



Booz Allen Hamilton Building
3811 North Fairfax Drive, Suite 600 | Arlington, VA 22203
Agenda Day 1 - Tuesday, July 29, 2014

Time	Title of Project	Speaker
7:45-8:20	Registration/Refreshments	
8:20-8:30	Welcoming Remarks	Fariba Fahroo AFOSR
8:30-8:55	An Implicit Maxwell Solvers, A Partial Approach to Rothes Method	Andrew Christlieb Michigan State University
8:55-9:20	Physics-Based Computational Algorithm for Advanced Plasma Models	Uri Shumlak University of Washington
9:20-9:45	High-Order Asymptotic Preserving Nodal Discontinuous Galerkin IMEX Schemes for the BGK Equation	Jingmei Qiu (YIP) University of Houston
9:45-10:10	An Adaptive Multiscale Generalized Finite Element Method for Large Scale Simulations	C. Armando Duarte UIUC
10:10-10:35	Continuum Shape Sensitivity for Nonlinear Aeroelastic Gust Response	Bob Canfield Virginia Tech
10:35-10:50	BREAK	
10:50-11:15	Optimal Explicit Strong Stability Preserving Runge- Kutta Methods with High Linear Order and Optimal Nonlinear Order	Sigal Gottlieb Univ. of Mass., Dartmouth
11:15-11:40	Analytic Accuracy Analysis for Unstructured Mesh Finite Volume Methods, with Application to Aerodynamic Simulations	Carl Ollivier-Gooch University of British Columbia
11:40-12:05	Towards Exa-scale Computations	Benjamin Ong (BRI) Michigan State University
12:05-1:30	LUNCH	
1:30-1:55	Multiscale Hybridizable Discontinuous Galerkin Methods	Cuong Nguyen, Jaime Peraire MIT
1:55-2:15	Improved Plasma and High Power Electromagnetic Modeling within the Improved Concurrent Electromagnetic Particle-In-Cell (ICEPIC) Code	Jason Hammond Air Force Research Laboratory
2:15-2:35	Multi-Fidelity Methods for Computational Design	Philip Beran Air Force Research Laboratory
2:35-2:55	Computational Methods in Non-equilibrium Hypersonic Flows	Eswar Josyula Air Force Research Laboratory
2:55-3:10	Design in Chaos -- Towards Design Optimization Using Chaotic High Fidelity, Multi-Disciplinary Simulations	Qiqi Wang MIT
3:10-3:40	Quantification of Errors Introduced in the Numerical Approximation and Implementation of Smoothness-	Jennifer Ryan University of East Anglia

	Increasing Accuracy Conserving (SIAM) Filtering of Discontinuous Galerkin (DG) Fields	Mike Kirby University of Utah
3:40-3:50	BREAK	
3:50-4:15	Center of Excellence on Integrated Materials Modeling (CEIMM): An AFOSR/AFRL Center of Excellence on ICMSE	Somnath Ghosh Johns Hopkins University
4:15-4:40	Nano-Rod Dispersion Film Flows and Induced Material Properties	Greg Forest UNC, Chapel Hill
4:40- 5:05	MURI 2012: Managing the Mosaic of Microstructure	Surya Kalidindi Georgia Tech
4:50- 5:05	Objective Structures	Kaushik Dayal
5:05-5:30	On the Effect of Spatial Coarse-Graining on Transition State Theory Rates	Mitch Luskin University of Minnesota
5:30-5:45	BREAK	
5:45-7:00	Future Directions Session on Numerical Methods for CFD, Plasma and Materials	

Agenda Day 2 -Wednesday, July 30, 2014		
Time	Title of Project	Speaker
7:45-8:30	Registration/Refreshments	
8:30-9:00	Programmatic Issues: Fariba Fahroo	
9:00-9:25	UQ with Simulations Models of Different Fidelities	Dongbin Xiu University of Utah
9:25-9:50	Can Discovery Be Computed?	Houman Owhadi Caltech
9:50-10:15	Reconstruction of Piecewise Smooth Images from Fourier Data Using the Sparsity of Edges	Anne Gelb Arizona State University
10:15-10:35	Some Advances in Particle Management and Collisions for Non-Equilibrium Plasma	Jean-Luc Cambier Air Force Research Laboratory
10:35-10:45	MURI 2014 - A Unified Mathematical and Algorithmic Framework for Managing Multiple Information Sources of Multi-Physics systems	Karen Willcox MIT
10:45-11:00	BREAK	
11:00-11:30	Generalized Mathematical and Computational Approaches for Predictive Simulation of Stochastic Turbulent Systems	Catalin Trenchea/ William Layton University of Pittsburgh Clayton Webster Oak Ridge National Lab
11:30-11:55	Bernstein-Bezier Polynomials for High Order Finite Element Approximation in Any Dimension	Mark Ainsworth Brown University

11:55-12:25	Large-Scale Uncertainty Quantification for Inverse Wave Propagation	Omar Ghattas, George Biros, Leszek Demkowicz, Tinsley Oden (BRI) University of Texas at Austin
12:25-1:35	LUNCH	
1:35-2:40	MURI (09)—Uncertainty Quantification	Tom Hou, Boris Rozovsky, Daniele Venturi, Masa Yano
2:40-3:05	Conservative Tightly-coupled Simulations of Fluctuating Multiscale Systems	Daniel Tartakovsky University of California – San Diego
3:05-3:35	Collaborative Research: Model Reduction for Nonlinear and Parametric Systems with Uncertainty	Matthias Heinkenschloss (BRI) Danny Sorensen Rice University Karen Willcox, MIT
3:35-4:00	Approximate Inference and Model Error in Optimal Bayesian Experimental Design	Youssef Marzouk MIT
4:00-4:15	BREAK	
4:15-4:40	Box Splines on Crystallographic Lattices for Reconstruction of Irregularly Sampled Data	Alireza Entezari (YIP) University of Florida
4:40-5:05	Efficient Numerical Methods for Nonlinear Filtering Problems	Yanzhao Cao Auburn University
5:05-5:30	Recent Results on an Explicit Algorithm for Imbedding Internal Boundaries in Cartesian Grids and Developments in Computational Shock Dynamics for the Interaction of Explosives with Inert Confinements	D. Scott Stewart UIUC
5:30-5:40	BREAK	
5:40-6:50	Future Directions In Uncertainty Quantification	

Agenda Day 3 - Thursday, July 31, 2014		
Time	Title of Project	Speaker
7:45-8:30	Registration/Refreshments	
8:30-8:55	Efficient High-Order Time-Integrators for Local High-Order Spatial Discretization Methods	Francis Giraldo Naval Postgraduate School Emil Constantinescu Argonne National Lab
9:20-9:45	A High-Order Discontinuous Galerkin Method for Fluid-Structure Interaction With Efficient Implicit-Explicit Time Stepping	Per-Olof Persson (YIP) UC Berkeley
9:45-10:10	Some Recent Advances on the Application of Parareal in Time Algorithms	Yvon Maday Université Pierre et Marie Curie Jan Hesthaven

		EPFL
10:10-10:30	BREAK	
10:30-10:55	Differential Complexes, Hilbert Complexes, and Orthogonal Decompositions in Continuum Mechanics	Arash Yavari George Institute of Technology
10:55-11:20	Further Development of a Riemann-solver Free Space-time Discontinuous Galerkin Method for Compressible Magnetohydrodynamics (MHD) Equations	Shuang Z. Tu Jackson State University
11:20-11:45	A High-Order Maximum Principle Preserving Continuous Finite Element Technique for Nonlinear Scalar Conservation Equations	Jean-Luc Guermond Texas A&M University
11:45-12:10	Some Recent Developments in the Flux Reconstruction Methods	Antony Jameson Stanford
12:10-1:30	LUNCH	
1:30-1:55	A Hybrid Discontinuous Galerkin Method for Accurate Output Prediction	Krzysztof Fidkowski (YIP) University of Michigan
1:55-2:20	Synergistic Co-Design of Hardware and Software for Structured and Unstructured Grid Computations	Wuchun Feng (BRI) Virginia Tech
2:20-2:45	Sharp Interface Method and Non Smooth Optimization	Kazi Ito, Zhilin Li NC State University
2:45-3:10	Residual-based Methods for Discretization Error Estimation and Solution Adaptation in CFD	Chris Roy, Jeff Borggaard Virginia Tech
3:10-3:20	BREAK	
3:20-3:40	Quantifying Confidence in Model Predictions for Hypersonic Aircraft Structures	Benjamin P. Smarslok AFRL/RQHF
3:40-4:00	Multiscale Modeling of Fracture Networks in Composite Subcomponents	Lauren Ferguson Tim Breitzman Air Force Research Laboratory (RXCC)
4:00-4:25	Recent Progresses in Higher Order Methods towards Real World Applications	ZJ Wang University of Kansas
4:25-4:50	Development of a Multiscale Eulerian-Lagrangian Method for High-Speed Multimaterial Flows	Guus Jacobs San Diego State University Uday Kumar The University of Iowa
4:50-5:15	Solution Methods for Fluid Plasma Equations at Ultrascale	Kris Beckwith (BRI) Tech-X
5:15	Concluding Remarks & Meeting Adjourned	