

# Monday, June 25, 2012 – AM

## Mini Symposium M16P1: Domain Decomposition with Mortars

Location: Amphi

Chairman: Yvon Maday and Caroline Japhet

- 10:35-11:00 : Frédéric Hecht  
Mortar Method to Solve Problem with Non-matching Grids in Freefem++
- 11:00-11:25 : Alfio Quarteroni  
Discontinuous Approximation of Elastodynamics Equations
- 11:25-11:50 : Caroline Japhet  
Mortar Methods with Optimized Transmission Conditions
- 11:50-12:15 : Zakaria Belhachmi  
Spectral Element Discretization of Incompressible Flows in Axisymmetric Channels

## Mini Symposium M10P1: New Developments of FETI, BDDC, and Related Domain Decomposition Methods

Location: Markov

Chairman: Xuemin Tu and Olof Widlund

- 10:35-11:00 : Maksymilian Dryja  
ASM for DG Discretization of Anisotropic Elliptic Problems
- 11:00-11:25 : Juan Galvis  
Domain Decomposition Preconditioners for High-Contrast Multiscale Problems
- 11:25-11:50 : Hyea Hyun Kim  
Two-Level Overlapping Schwarz Algorithms for a Staggered Discontinuous Galerkin Method
- 11:50-12:15 : Chang-Ock Lee  
A Two-Level Nonoverlapping Schwarz Algorithm for the Stokes Problem

## Mini Symposium M14 : 100% Parallelizable Algorithms for Symmetric, Indefinite and Non-Symmetric Problems

Location: Petri

Chairman: Ismael Herrera and Luis Miguel de la Cruz

- 10:35-11:00 : Ismael Herrera  
Four Massively Parallel Algorithms for Symmetric, Indefinite and Non-Symmetric Matrices: Overview
- 11:00-11:25 : Luis Miguel de la Cruz  
Four Massively Parallel Algorithms for Symmetric, Indefinite and Non-Symmetric Matrices: Implementation Issues
- 11:25-11:50 : Alberto Rosas  
Four Massively Parallel Algorithms for Symmetric, Indefinite and Non-Symmetric Matrices: Applications to a Single Equation
- 11:50-12:15 : Iván Contreras  
Four Massively Parallel Algorithms for Static Elasticity

## Mini Symposium M6P1: Heterogeneous Domain Decomposition Methods

Location: Turing

Chairman: Oliver Sander and Marco Discacciati

- 10:35-11:00 : Heiko Berninger  
Strategies for the Coupling of Ground and Surface Water
- 11:00-11:25 : Pablo Javier Blanco  
Coupling Dimensionally-Heterogeneous Models in Hemodynamics Simulations
- 11:25-11:50 : Eva Casoni  
Zonal Modeling Approach in Aerodynamic Simulation
- 11:50-12:15 : Paola Gervasio  
Virtual Control Method for Heterogeneous Problems

# Monday, June 25, 2012 – AM

## Mini Symposium M5 : Exotic Coarse Spaces for Domain Decomposition Methods

Location: I50

Chairman: Martin J. Gander, Laurence Halpern, Kévin Santugini

- 10:35-11:00 : Martin J. Gander  
A new Coarse Grid Correction for RAS
- 11:00-11:25 : Clark Dohrmann  
Lower Dimension Coarse Spaces for Overlapping Schwarz Algorithms
- 11:25-11:50 : Jörg Willems  
Spectral Coarse Space Construction in Robust Multilevel Methods
- 11:50-12:15 : Kévin Santugini  
Discontinuous Coarse Space Corrections (DCS) for Optimized Schwarz Methods

## Contributed Talks C1: Contact and Mechanics Problems

Location: I51

Chairman: Christian Rey

- 10:35-11:00 : Jaroslav Haslinger  
A Domain Decomposition Algorithm for Contact Problems with Coulomb's Friction
- 11:00-11:25 : Brahim Nouri  
Multiplicative Schwarz Method for Nonlinear Quasi-Variational Inequalities and their Application in Contact Mechanics
- 11:25-11:50 : Ihor I. Prokopyshyn  
Parallel Domain Decomposition Methods for Multibody Contact Problems of Nonlinear Elasticity
- 11:50:12:15 : Alexandros Markopoulos  
Total FETI Method in Mechanics Problems

# Monday, June 25, 2012 – PM

## Mini Symposium M16P2: Domain Decomposition with Mortars

Location: Amphi

Chairman: Yvon Maday and Caroline Japhet

- 16:05-16:30 : Christian Waluga  
Quasi-Optimal a priori Estimates for the Lagrange Multiplier in Mortar Type Couplings
- 16:30-16:55 : Yvon Maday  
Some Recent Applications of Non Conforming Approximations
- 16:55-17:20 : François-Xavier Roux  
FETI-2LM for Localizing the Mortars
- 17:20-17:45 : Oldřich Vlach  
On Effective Implementation of the Non-penetration Condition for Non-matching Grids Preserving Scalability of FETI Based Algorithms
- 17:45-18:10 : Todd Arbogast: cancelled  
Multiscale Mortar Mixed Methods for Heterogeneous Elliptic Problems

## Mini Symposium M10P2: New Developments of FETI, BDDC, and Related Domain Decomposition Methods

Location: Markov

Chairman: Xuemin Tu and Olof Widlund

- 16:05-16:30 : Jungho Lee  
Large-Scale Differential Variational Inequalities for Phase-Field Modeling
- 16:30-16:55 : Lourenco Beirão da Veiga  
BDDC Preconditioners for Isogeometric Analysis
- 16:55-17:20 : Xuemin Tu  
FETI-DP Domain Decomposition Methods for Incompressible Stokes Equation
- 17:20-17:45 : Olof Widlund  
BDDC for some problems posed in  $H(\text{curl})$
- 17:45-18:10 : Jun Zou  
An Overlapping Domain Decomposition Algorithm for Parameter Identifications

## Mini Symposium M13P1: Robust Multilevel Methods for Multiscale Problems

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

- 16:05-16:30 : Victorita Dolean  
Analysis of Two-Level Method for Heterogeneous Darcy Equation based on Local Dirichlet to Neumann Maps
- 16:30-16:55 : Nicole Spillane  
GenEO: A Coarse Space based on Generalized Eigenvalue Problems in the Overlaps
- 16:55-17:20 : Clark Dohrmann  
Constraint and Weight Selection Algorithms for BDDC
- 17:20-17:45 : Juan Galvis  
Multiscale Spectral AMGe Solvers for High-Contrast Flow Problems
- 17:45-18:10 : Jinchao Xu: cancelled  
Single-Grid Multilevel Method

## Mini Symposium M6P2: Heterogeneous Domain Decomposition Methods

Location: Turing

Chairman: Oliver Sander and Marco Discacciati

- 16:05-16:30 : Simona Perotto  
Hierarchical Model Reduction: a Domain Decomposition Approach
- 16:30-16:55 : Franz Rammerstorfer  
Mortar FEM/BEM Coupling for Poroelastodynamics
- 16:55-17:20 : Human Rezaiejafari  
A Stabilized Hybrid Discontinuous Galerkin Scheme for the Nonisothermal Coupling of Stokes and Darcy Flow
- 17:20-17:45 : Anton Schiela  
Energy Minimizers of the Coupling of a Cosserat Rod to an Elastic Continuum

# Monday, June 25, 2012 – PM

## Mini Symposium M8 : Domain Decomposition Techniques in Practical Flow Applications

Location: I50

Chairman: Menno Genseberger, Mart Borsboom, Martin J. Gander

- 16:05-16:30 : Eric Blayo  
Interface Conditions and Domain Decomposition Methods for Ocean-Atmosphere Coupling
- 16:30-16:55 : Bas van 't Hof  
Water Level Predictions with WAQUA: Domain Decomposition on a Daily Basis
- 16:55-17:20 : Mart Borsboom  
Analysis and Optimization of the Coupling Between Non-Overlapping Subdomains in 1D
- 17:20-17:45 : Fred Wubs  
HYMLS: a Robust Parallel Preconditioner for Fluid Flow Computations

## Contributed Talks C2: Contact and Mechanics Problems

Location: I51

Chairman: Leonardo Baffico

- 16:05-16:30 : Daniel Choi  
A Posteriori Error Estimates and Domain Decomposition Algorithm for Contact Problems
- 16:30-16:55 : Vincent Visseq  
Scalability Study of the NonSmooth Contact Domain Decomposition Method (NSCDD)
- 16:55-17:20 : Geoffrey Desmeure  
A Mixed Domain Decomposition Method for Structural Assemblies with Interface Tractions Represented in  $H^{1/2}$
- 17:20-17:45 : Philippe Karamian  
A Numerical Implementation of Homogenization Technique to Evaluate the Effective Mechanical Properties of Reinforced Polymer Composites in the Frame of Domain Decomposition
- 17:45-18:10 : Julien Riton  
A Robin Domain Decomposition Algorithm for Contact Problem with given Friction