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

12.50 – 13.00 Closing