

# SADCO SUMMER SCHOOL & WORKSHOP AGENDA

## OPTIMAL CONTROL

Monday 5<sup>th</sup> – Friday 9<sup>th</sup> September 2011

### Summary

This week long Summer School in Optimal Control is primarily a training activity for participants in the SADCO Marie Curie ITN. But it is also aimed at providing benefit for the broader research community through transfer of knowledge, and will be open to a limited number of researchers not having a formal connection with SADCO.

The first three days will be devoted to tutorial courses in different areas of optimal control and related analysis. In the remaining two days, young researchers will have the opportunity to present their work and interact with their peers, and to hear a number of research level presentations by prominent members of the field.

### Venue:

Department of Electrical and Electronic Engineering, Imperial College London, South Kensington Campus, London, SW7 2AZ.

***All lectures and short courses take place in the Clore Lecture Theatre, First Floor, Huxley Building.***

### Organizing Team:

Richard Vinter (Imperial College London)  
Maria do Rosário de Pinho (Universidade do Porto)  
Estelle Bouzat (INRIA)  
(ICL Conference Office Coordinator: Christine Ruprecht)

### Contacts:

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INRIA (Administration): Estelle Bouzat [estelle.bouzat@ensta-paristech.fr](mailto:estelle.bouzat@ensta-paristech.fr)

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# Optimal Control Tutorials

## Monday 5th September

09.00 - 10.00 *Coffee and Registration (Concourse Level 2, Blackett Building)*

10.00 - 11.30 Tutorial on Non-smooth Analysis and Optimal Control

11.45 - 13.00 **Richard Vinter**, Imperial College London

13.00 - 13.45 *Lunch (Cafeteria, Sherfield Building)*

13.45 - 14.00 *Coffee Break (Concourse Level 2, Blackett Building)*

14.00 - 15.30 Tutorial on Optimal Control with Control and State Constraints and Applications

15.45 - 17.00 **Helmut Maurer**, Universität Münster

## Tuesday 6th September

09.30 - 10.00 *Coffee Break (Concourse Level 2, Blackett Building)*

10.00 - 11.30 Tutorial on Predictive Control, Computation and Hardware Aspects

11.45 - 13.00 **Eric Kerrigan**, Imperial College London

13.00 - 13.45 *Lunch (Cafeteria, Sherfield Building)*

13.45 - 14.00 *Coffee Break (Concourse Level 2, Blackett Building)*

14.00 - 15.30 Tutorial on Differential Games

15.45 - 17.00 **Marc Quincampoix**, Université de Bretagne Occidentale

## Wednesday 7th September

09.30 - 10.00 *Coffee Break (Concourse Level 2, Blackett Building)*

10.00 - 11.30 Tutorial on Control of Non-Holonomic Systems by Active Constraints

11.45 - 13.00 **Franco Rampazzo**, Università degli Studi di Padova

13.00 - 13.45 *Lunch (Cafeteria, Sherfield Building)*

FREE AFTERNOON

# Optimal Control Workshop

Thursday 8th September

08.30 - 09.00 *Coffee Break (Concourse Level 2, Blackett Building)*

09.00 – 09.30 Plenary Talk: ‘Strong Solutions of Optimal Control Problems’.  
**Frédéric Bonnans** (INRIA)

09.30 - 10.30 Universität Bayreuth Team  
**Lars Grüne**, ‘Economic MPC without Terminal Constraints’  
**Christof Büskens** (Universität Bremen), ‘Numerical Nonlinear Optimization with WORHP’

10.30 – 11.00 *Coffee Break (Concourse Level 2, Blackett Building)*

11.00 - 12.00 Katholieke Universiteit Leuven Team  
**Mario Zanon** and **Sebastien Gros**, ‘Model Predictive Control of Tethered Planes for Wind Power Generation’

12.00 - 13.00 Sapienza - Università di Roma Team  
**Adriano Festa**, ‘Numerical Solution of an Eikonal Equation on a Graph’.  
**Maurizio Falcone**, ‘Recent Results on the Approximation of Optimal Control Problems and Games’

13.00 – 14.00 *Buffet Lunch (Queens Tower Room, Level 1 Sherfield Building)*

14.00 - 15.00 Université Pierre et Marie Curie Team  
**Miguel Oliu Barton**, ‘Interplay of Continuous and Discrete Differential Games’.  
**Marco Mazzola**, ‘State Constrained Optimal Control Problems and the Hamilton-Jacobi Equation’

15.00 – 15.30 *Tea Break (Concourse Level 2, Blackett Building)*

16.00 - 16.45 Concert: Recital by **Maia Broido** (viola) and **Robin Green** (piano)  
(Reed Lecture Theatre, Level 5 Sherfield Building)

16.45 - 17.30 *Drinks Reception (outside Reed Lecture Theatre, Level 5 Sherfield Building)*

## Friday 9th September

- 08.30 - 09.00 *Coffee Break (Concourse Level 2, Blakett Building)*
- 09.00 - 09.30 Plenary Talk: 'Generalized Gradient Flow of the Distance Function and Homotopic Equivalence'  
**Piermarco Cannarsa** (Università degli Studi di Roma 'Tor Vergata')
- 09.30 - 10.30 Università degli Studi di Padova Team  
**Nguyen Tien Khai**, 'Some Regularity Results for a Class of Upper Semicontinuous Functions and Time Optimal Control'  
**Fabio Priuli**, 'Patchy Feedback Controls: an Effective Approach to Stabilization and Optimality'
- 10.30 - 11.00 *Coffee Break (Concourse Level 2, Blakett Building)*
- 11.00 - 12.00 Imperial College London Team  
**Richard Vinter**, 'Second Order Sufficient Conditions for Non-Unique Minimizers'  
**Andrea Boccia**, 'Necessary Conditions for Differential Inclusions with State Constraints'
- 12.00 - 13.00 Universidade do Porto Team  
**Sofia Lopes**, 'Minimizer Regularity for Higher Order Problems in the Calculus of Variations'  
**Margarida Ferreira**, 'Optimal Control Problems in the Management of Hydroelectric Resources'
- 13.00 - 14.00 *Buffet Lunch (Queens Tower Room, Level 1 Sherfield Building)*
- 14.00 - 15.00 INRIA Team  
**Hasnaa Zidani**, 'The HJB Approach for State Constrained Control Problems'  
**Giovanni Granato**, 'HJB Equations and Reachability Analysis for Some Non-Autonomous Hybrid Dynamical Systems'
- 15.00 - 15.30 Louisiana State University, Baton Rouge  
**Peter Wolenski**, 'Semiconcavity and Optimal Control: an Intrinsic Approach'
- 15.30 - 16.00 *Tea and closing announcements (Concourse Level 2, Blakett Building)*