

Program Summary

June 26

- 09:00–10:00 B. Engquist
Heterogeneous Multi-Scale Methods
- 10:00–11:00 O. Runborg
Super Fast Fourier Transforms and Sparse Spectral Methods for Multiscale PDEs
- 11:15–12:15 W.-H. Hui
In Search of the Optimal Coordinate System in Computational Fluid Dynamics
- 13:30–14:30 S. Jin
Computation of High Frequency Waves in Heterogeneous Media
- 14:30–15:30 B. Nkonga
Numerical Model for Light Interaction with Two-Level Atoms Medium
- 15:45–16:15 I.-L. Chern
A Coupling Interface Method for Elliptic Interface Problems
- 16:15–16:45 W.-C. Wang
Fully Consistent and Accurate Pressure Boundary Condition for MAC Scheme on Curvilinear Domains
- 16:45–17:15 M.-C. Lai
Simulation of Fluid-Solid Problems Using Immersed Boundary Method

June 27

- 09:00–10:00 S. Osher
Bregman Iteration, Inverse Scale Space, Cartoon/Texture Decomposition, Recovery of Signal from Noise and other New Techniques in PDE Based Image Restoration
- 10:00–11:00 T. Chan
Duality-Based Iterative Methods for Total Variation Minimization
- 11:15–12:15 T. Hou
Dynamic Generation and Depletion of Small Scales for 3D Incompressible Flows
- 13:30–14:30 B. Cockburn
Unified Hybridization of Discontinuous Galerkin, Mixed and Continuous Galerkin Methods for Second Order Elliptic Problems
- 14:30–15:30 C.-W. Shu
Discontinuous Galerkin Method based on Non-Polynomial

- Approximation Spaces*
- 15:45–16:15 M.-H. Chan
High-Order Runge-Kutta Discontinuous Galerkin Methods for Computational Electromagnetics
- 16:15–16:45 C.-S. Chien
Computing Wave Functions of Nonlinear Schrödinger Equations: A Steady-State Approach
- 16:45–17:15 C.-S. Huang
A Fully Mass and Volume Conserving Implementation of a Characteristic Method for Transport Problems

June 28

- 09:00–10:00 Q. Du
Retrieving Topological Information For Interfaces Described by Phase Field Models
- 10:00–11:00 T.-L. Cheng
An Efficient Level Set Method for Wavefront Construction in Geometrical Optics
- 11:15–12:15 S. Esedoglu
Finding Global Minimizers of Segmentation and Denoising Functionals

June 29

- 09:00–10:00 F. Santosa
Maximization of the Quality Factor of an Optical Resonator
- 10:00–11:00 J. Shen
Efficient and Stable Spectral Methods for the Helmholtz equation in Exterior Domains
- 11:15–12:15 J.-G. Liu
Incompressible Navier-Stokes Dynamics in Bounded Domains: A New Approach for Analysis and Computation
- 13:30–14:30 K. Xu
Gas-kinetic Scheme for Continuum and Rarefied Flow Computation
- 14:45–15:15 J.-Y. Yang
Kinetic Methods for Ideal Quantum Gas Dynamics
- 15:15–15:45 T. W. Sheu
On a Continuity-Preserving Segregated Solution Algorithm for Accelerating the Incompressible Navier-Stokes Calculation
- 15:45–16:15 K.-M. Shyue
A Wave-Propagation Based Volume Tracking Method for Compressible Multicomponent Flow
- 16:30–17:00 C.-H. Teng

A Novel Method for Solving Electromagnetic Problems of
 $Ax = \omega^2x$ and $A(\omega)x = \omega^2x$
17:00–17:30 T.-M. Hwang
Null-space free Jacobi-Davidson Method for Maxwell's Equation

June 30

09:00–10:00 R. Tsai
Visibility of Point Clouds and Mapping of Unknown Environments

10:00–11:00 C.-Y. Kao
A Geometric Method for Automatic Extraction of Sulcal Fundi

11:15–11:45 J. Y. Shih
Novel Inverse Method for the Time Dependent Diffusion Tomography

11:45–12:15 K.-M. Lee
Inverse Scattering Problems by Integral Equation Method

13:30–14:00 J.-L. Liu
A Model for Semiconductor Quantum Dot Molecule Based on the Current Spin Density Functional Theory

14:00–14:30 W.-C. Wang
Simulating Quantum Dot Array with Different Size Dots

14:30–15:00 S.-F. Shieh
Bifurcation and Computational Methods of Multi-Component Bose-Einstein Condensates