International Workshop on Scientific Computing

On The Occasion of Qun Lin's 70TH Birthday

July 15-16, 2006

Institute of Computational Mathematics, Beijing

Program&Abstracts

Sponsors:

Institute of computational Mathematics, CAS
State Key Lab on Scientific and Engineering Computing, CAS
National Basic Research Program "High Performance Scientific Computation Research"

Scientific Committee:

Zhong-ci Shi (Chair, ICMSEC, CAS)

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Xin-hua Wang (Zhejiang Univ.)

Lung-an Ying (Peking Univ.)

De-Hao Yu (ICMSEC, CAS)

Ya-xiang Yuan (ICMSEC, CAS)

Tian-xiao Zhou (ACTRI, Xi'an)

Invited Speakers:

Gang Bao (Michigan State Univ., USA)

Raymond Chan (Chinese Univ. Hong Kong)

Zhangxin Chen (Southern Methodist Univ., USA)

Zhiming Chen (ICMSEC, CAS)

Qiang Du (Penn State Univ., USA & ICMSEC, CAS)

Weinan E (Princeton Univ., USA)

Thomas Y. Hou (Caltech, USA)

Yunqing Huang (Xiangtan Univ.)

Shi Jin (Univ. Wisconsin-Madison, USA)

Kaitai Li(Xi'an Jiaotong Univ.)

Wenbin Liu(Univ. Kent, UK)

Tao Lu(Sichuan Univ.)

Chi-wang Shu (Brown Univ., USA)

Jia-chang Sun (Inst. of Software, CAS)

Xue-cheng Tai (Univ. Bergen, Norway)

Tao Tang (Hong Kong Baptist Univ.& ICMSEC, CAS)

Bin Wang (Inst. of Atmosphere, CAS)

Junping Wang (Colorado School of Mines & NSF, USA)

Jinchao Xu (Penn State Univ., USA)

Ningning Yan (Inst. of Sys. Sci., CAS)

Dehao Yu (ICMSEC, CAS)

Pingwen Zhang (Peking Univ.)

Organizing Committee:

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Ningning Yan (Inst. of Sys. Sci., CAS)

Linbo Zhang (ICMSEC, CAS)

Pingwen Zhang (Peking University)

Qi-ding Zhu (Hunan Normal Univ.)

Saturday, July 15, 2006

Opening Ceremony   08:30-08:45
Chair: Yaxiang Yuan
Group photo   08:50-09:00

Invited Talks

Chair: Junzhi Cui

Chi-wang Shu   09:00-09:30

High Order Accurate Anti-diffusive WENO Methods and Application to Shallow Water with Transport of Pollutant

Thomas Y. Hou   09:30-10:00

Dynamic Generation and Depletion of Small Scales for 3D Incompressible Flows

Coffee Break   10:00-10:30

Chair: Hou-de Han

Junping Wang   10:30-11:00

Superconvergence for a Stabilized Finite Element Method for the Stokes Equation by Using Coarsening Projections

Yunqing Huang   11:00-11:30

Superconvergence and Adaptivity

Xuecheng Tai   11:30-12:00

A Survey on Domain Decomposition and Multigrid Methods for Nonlinear Problems and Variational Inequalities

Lunch 12:00-13:30
Venue: *Guest House of Institute of Physics*

Chair: Tian-xiao Zhou

Shi Jin 13:30-14:00

A Semiclassical Transport Model for Thin Quantum Barrier

Wenbin Liu 14:00-14:30

Superconvergence in FE Approximation of Optimal Control

Bin Wang 14:30-15:00

An Economical Approach to Implement the 4-dimensional Variational Data Assimilation

Coffee Break 15:00-15:30

Chair: Benyu Guo

Jiachang Sun 15:30-16:00

On Finite Element Methods over 2-D Hexagon and 3-D Dodecahedron Partitions

Dehao Yu 16:00-16:30

Domain Decomposition with Nonmatching Grids for Exterior Transmission Problems via FEM and DtN Mapping

Zhiming Chen 16:30-17:00

An Adaptive Perfectly Matched Layer Technique for 3-D Time-Harmonic Electromagnetic Scattering Problems

Banquet 18:00-20:00
Chair: Zhiming Chen **Venue**: You Yi Hotel

Sunday, July 16, 2006

Invited Talks

Chair: Kaitai Li

Weinan E   08:30-09:00

Some Thoughts about the Curriculum in Computational Mathematics

Raymond Chan   09:00-09:30

Equivalence of Half-Quadratic Minimization and the Relaxed Fixed Point Iteration

Gang Bao   09:30-10:00

Inverse Scattering in Near-field Optics

Coffee Break   10:00-10:30

Chair: Renhong Wang

Kaitai Li   10:30-11:00

A Coupling System of Elliptic Boundary Value Problem and Navier-Stokes Equations for the Geometry Design of Blade's Surface

Tao Lu   11:00-11:30

Extrapolations for Solving the Weakly Singular Volterra Integral Equations

Ningning Yan   11:30-12:00

Adaptive Finite Element Method for P-Laplacian Equation

Lunch   12:00-13:30
Venue: *Guest House of Institute of Physics*

Chair: Longjun Shen

Qiang Du   13:30-14:00

Numerical Approximations of a Phase Field Bending Elasticity Model of Vesicle Membranes

Zhangxin Chen   14:00-14:30

Are New Energy Sources Within Reach?

Pingwen Zhang   14:30-15:00

Mathematical Theory of Non-Equilibrium Green Function in MOSFET

Coffee Break   15:00-15:30

Chair: Long-an Ying

Jinchao Xu   15:30-16:00

New Multigrid Methods and Theories for H(curl) and H(div) Systems

Tao Tang   16:00-16:30

Resolving Spike Dynamics for Reaction-Diffusion Systems

Dinner   18:00-20:00

Venue: *Guest House of Institute of Physics*