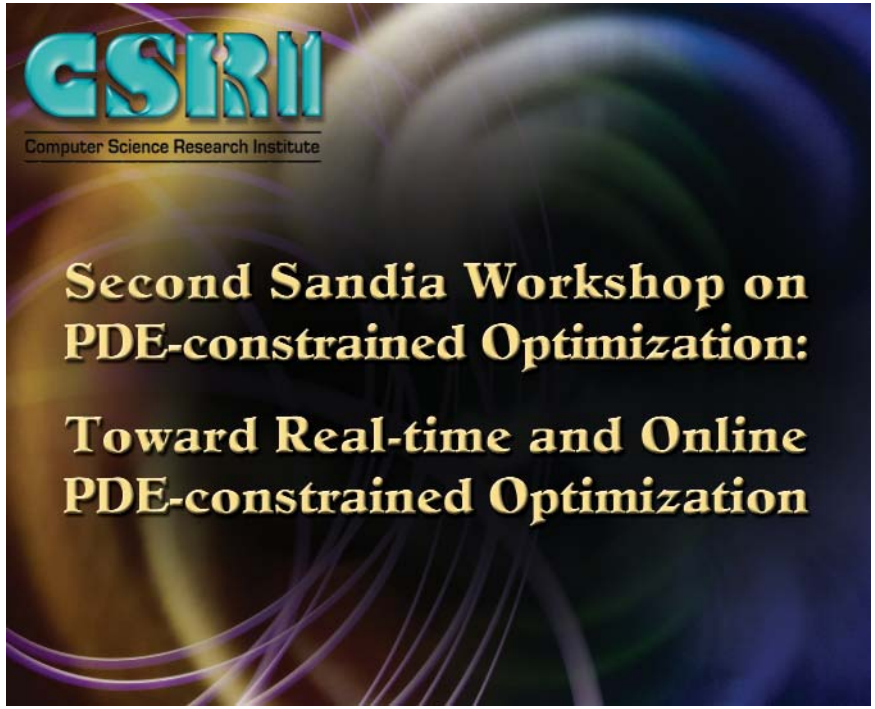
PROGRAM



May 19-21, 2004

The Bishop's Lodge
Santa Fe, New Mexico, USA

Sponsored by the Computer Science Research Institute (CSRI)
Sandia National Laboratories

The Bishop's Lodge

The Bishop's Lodge is nestled among the foothills of Santa Fe's Sangre de Cristo mountains. The Little Tesuque Valley was first traversed by the ancestors of today's Pueblo Indians (chipped flints and broken bits of pottery still turn up along old trails below North Lodge, which sits on an old ruin). Once the private retreat of frontier Bishop Jean Baptiste Lamy (the subject of Willa Cather's "Death Comes for the Archbishop" and Paul Horgan's biography, "Lamy of Santa Fe"), the Bishop's Lodge was owned and operated as a resort by the family of James R. Thorpe from 1918 until 1998, and is now managed by Interstate Hotels and Resorts. The Bishop's original garden and chapel, listed on the National Register of Historic Places, continues to overlook the grounds. In 1996 The Bishop's Lodge was inducted into Historic Hotels of America.

This workshop is sponsored by the Computer Science Research Institute (CSRI) at Sandia National Laboratories

CSRI Computer Science Research Institute

Sandia National Laboratories

Thank you for your support and participation!

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Wednesday, May 19 (Tesuque Room)

8:00-8:30am Breakfast and Registration

8:30-9:00am Introductory comments
Bart van Bloemen Waanders and Omar Ghattas

SPECIAL SESSION: CYBERINFRASTRUCTURE
Chair: Larry Biegler

9:00-10:00am Sangtae Kim, National Science Foundation

SESSION I: ALGORITHMS FOR ONLINE OPTIMIZATION
Chair: Larry Biegler

10:00-11:00am *Constrained open-loop, closed-loop control and real-time optimization of systems governed by large DAE*
Hans-Georg Bock, Heidelberg University

11:00-11:30am Break

11:30-12:30pm *The basic principles of nonlinear model predictive control and the efficient on-line implementation via the real-time iteration scheme*
Frank Allgower, University of Stuttgart

12:30-2:00pm Lunch

SESSION I CONTINUED
Chair: Matthias Heinkenschloss

2:00-3:00pm *Output feedback control design: Techniques and case studies for PDE systems*
Friedemann Leibfritz, University of Trier

3:00-3:30pm Break

3:30-4:30pm *Certified Reduced-Basis Methods for Reliable Rapid Solution of Parameterized Partial Differential Equations: Application to Real-Time Adaptive Design, Optimal Control, and Robust Parameter Estimation*
Anthony T. Patera, Massachusetts Institute of Technology

Thursday, May 20 (Tesuque Room)

8:30-9:00am Breakfast

SESSION II: MODEL REDUCTION
Chair: David Keyes

9:00-10:00am *Towards real-time control using reduced-order modeling and surrogate optimization*
Max Gunzburger, Florida State University

10:00-11:00am *Model reduction for large scale applications in computational fluid dynamics*
Karen Willcox, Massachusetts Institute of Technology

11:00-11:30am Break

11:30-12:30pm *An Overview of Grammian Based Model Reduction*
Danny Sorensen, Rice University

12:30-2:00pm Lunch

SESSION II CONTINUED
Chair: Matthias Heinkenschloss

2:00-3:00pm *Error estimation for reduced order models of dynamical systems*
Radu Serban, Lawrence Livermore National Laboratory

3:00-4:00pm *Model reduction and spacetime multigrid in control of time-dependent PDEs*
Michael Hinze, Technical University of Dresden

7:00-9:00pm Banquet

8:00-9:00pm **Banquet Speaker**
Chair: Omar Ghattas

Dynamic-Data-Driven Computational Decision Support Systems: Opportunities, Enabling Methodologies and Significance
Charbel Farhat, University of Colorado

Friday, May 21 (Thunderbird Room)

8:00-8:30am Breakfast

SESSION III: FAST SPACETIME OPTIMIZATION SOLVERS
Chair: Bart van Bloemen Waanders

8:30-9:30am *Space-time multigrid methods for solving unsteady optimal control problems*
Alfio Borzi, University of Graz

9:30-10:30am *Generalized SQP-methods with "Parareal" time-domain decomposition for time-dependent PDE-constrained optimization*
Stefan Ulbrich, Technical University of Munich

10:30-11:00pm Break

11:00-12:00pm *Time-Domain Decomposition for Nonlinear PDE Constrained Optimization*
Scott Collis, Sandia National Laboratories

12:00-1:00pm Lunch

SESSION IV: ADVANCED IMAGING ALGORITHMS
Chair: Omar Ghattas

1:00-2:00pm *Numerical methods for volume preserving image registration*
Eldad Haber, Emory University

2:00-3:00pm *Fast level-set based algorithms for shape optimization*
Michael Hintermueller, University of Graz/Rice Univ.