

Tuesday, June 26, 2012 – AM

Mini Symposium M7P1: Domain Decomposition, Preconditioning and Solvers in Isogeometric Analysis

Location: **Amphi**

Chairman: **Lourenço Beirão da Veiga, Michel Bercovier, Simone Scacchi**

- 10:35-11:00 : Remi Abgrall
Isogeometric Analysis for Compressible Fluid Dynamics
- 11:00-11:25 : Michel Bercovier
Isogeometric Analysis and Schwarz Non-Matching Overlapping Domain Decomposition Methods
- 11:25-11:50 : Victor M. Calo
Solver Performance for Higher-Continuous Basis
- 11:50-12:15 : Krishan P. S. Gahalaut
Multigrid Solver for Isogeometric Discretization

Mini Symposium M15P1: Space-Time Parallel Methods

Location: **Markov**

Chairman: **Martin J. Gander, Felix Kwok and Yvon Maday**

- 10:35-11:00 : Yvon Maday
Parareal in Time Algorithm for Hyperbolic Systems
- 11:00-11:25 : Michael Minion
Efficient Implementation of a Multi-Level Parallel in Time Algorithm
- 11:25-11:50 : Rim Guetat
Coupling Parareal Algorithm with Domain Decomposition Methods
- 11:50-12:15 : Felix Kwok
Neumann-Neumann Waveform Relaxation Methods for the Time-Dependent Heat Equation

Mini Symposium M13P2: Robust Multilevel Methods for Multiscale Problems

Location: **Petri** Chairman: **Thomas Dufaud, Johannes Kraus, Clemens Pechstein, Robert Scheichl, Jörg Willems**

- 10:35-11:00 : Petr Vanek
An Alternative to Domain Decomposition Methods based on Polynomial Smoothing
- 11:00-11:25 : Robert Scheichl
Energy Minimizing Coarse Space Construction
- 11:25-11:50 : James Brannick
Recent Advances in Algebraic Multigrid
- 11:50-12:15 : Marco Buck
Domain Decomposition Preconditioners for the Multiscale Analysis of Linear Elastic Composites

Mini Symposium M9P1: Fast Solvers for Helmholtz and Maxwell equations

Location: **Turing**

Chairman: **Victorita Dolean, Ronan Perrussel, Hui Zhang, Peng Zhen**

- 10:35-11:00 : Lea Conen
An Overview of Multigrid and Domain Decomposition Methods for the Helmholtz Equation
- 11:00-11:25 : Hui Zhang
Optimized Schwarz Methods with Overlap for Helmholtz Equation
- 11:25-11:50 : Erwin Veneros
Optimized Schwarz Methods for Maxwell Equations with Discontinuous Coefficients
- 11:50-12:15 : Bertrand Thierry
Improved Domain Decomposition Method for the Helmholtz Equation

Mini Symposium M11P1: Decomposition Strategies for Boltzmann's Equation

Location: I50

Chairman: Heiko Berninger and Jérôme Michaud

- 10:35-11:00 : Patrick Le Tallec
Half Fluxes Coupling of Boltzmann and Navier Stokes Equations
- 11:00-11:25 : Mohammed Lemou
On Micro-Macro Numerical Schemes for Multiscale Kinetic Equations
- 11:25-11:50 : Emmanuel Frénod
Two-Scale Convergence and Kinetic Equations
- 11:50-12:15 : Heiko Berninger
Neutrino Transport in Core Collapse Supernovae by Asymptotic Expansions of Boltzmann's Equation

Contributed Talks C6: Heterogeneous Problems and Coupling Methods

Location: I51

Chairman: Rolf Krause

- 10:35-11:00 : Marco Discacciati
Domain-Decomposition Preconditioners for the Darcy-Stokes Problem
- 11:00-11:25 : Marina Vidrascu
Matched Asymptotic Expansion and Domain Decomposition for an Elastic Structure
- 11:25-11:50 : Christian Engwer
Heterogeneous Coupling for Implicitly Described Domains

Contributed Talks C18: FETI Methods

Location: I51

Chairman: Rolf Krause

- 11:50-12:15 : K. C. Park
A Simple Explicit-Implicit FETI Transient Analysis Algorithm

Tuesday, June 26, 2012 – PM

Mini Symposium M7P2: Domain Decomposition, Preconditioning and Solvers in Isogeometric Analysis

Location: Amphi

Chairman: Lourenço Beirão da Veiga, Michel Bercovier, Simone Scacchi

14:45-15:10 : Christian Hesch

Mortar Based Domain Decomposition for Isogeometric Analysis

15:10-15h35 : Stefan Kleiss

IETI - Isogeometric Tearing and Interconnecting

Contributed Talks C4: Domain Decomposition for Helmholtz Equation

Location: Markov

Chairman: Ana Alonso Rodriguez

14:45-15:10 : Chris Stolk

Domain Decomposition for Helmholtz Equations with PML Boundary Conditions

15:10-15:35 : Dalibor Lukáš

BEM-based Domain Decomposition Methods

Contributed Talks C19: Multiprocessors Applications

Location: Petri

Chairman: Eric Darrigrand

14:45-15:10 : Hatem Ltaief

Data-Driven Fast Multipole Method on Distributed Memory Systems with Hardware Accelerators

15:10-15:35 : Menno Genseberger

Improved Parallel Performance on Supercomputers by Domain Decomposition in Jacobi-Davidson for Large Scale Eigenvalue Problems

Contributed Talks C5: Heterogeneous Problems and Coupling Methods

Location: Turing

Chairman: Eric Blayo

14:45-15:10 : Jonathan Youett

A Time Discretization for a Heterogeneous Knee Model involving Contact Problems

15:10-15:35 : Manel Tayachi

Design of a Schwarz Coupling Method for a Dimensionally Heterogeneous Problem

Contributed Talks C20: Adaptive Meshing Paradigm

Location: I50

Chairman: Stéphane Lanteri

- 14:45-15:10 : Shuo Zhang
Norms of Trace Functions on Unstructured Grid
- 15:10-15:35 : Cédric Lachat
PaMPA: Parallel Mesh Partitioning and Adaptation

Contributed Talks C21: FETI Methods

Location: I51

Chairman: Alexandros Markopoulos

- 14:45-15:10 : Marta Jarošová
Hybrid Total FETI
- 15:10-15:35 : Michal Merta
Massively Parallel Implementation of Total-FETI DDM with Applications to Medical Image Registration

Mini Symposium M7P3: Domain Decomposition, Preconditioning and Solvers in Isogeometric Analysis

Location: Amphi

Chairman: Lourenço Beirão da Veiga, Michel Bercovier, Simone Scacchi

- 16:05-16:30 : Angela Kunoth
Multilevel Preconditioning for Isogeometric Analysis
- 16:30-16:55 : Luca F. Pavarino
Overlapping Schwarz Methods for Isogeometric Analysis
- 16:55-17:20 : Rafael Vazquez
Multilevel Preconditioning for Isogeometric Analysis Based on Hierarchical Splines
- 17:20-17:45 : Satyendra Tomar
Algebraic Multilevel Iteration Method for Isogeometric Discretization of Elliptic Problems

Mini Symposium M15P2: Space-Time Parallel Methods

Location: Markov

Chairman: Martin J. Gander, Felix Kwok and Yvon Maday

- 16:05-16:30 : Stefan Güttel
On the Convergence of Parallel Deferred Correction Methods
- 16:30-16:55 : Martin J. Gander
Analysis of the Parareal Algorithm and a Symmetrized Variant for Hamiltonian Problems
- 16:55-17:20 : Hugo Jimenez
Time-Parallel Integrations for Long Term Solar System Studies
- 17:20-17:45 : Julien Salomon
Time-Parallelization and Optimal Control for NMR

Mini Symposium M13P3: Robust Multilevel Methods for Multiscale Problems

Location: Petri Chairman: Thomas Dufaud, Johannes Kraus, Clemens Pechstein, Robert Scheichl, Jörg Willems

- 16:05-16:30 : Florian Thomines
A Systematic Coarse-Scale Model Reduction Technique for Parameter-Dependent Flows in Highly Heterogeneous Media
- 16:30-16:55 : Ivan Graham
Multiscale Finite Elements for High-Contrast Elliptic Problems
- 16:55-17:20 : Jan Nordbotten
Approximate Multilevel Solvers for Flow and Transport in Porous Media
- 17:20-17:45 : Xiaozhe Hu
Parallel AMG Method on GPU

Mini Symposium M9P2: Fast Solvers for Helmholtz and Maxwell equations

Location: Turing

Chairman: Victorita Dolean, Ronan Perrussel, Hui Zhang, Peng Zhen

- 16:05-16:30 : Olaf Steinbach
Coupled Finite and Boundary Element Methods for Vibro-Acoustic Interface Problems
- 16:30-16:55 : Jin-Fa Lee
Integral Equation Domain Decomposition Method for Solving Electromagnetic Wave Scattering from Deep Cavities
- 16:55-17:20 : Eric Darrigrand
OSRC Preconditioner and Fast Multipole Method for 3D Helmholtz Equation: a Spectral Analysis
- 17:20-17:45 : Yogi Erlangga
Shift-Operator-Based Domain Decomposition Method for the Helmholtz Equation

Mini Symposium M11P2: Decomposition Strategies for Boltzmann's Equation

Location: I50

Chairman: Heiko Berninger and Jérôme Michaud

- 16:05-16:30 : François Golse
A Coupling Method for Transport/Diffusion Problems
- 16:30-16:55 : Giacomo Dimarco
Fluid Simulations with Localized Boltzmann Upscaling by Direct Monte Carlo
- 16:55-17:20 : Sudarshan Tiwari
Simulation of the Boltzmann and the Navier-Stokes Equations with Particle Methods based on Domain Decomposition for Steady and Unsteady Flows
- 17:20-17:45 : Jérôme Michaud
The IDSA and Boltzmann's Equation: Discretization, Comparison and Modeling Error

Contributed Talks C7: Domain Decomposition with Preconditioners

Location: I51

Chairman: Damien Tromeur-Dervout

- 16:05-16:30 : Daniel Szyld
Additive Schwarz with variable weights is better
- 16:30-16:55 : Feng-Nan Hwang
Parallel Multilevel Polynomial Jacobi-Davidson Eigensolver for Dissipative Acoustic Problems
- 16:55-17:20 : Santiago Badia
On the Scalability of Balanced Domain Decomposition Preconditioners for Large Scale Computing: Galerkin-based and Efficient Coarse Corrections
- 17:20-17:45 : Laurent Berenguer
Low-Rank Update of the Restricted Additive Schwarz Preconditioner for Nonlinear Systems