NONLINEAR CONTROL AND GEOMETRY
Będlewo, Poland, 24-28 August 2015

Monday, August 24

8:00 Breakfast

8:30 - 9:00 Registration

9:00 - 9:05 Opening

9:05 - 9:50 Steve Morse (Yale Univ.) Special lecture I: *Problems in Distributed Consensus and Formation Control*

10:00-10:45 Andrew Lewis (Queen's Univ.): *Tautological control systems*

Coffee break

11:15-12:00 David Martin de Diego (CSIC, Madrid): *Geometric integration for optimal control problems*

12:15-12:45 Florentina Nicolau (INSA, Rouen): *Multi-input Control-affine Systems Linearizable via One-fold Prolongation and their Flatness*

13:00 Lunch

15:00-15:45 Hector Sussmann (Rutgers Univ.): *A regularity theorem for minimizers of real-analytic subriemannian metrics*

16:00-16:30 Piotr Mormul (Warsaw Univ.): *Local SR minimizers for Goursat distributions have no corners*

Coffee break

17:00-17:30 Maria Barbero-Linan (CSIC, Madrid): *Geometric description of controllability of hybrid control systems*

17:40-18:10 Lev Lokutsievskiy (Lomonosov Univ. Moscow): *On new phenomenon of chaotic behaviour of extremals in problems affine in control*

19:00 Dinner

Tuesday, August 25

9:00 - 9:45 Steve Morse (Yale Univ.) Special lecture II: *Problems in Distributed Consensus and Formation Control*
9:45-10:15 Discussion (Ali Belabbas, ...)

Coffee break

10:45-11:30 Andrei Sarychev: (Univ. of Florence): *Ensemble Controllability by Lie algebraic methods*
11:45-12:15 Philippe Jouan (Univ. of Rouen): *Almost-Riemannian geometry on Lie Groups*

13:00 Lunch

15:00-16:00 Ugo Boscain (Ecole Polytechnique-CNRS, Paris) Special lecture: *Geodesics, Laplacians and random walks in sub-Riemannian geometries*
16:00-16:30 Discussion (Roger Brockett, Hector Sussmann, ...)

Coffee break

17:00-17:45 Yuri Sachkov (Program Systems Institute RAS, Pereslav Zaleski): *Sub-Riemannian minimizers, spheres and cut loci*
18:00-18:30 Mario Sigalotti (INRIA Saclay): *Sub-Finsler geometry from the viewpoint of optimal control: low-dimensional examples*

Wednesday, August 26

9:00-10:00 Domenico D'Alessandro (Iowa State Univ.) Special lecture: *Mathematical methods and problems in the control of quantum mechanical systems*
10:00-10:30 Discussion (Roger Brockett, Marek Kuś, ...)

Coffee break

11:00-11:30 Thomas Chambrion (Univ. de Lorraine): *Averaging methods for the control of closed quantum systems*
11:40-12:10 Adam Sawicki (MIT, Cambridge and CFT, Warsaw): *Universality of beamsplitters and control theory*
12:20-12:50 Michał Jóźwikowski (IMPAN-CFT, Warsaw): *Contact covariant approach to optimal control*

13:00 Lunch

Afternoon: excursion

19:00 Bonfire

Thursday, August 27

9:00 - 9:45 Roger Brockett (Harvard University): *Infimizing Sequences of Spirals and the Optimization of First Bracket Controllable Systems*

10:00-10:45 John Baillieul (Boston University): *Topological Aspects of Optimal Information Acquisition in Robotic Exploration and Multimodal Sensor Fusion*

Coffee break

11:15-12:00 Jean-Baptiste Pomet (INRIA, Sophia Antipolis): *On avaraging techniques in control, Finsler geometry and low thrust orbital transfer*

12:10-12:40 Ali Belabbas (ECE Illinois): *Geometry of optimal sensor/actuator placement*

13:00 Lunch

15:00-15:45 Bernard Bonnard (Univ. of Burgundy, Dijon): *Geometric optimal control: The Copepod swimmer vs Purcell three links swimmer*

16:00-16:30 Marek Grochowski (CSW Univ. Warsaw): *Reachable sets for sublorentzian structures and associated control-affine systems*

Coffee break

17:00-17:30 Wojciech Kryński (Warsaw Univ. and IMPAN): *Curvature invariants of sub-Lorentzian and sub-Riemannian structures on contact manifolds*

17:40-18:10 Willem Esterhuizen (Mines Paris Tech): *On barriers in nonlinear control systems with mixed constraints*,

18:20-18:50 Dmitry Gromov (St. Petersburg State Univ.): *On the Geometric Structure of Thermodynamics*

Friday, August 28

9:00 - 9:45 Paweł Nurowski (CFT PAN, Warsaw): *Rolling without slipping or twisting: from old to new*

10:00-10:45 Matthias Kawski (Arizona State University): *Combinatorial Hopf Algebras in Nonlinear Control*

Coffee break

11:15-12:00 Alexander Zuyev (Max Planck Inst., Magdeburg): *Exponential stabilization of nonholonomic systems by using time-varying feedback controls*

12:10-12:40 Jan Gutt (CFT PAN, Warsaw): *Some conjectures on the geometry of a long snake*

13:00 Lunch

15:00-15:30 Krzysztof Kozłowski (Poznan Univ. of Technology): *Application of transverse functions in control of nonholonomic systems in robotics*

15:40-16:10 Rachida El Assoudi-Baikari (INSA Rouen): *Two-step nilpotent sub-Riemannian Lie algebras in dimension 5 and 6*

16:20-16:50 Jeremi Rouot (INRIA, Sophia Antipolis): *Averaging techniques in the time minimal transfer using low propulsion*

Coffee