



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

Agenda Day 1 - Monday, August 3, 2015

Time	Title of Project	Speaker
7:30-8:00	Registration	
8:00-8:15	Welcoming Remarks and Future Directions	Jean-Luc Cambier AFOSR
8:15-8:45	Semi-implicit Particle in Cell based on an A-Stable Wave Solver	Andrew Christlieb (Michigan State U.)
8:45-9:15	Extending SSP Time-stepping Methods Outside the Method-of-lines Framework	Sigal Gottlieb (U. Mass.)
9:15-9:30	BREAK	
9:30-10:00	A Scalable/resilient Domain Decomposition Method for CFD	George Karniadakis (Brown U.)
10:00-10:30	Epistemic Uncertainty Propagation using Fuzzy Sets	Dongbin Xiu (U. Utah)
10:30-11:15	Computational Information Games	Houman Owhadi (Caltech)
11:15-11:45	Quasi-optimal Polynomial Approximations for High-dimensional Parameterized PDEs	Clayton Webster (ORNL)
11:45-1:00	LUNCH (on your own)	
1:00-2:30	MURI: Managing Multiple Information Sources of Multi-physics Systems	K. Wilcox, P. Frazier, M. Mignolet, J. Martins (MIT)
2:30-3:00	Dimensional Reduction and Uncertainty Quantification through the Mori-Zwanzig Formulation	Daniele Venturi (UCSC)
3:00-3:15	BREAK	
3:15-4:00	New Numerical Approaches to Optimal Bayesian Experimental Design	Youssef Marzouk (MIT)
4:00-4:45	Geometric Discretizations, Hilbert Complexes of Nonlinear Elasticity, and Consistent Mixed Finite Element	Arash Yavari (Georgia Tech. U.)
5:00	MEETING ADJOURNED FOR THE DAY	

Agenda Day 2 - Tuesday, August 4, 2015

Time	Title of Project	Speaker
7:30-8:00	Registration	
8:00-8:30	Bound-preserving Discontinuous Galerkin Methods for Relativistic Hydrodynamics	Chi-Wang Shu (Brown U.)
8:30-9:00	Temporal and Spatial Multiscale Methods for Materials Modeling and Computing	M. Luskin (U. Minnesota)
9:00-9:30	Noise Propagation in Multiphysics Models	Daniel Tartakovsky (UC San Diego)
9:30-9:45	BREAK	
9:45-10:15	Large-scale Real-space Electronic Structure Calculations	Vikram Gavini (U. Michigan)
10:15-10:45	Some Numerical Issues of Large Deviation Principle	Xiaoliang Wan (LSU)
10:45-11:15	Adjoining Chaos	Qiqi Wang (MIT)
11:15-11:45	Stochastic Arnoldi's Method for PDE-constrained Optimization of Chaotic Systems	Jason Hicken (RPI)
11:45-1:00	WORKING LUNCH (catered)	
1:00-1:30	Hybridizable Discontinuous Galerkin (HDG) Methods for Systems of Conservation Laws	J. Peraire, N.C. Nguyen (MIT)
1:30-2:00	An Adaptive Multiscale Generalized Finite Element Method for Large Scale Simulations	Armando Duarte (UIUC)
2:00-2:30	Positive Invariant Finite Element Approximation of Hyperbolic Systems of Non-uniform Meshes in Two and Three Space Dimensions	J.-L. Guermond (Texas A&M U.)
2:30-2:45	BREAK	
2:45-3:15	Large Eddy Simulations using FR/CPR Methods	Z. J. Wang (U. Kansas)
3:15-3:45	Unstructured Space-Time Meshes for High-Order Simulations on Domains with Large Deformations	Per-Olof Persson (UC Berkeley)
3:45-4:15	Quantification of Errors Introduced in the Numerical Approximation and Implementation of Smoothness-Increasing Accuracy Conserving Filtering of DG Fields	Mike Kirby (U. Utah) Jennifer Ryan (U. East Anglia)
4:15-4:45	Analytic Accuracy Analysis for Unstructured Mesh Finite Volume Methods	Carl Ollivier-Gooch (U. British Columbia)
5:00	MEETING ADJOURNED FOR THE DAY	

Agenda Day 3 - Wednesday, August, 2015

Time	Title of Project		Speaker
7:30-8:00	Registration		
8:00-8:30	Improved Plasma and High Power Electromagnetic Modeling within the Improved Concurrent Electromagnetic Particle-In-Cell (ICEPIC) Code		Andrew Greenwood (AFRL/RDHEC)
8:30-9:00	Quantifying Confidence in Model Predictions for Hypersonic Aircraft Structures		B. P. Smarslok (AFRL/RQHF)
9:00-9:30	Multi-Fidelity Methods for Computational Design		P. Beran, E. Forster, C. Schrock (AFRL/RQVC)
9:30-10:00	Uncertainty Quantification for Materials State Awareness		A. Criner (AFRL/RXCA)
10:00-10:15	BREAK		
10:15-10:45	A New Fast, Accurate and Non-Oscillatory Numerical Approach for Wave Propagation Problems in Solids		Alexander Idesman (Texas Tech U.)
10:45-11:15	Solving Boltzmann and Fokker-Planck Equations using Sparse Representation		Jie Shen (Purdue)
11:45-11:45	High Order Adaptive Numerical Solvers for Kinetic Simulations		Jingmei Qiu (U. Houston)
11:45-1:00	WORKING LUNCH (catered)	A Distributional Monte Carlo Method for the Boltzmann Equation	Aihua Wood (AFIT)
		Multi-rate HO Time-Integrators for Adaptive Local High-Order Discretization Methods	E. Constantinescu (ANL), F. Giraldo (NPS)
1:00-1:45	Multifluid Plasma Modeling: Advanced Solvers, Scalability, and Fault Resilience		K. Beckwith (Tech X), L. Olson (UIUC), C. Leibs (FSRC)
1:45-2:15	Image Reconstruction from Undersampled Fourier Data Using the Polynomial Annihilation Transform		R. Platte, A. Gelb, R. Renaut (Arizona State U.)
2:15-2:45	Viscous Flow Algorithms for Embedded-Boundary Cartesian Grids		Marsha Berger (New York U.)
2:45-2:50	BREAK		
2:50-3:20	Simulation of Particle-laden Blast Waves with Inter-scale Coupling and Uncertainty Quantification		G. Jacobs (San Diego State U.)
3:20-3:50	Computational Modeling of Dynamic Interfaces in Explosive Systems		D. Stewart, B. Lieberthal, A. Hernández (UIUC)
3:50-4:20	Mesoscopic Lattice Algorithms for Classical and Quantum Turbulence		G. Vahala (William & Mary College)
4:20-4:50	A Multiscale Particle Computational Method for Chemically Reacting Microplasmas		Nikolaos A. Gatsonis (WPI)
5:00	MEETING ADJOURNED FOR THE DAY		

Agenda Day 4 - Thursday, August 6, 2015

Time	Title of Project	Speaker
7:30-7:45	Registration	
7:45-8:30	<u>Towards Exa-scale Computations: Parallel-in-Time, Sparse FFT, Compressed Sensing</u>	Benjamin Ong (Michigan State U.)
8:30-9:00	<u>Discontinuous Petrov Galerkin (DPG) Method with Optimal Test Functions for Wave Propagation Problems</u>	L. Demkowicz (UT-Austin), J. Gopalakrishnan (Portland State U.)
9:00-9:30	<u>Advanced Numerical Methods for Computing Statistical Quantities of Interest</u>	Max Gunzburger (Florida State U.)
9:30-9:45	BREAK	
9:45-10:15	<u>Fast Algorithms for Forward and Inverse Scattering and Optimization under Uncertainty</u>	George Biros, Omar Ghattas (U. Texas - Austin)
10:15-11:00	<u>Synergistic Co-Design of Hardware and Software for Structured and Unstructured Grid Computations</u>	Wu-chun Feng (Virginia Tech)
11:00-11:30	<u>Residual Methods for Error Estimation and Adaptation in CFD</u>	C. J. Roy, J. Boorggaard (VT)
11:30-12:00	<u>Model Reduction for Nonlinear and parametric Systems with Uncertainty</u>	M. Heinkenschloss, D. C. Sorensen (Rice U.), K. Willcox (MIT)
MEETING ADJOURNED		