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

Agenda Day 1 | August 8, 2016

Time	Title of Project	Speaker
8:00-8:30	**Registration**	
8:30-8:45	Welcoming Remarks	Jean-Luc Cambier AFOSR
8:45-9:15	A Deep-Learning Approach towards Auto-Tuning CFD Codes	Wu Feng (Virginia Tech)
9:15-9:45	Time Domain Electromagnetic Particle-Particle Particle-Mesh Methods	Andrew Christlieb (Michigan State)
9:45-10:00	**BREAK**	
10:00-10:30	A High Order Truly Multi-dimensional Semi-Lagrangian Approach for Vlasov Simulations	Jingmei Qiu (U. Houston)
10:30-11:00	A Multiscale Particle Computational Method for Chemically Reacting Microplasmas	Nikos Gatsonis (WPI)
11:00-11:30	Observable Euler/NS Equations for Simulation of Multiphase Flows with Shocks and Turbulence	Kamran Mohseni (U Florida)
11:30-13:00	**LUNCH**	
13:00-13:30	Distributional Monte Carlo Methods for RGD	Aihua Wood (AFIT)
13:30-14:00	Development and Analysis of Non-Classical Numerical Approximation Methods	R. Platte, A. Gelb (ASU)
14:00-14:30	Optimal Sampling of Functions using the Spectral Measure	Akil Narayan (U. Utah)
14:30-15:00	Strong Stability Preserving Implicit and IMEX Methods	Sigal Gottlieb (U. Mass)
15:00-15:15	**BREAK**	
15:15-15:45	Compatible-Strain Mixed Finite Element Methods for 2D Compressible Nonlinear Elasticity	Aresh Yavari (Ga Tech)
15:45-16:15	A Unified Mathematical and Algorithmic Framework for Managing Multiple Information Sources of Multi-physics Systems (MURI)	K. Willcox (MIT), P. Frazier (Cornell)
16:15-16:45	Mathematical Methods for Inverse Ill-posed Problems and Applications	Ruben Spies (IMAL, Argentina)
MEETING ADJOURNED FOR THE DAY		

Agenda Day 2 | August 9, 2016		
Time	**Title of Project**	**Speaker**
8:00-8:15	**Registration**	
8:15-8:45	Continuum Shape Sensitivity Analysis with Spatial Gradient Reconstruction for Fluid-Structure Interactions	Robert Canfield (VT)
8:45-9:15	The Hybridized Discontinuous Galerkin Method for Implicit Large Eddy Simulations	J. Peraire, N. C. Nguyen (MIT)
9:15-9:45	A New Fast, Accurate and Non-Oscillatory Numerical Approach for Wave Propagation Problems in Solids	Alexander Idesman (Texas Tech U.)
9:45-10:00	**BREAK**	
10:00-10:30	Correcting Soft Errors in Function Approximation	Dongbin Xiu (OSU)
10:30-11:00	Towards Extreme-Scale Computing with High-Order Discontinuous Methods	Z. J. Wang (Kansas U)
11:00-11:30	Applied and Theoretical Issues on Inverse Problems	Diana Rubio (U. San Martin, Argentina)
11:30-13:00	**LUNCH**	
13:00-13:30	Discontinuous Petrov Galerkin (DPG) Solvers for Maxwell Equations and Related Wave Propagation Problems	L. Demkowicz (UT-Austin), J. Gopalakrishnan (Portland State U.)
13:30-14:00	High-Order Methods and High Fidelity Simulation of Unsteady Turbulent Fluid Flows	Antony Jameson (Stanford)
14:00-14:30	Robust Approximation of Nonlinear Hyperbolic Systems	J.-L. Guermond (Texas A&M U.)
14:30-14:45	**BREAK**	
14:45-15:15	Efficient and Robust High-Order Methods for Fluid and Solid Mechanics	Per-Olof Persson (UC Berkeley)
15:15-15:45	An Open-Source Framework for Physics-based Validation and Verification of Higher Order Discretizations	K. Beckwith (Tech-X)
15:45-16:45	**Discussion**	
MEETING ADJOURNED FOR THE DAY		

Agenda Day 3 | August 10, 2016		
Time	**Title of Project**	**Speaker**
8:00-8:30	**Registration**	
8:30-9:00	Multi-Fidelity Methods for Computational Design	Phil Beran (AFRL/RQVC)
9:00-9:30	Uncertainty Quantification for Materials State Awareness and Characterization	Amanda Criner (AFRL/RXCA)
9:30-10:00	Quantifying and Improving Confidence in Model Predictions for Hypersonic Aircrafts	Ben Smarslok (AFRL/RQHF)
10:00-10:15	**BREAK**	
10:15-10:45	Improved Plasma and High Power Electromagnetic Modeling	Jason Hammond (AFRL/RDHE)
10:45-11:15	Extending Stochastic Numerical Methods For Beam Control	Dan Cargill (AFRL/RDLEM)
11:15-12:45	**LUNCH**	
12:45-13:15	Complementing Dynamical Equations with Data in Adaptive Reduced-order Subspaces	Themis Sapsis (MIT)
13:15-13:45	Model Inversion via Machine Learning: Algorithms and Applications to Fluids and Materials	George Karniadakis (Brown)
13:45-14:15	Duality and Memory in the Mori-Zwanzig Formulation	Daniele Venturi (UCSC)
14:15-14:45	From Computational Information Games to Universal Scalable Robust Solvers	Houman Owhadi (Caltech)
14:45-15:00	**BREAK**	
15:00-15:30	Operational Dynamical Modelling: Towards Efficient Model-Building and Simulation of Complex Systems	Denys Bondar (Princeton)
15:30-16:00	Stochastic Algorithms in Sparse Anti-Symmetrized Hilbert Spaces	George Booth (King's College)
16:00-16:45	**Discussion**	
MEETING ADJOURNED FOR THE DAY		

Agenda Day 4 | August 11, 2016		
Time	**Title of Project**	**Speaker**
8:00-8:30	**Registration**	
8:30-9:00	Using Multi-Secant Methods for Optimization Problems with Inaccurate Gradients	Jason Hicken (RPI)
9:00-9:30	Dynamic-solver-consistent Minimum Action Method for Navier-Stokes Equations	Xiaolang Wan (LSU)
9:30-10:00	Gradient based Optimization and Control of Chaotic Multidisciplinary Systems via Least Squares Shadowing Adjoint Method	Qiqi Wang (MIT)
10:00-10:15	**BREAK**	
10:15-10:45	Efficient Spectral Methods for Fractional Differential Equations in Unbounded Domains	Jie Shen (Purdue)
10:45-11:15	Advanced Numerical Methods for Computing Statistical Quantities of Interest	Max Gunzburger (U Florida)
11:15-12:45	**LUNCH**	
12:45-13:15	Time Evolution of Super-Convergence Properties of DG and Exploitation via Line Filtering	J. Ryan (U. East Anglia)
13:15-13:45	Simulation of Particle-laden Blast Waves	G. Jacobs (SDSU), H. Udaykumar (U. Iowa)
13:45-14:15	Computational Challenges in Modeling Condensed Phase Energetic Materials Across a Wide Range of Scales	D. Stewart (UIUC)
14:15-14:45	Explicit Solutions to Phase-change Problems and Applications	Domingo Tarzia (U. Austral, Argentina)
14:45-15:00	**BREAK**	
15:00-15:30	Multi-Rate High Order Time-Integrators for Adaptive Local High-Order Discretization Methods	Frank Giraldo (NPS)
15:30-16:00	Towards a Practical High Order FEM: Bernstein-Bezier Techniques	Mark Ainsworth (Brown)
MEETING ADJOURNED		