications to Fluids and Materials	George Karniadakis (Brown U)
13:30	Duality and Memory in the Mori-Zwanzig Formulation	Daniele Venturi (UC Santa Cruz)
14:00	Complementing Dynamical Equations with Data in Adaptive Reduced-order Subspaces	Themis Sapsis (MIT)
14:30	Gradient Based Optimization and Control of Chaotic Multidisciplinary Systems via least squares shadowing adjoint method	Qiqi Wang (MIT)
15:00	**BREAK**	
15:15	From Computational Information Games to Universal Scalable Robust Solvers	Houman Owhadi (Caltech)
15:45	Mean-field-type Game Theory: Foundations, Learning and Implementation	Hamidou Tembine (NYU)
16:15	Many-body Descriptions of Rare Events in Complex Dynamical Systems	Johnson, Neil (U Miami)

16:45	**MEETING ADJOURN**

Agenda Day 3 | Wednesday, August 16, 2017		
Time	**Title**	**Speaker**
	Registration	
8:00	Continuum Shape Sensitivity Analysis with Spatial Gradient Reconstruction for Fluid-Structure Interactions	Robert Canfield (Va Tech)
8:30	The Hybridized Discontinuous Galerkin Method for Implicit Large Eddy Simulations	N. C. Nguyen, J. Peraire (MIT)
9:00	A New Fast, Accurate and Non-Oscillatory Numerical Approach for Wave Propagation Problems in Solids	Alexander Idesman (TTU)
9:30	Time Domain Electromagnetic Particle-Particle Particle-Mesh Methods	Andrew Christlieb (Michigan State U)
10:00	**BREAK**	
10:15	Discontinuous Petrov Galerkin (DPG) Solvers for Maxwell Equations and Related Wave Propagation Problems	Leszek Demkowicz (UTA)
10:45	A High Order truly Multi-dimensional Semi-Lagrangian Approach for Vlasov Simulations	Jingmei Qiu (U Houston)
11:15	**LUNCH**	
13:00	Robust Approximation of Nonlinear Hyperbolic Systems	Jean-Luc Guermond (TAMU)
13:30	Efficient and Robust High-Order Methods for Fluid and Solid Mechanics	Per-Olof Persson (UC Berkeley)
14:00	High-Order Methods and High Fidelity Simulation of Unsteady Turbulent Fluid Flows	Antony Jameson (Stanford)
14:30	Optimal High-order Non-intrusive Approximation Strategies for Plasma Physics	Akil Narayan (U Utah)
15:00	**BREAK**	
15:15	Towards Extreme-Scale Computing with High-Order Discontinuous Methods	Z. J.Wang (Kansas U)

15:45	SSP Time-stepping for Problems with Multiple Scales where the Fast Scales are Driven by a Linear Component	Sigal Gottlieb (U Mass)
16:15	Efficient Spectral Methods for Fractional Differential Equations in Unbounded Domains	Jie Shen (Purdue)
16:45	**MEETING ADJOURN**	

Agenda Day 4 | Thursday, August 17, 2017		
Time	**Title**	**Speaker**
	Registration	
8:00	Inviscid Regularization	Kamran Mohseni (U Florida)
8:30	Data-Infused Fractional PDE Modelling and Simulation of Anomalous Transport	Mohsen Zayernouri (Michigan State U)
9:00	Simulation of particle-laden blast waves (I)	G. Jacobs (SDSU), H. S. Udaykumar (U Iowa)
9:30	Simulation of particle-laden blast waves (II)	G. Jacobs (SDSU), H. S. Udaykumar (U Iowa)
10:00	**BREAK**	
10:15	A Multiscale Particle Computational Method for Chemically Reacting Microplasmas	Nikos Gatsonis (WPI)
10:45	l1 regularization and optimal sampling to improve function approximation	Rodrigo Platte (ASU)
11:15	**LUNCH**	
13:00	HO Challenges (Review and Discussion)	
13:30		
14:00		
14:30		
15:00	**BREAK**	
15:15	Structure-Preserving Model-reduction	Jan Hesthaven (EPFL)
15:45	Bayesian Optimal Experimental Design for Inverse Scattering	O. Ghattas (UTA), G. Biros (UTA), Y. Marzouk (MIT)

16:15	Hierarchical Methodology for Inverse Problems	Andrew Stuart (Caltech)
16:45	**MEETING ADJOURN**	

Agenda Day 5 | Friday, August 18, 2017		
Time	**Title**	**Speaker**
	Registration	
8:00	Uncertainty Quantification for Materials State Awareness and Characterization	Amanda Criner (AFRL/RQ)
8:30	Quantifying and Improving Confidence in Model Predictions for Hypersonic Aircrafts	Ben Smarslok (AFRL/RQ)
9:00	Extending Stochastic Numerical Methods For Beam Control	Dan Cargill (AFRL/RD)
9:30	Navier-Stokes equations: Ensemble discretization methods and simulating Richardson's pair dispersion	Max Gunzburger (FSU)
10:00	**BREAK**	
10:15	Multi-rate High-Order Time-Integrators for Adaptive Local High-Order Discretization Methods	F. Giraldo (NPS), E. Constantinescu (ANL)
10:45	A Deep-learning Approach Towards Auto-tuning CFD Codes	Wu-chun Feng (Va Tech)
11:15	**LUNCH**	
13:00	Asymptotically Efficient Simulations of Elliptic Problems with Small Random Forcing	Xiaoling Wan (LSU)
13:30	Exploiting Geometry and Degeneracy in Large Scale Structured Optimization	Dmitriy Drusvyatskiy (U Washington)
14:00	Allocating Geographic Resources Optimally (AGRO)	John Carlsson (USC)
14:30	Non-convex Distributed Optimization over Time-varying Networks	Behrouz Touri (U Colorado)
	MEETING ADJOURN	