

International Centre for Scientific Culture "E. Majorana"

School of Mathematics "G. Stampacchia"

July 2-10, 2010

Erice, Italy

**"NONLINEAR OPTIMIZATION,
VARIATIONAL INEQUALITIES
AND EQUILIBRIUM PROBLEMS"**

PROGRAM OF LECTURES

SATURDAY July 3

MORNING

8.45 – 9.00 *Opening*

Chairman : G. Di Pillo

9.00 – 10.00 **M. J. D. POWELL**

On the convergence of trust region algorithms for unconstrained minimization without derivatives

10.00 – 11.00 **Y. X. YUAN**

Recent Advances in Numerical methods for Nonlinear Equations and Nonlinear Least Squares

11.00 – 11.30 *Coffee Break*

Chairman : G. Fasano

11.30 – 11.50 **R. POLYAK**

Nonlinear Equilibrium vs. Linear Programming for limited resources allocation

11.50 – 12.10 **I. BOMZE**

Certificates for copositive programming

12.10 – 12.30 **J. L. MORALES**

Numerical Methods for LCPs that arise in American Options Pricing

12.30 – 12.50 **G. BIGI**

Beyond canonical DC programming

AFTERNOON

Chairman : R. Polyak

15.00 – 16.00 **J. MORGAN**

Regularization and selection methods for bilevel optimization problems and two-stage noncooperative games

16.00 – 16.20 **N. LANGENBERG**

On proximal-like methods for equilibrium programming

16.20 – 16.50 *Coffee Break*

16.50 – 17.10 **S. SAGRATELLA**

A potential-reduction method for the solution of generalized Nash equilibrium problems

17.10 – 17.30 **E. GORGONE**

Quadratic corrections in cutting plane models

SUNDAY July 4

MORNING

Chairman : M. J. D. Powell

9.00 – 10.00 **J. S. PANG**

Cognitive Radio Systems: Game-Theoretic Models Solution Theory, and Distributed Algorithms

10.00 – 11.00 **E. G. BIRGIN**

Practical Augmented Lagrangian Methods

11.00 – 11.30 *Coffee Break*

Chairman : X. Y. Yuan

11.30 – 11.50 **J. C. GILBERT**

How the augmented Lagrangian algorithm deals with an infeasible convex quadratic optimization problem

11.50 – 12.10 **M. DE SANTIS**

A Newton-type feasible method for large scale minimization problems with bound constraints

12.10 – 12.30 **A. BELENKY**

Equilibrium points in two-person games on polyhedral sets of connected strategies

12.30 – 12.50 **F. RINALDI**

Derivative-free methods for mixed-integer optimization

AFTERNOON

Chairman : J. Morgan

15.00 – 16.00 **M. SCIANDRONE**

Decomposition methods for constrained convex optimization problems

16.00 – 16.20 **M. GAUDIOSO**

DC models for classification problems

16.20 – 16.50 *Coffee Break*

16.50 – 17.10 **C. S. ONG**

DC models for classification problems

17.10 – 17.30 **S. VILLA**

A regularization approach to nonlinear variable selection

MONDAY July 5

MORNING

Chairman : M. Sciandrone

9.00 – 10.00 **H. WOLKOWICZ**

Theory and Applications of Degeneracy in Cone Optimization

10.00 – 11.00 **F. RENDL**

An Eigenvalue optimization approach to the Bandwidth and Vertex-Separator Problem in Graphs

11.00 – 11.30 *Coffee Break*

Chairman : E. G. Birgin

11.30 – 11.50 **C. HELMBERG**

Towards Second Order Implementations of the Spectral Bundle Method

11.50 – 12.10 **L. PALAGI**

Improving the SDP bound for $\{-1,1\}$ quadratic problems by using RLT constraints

12.10 – 12.30 **V. PICCIALLI**

SpeedP: a fast method for solving the SDP relaxation of Max Cut

12.30 – 12.50 **A. WIEGELE**

Semidefinite Relaxations for Non-Convex Quadratic Mixed-Integer Programming

AFTERNOON

Chairman : L. Palagi

15.00 – 16.00 **V. SIMONCINI**

Solution of structured algebraic linear systems in PDE--constrained optimization problems

16.00 – 16.20 **D. DI SERAFINO**

Efficient Preconditioning of Sequences of Linear Systems in Optimization

16.20 – 16.50 *Coffee Break*

16.50 – 17.10 **M. YAMASHITA**

Enclosing Ellipsoids of Semi-algebraic Sets and Error Bounds in Polynomial Optimization

17.10 – 17.30 **S. SANTOS**

On second-order optimality conditions for multiobjective optimization

TUESDAY July 6

MORNING

Chairman : H. Wolkowicz

9.00 – 10.00 **D. GAO**

Canonical Duality Theory: Unified Understanding for Optimization Problems in Complex Systems

10.00 – 11.00 **M. LOCATELLI**

On convex envelopes and underestimators for bivariate functions

11.00 – 11.30 *Coffee Break*

Chairman : F. Rendl

11.30 – 11.50 **G. DI PILLO**

An approach to constrained global optimization based on exact penalty functions

11.50 – 12.10 **D. DI LORENZO**

Machine Learning for Global Optimization

12.10 – 12.30 **L. NIU**

Training max-margin sequence models with relaxed slack variables

12.30 – 12.50 **V. LATORRE**

Black box method in cross-validation for Support Vector Machines

AFTERNOON

Chairman : V. Simoncini

15.00 – 16.00 **K. SCHEINBERG**

Accelerating first order methods for convex optimization problems arising in machine learning

16.00 – 16.20 **M. PONTIL**

Multi-task Learning: Theory and Practice

16.20 – 16.50 *Coffee Break*

16.50 – 17.10 **R. HAUSER**

A Parallel SVD Algorithm for Use in Matrix-Completion Problems

17.10 – 17.30 **M. PIACENTINI**

On the convergence of a Jacobi-type algorithm for Singly Linearly-Constrained Problems Subject to simple Bounds

SOCIAL DINNER

WEDNESDAY July 7 EXCURSION

THURSDAY July 8

MORNING

Chairman : J. S. Pang

9.00 – 10.00 **E. A. NURMINSKI**

Fejer processes with diminishing disturbances and applications optimization and variational inequalities

10.00 – 10.20 **M. PASSACANTANDO**

Gap functions and penalization for solving equilibrium problems with nonlinear constraints

10.20 – 10.40 **A. OCHAL**

Optimal control for integrodifferential hemivariational inequalities

10.40 – 11.00 **A. POGOSYAN**

Newton-type methods for the lifted mathematical programs with complementarity constraints

11.00 – 11.30 *Coffee Break*

Chairman : M. Locatelli

11.30 – 11.50 **Z. NANIEWICZ**

Variational Inequality Approach to Economic Equilibrium Problem with Application to Pareto Optimization

11.50 – 12.10 **L. LAMPARIELLO**

Partial Penalization for the Solution of Generalized Nash Equilibrium Problems and QVIs

12.10 – 12.30 **D. TARZIA**

Convergence of distributed optimal control problems governed by elliptic variational inequalities

12.30 – 12.50 **T. M. SUROWIEC**

A Variational-Analytic Approach to Elliptic Mathematical Programs with Equilibrium Constraints

AFTERNOON FREE

FRIDAY July 9

MORNING

Chairman : E. A. Nurminski

9.00 – 10.00 **E. K. LEE**

Machine Learning Framework for Classification in Medicine and Biology

10.00 – 11.00 **C. A. FLOUDAS**

De Novo Design of Proteins and Protein-Peptide Complexes: Advances and Challenges

11.00 – 11.30 *Coffee Break*

Chairman: J. L. Morales

11.30 – 11.50 **M. FUKUDA**

Applying optimization techniques in computational chemistry

11.50 – 12.10 **C. PEARCE**

Laurent series for inversion of linearly perturbed bounded linear operators on Banach space

12.10 – 12.30 **F. TROELTZSCH**

Numerical analysis of nonlinear elliptic optimal control problems of semi-infinite type

12.30 – 12.50 **J. SCHWIENSTEK**

Multi-body design centering: An approach for solving cutting and packing problems in a continuous framework

12.50 – 13.00 *Closing*