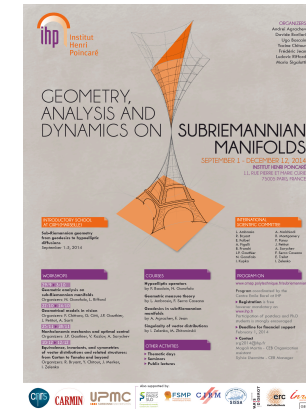


« **Geometry, Analysis and Dynamics on Sub-Riemannian Manifolds** »
September 1st – December 12th, 2014

Workshop
« **Nonholonomic mechanics and optimal control** »
Paris, November 25th – 28th, 2014
Amphithéâtre Hermite



Organizers

U. Boscain (Ecole Polytechnique)
N. Boizot (Université de Toulon)
F. C. Chittaro (Université de Toulon)
J.P. Gauthier (Université de Toulon)

V. Kozlov (Russian Academy of Sciences)
A. Sarychev (Università degli studi di Firenze)
U. Serres (Université de Lyon)

Speakers

Andrei A. Agrachev (SISSA, Italy)
Yuliy Baryshnikov (Univ. of Illinois, Urbana-Champaign, USA)
Anthony Bloch (University of Michigan, Ann Arbor, USA)
Alexey V. Bolsinov (Loughborough University, UK)
Bernard Bonnard (INRIA and Univ. de Bourgogne, Dijon, France)
Jean-Baptiste Caillau (CNRS/INRIA and Univ. de Bourgogne, Dijon, France)
Camillo De Lellis (UZH, Zürich, Switzerland)
Manuel de León (ICMAT, Madrid, Spain)
Yuri Fedorov (Univ. Politècnica de Catalunya, Barcelona, Spain)

Hélène Frankowska (UPMC Paris 6, France)
Janusz Grabowski (IMPAN, Warsaw, Poland)
Bronislaw Jakubczyk (IMPAN, Warsaw, Poland)
Frédéric Jean (ENSTA ParisTech, Paris, France)
Fernando Jiménez (Tech. Univ. München, München, Germany)
Bozidar Jovanovic (Serbian Acad. of Sc & Arts, Belgrade, Serbia)
Matthias Kawski (Arizona state Univ., Phoenix, USA)
Valery Kozlov (Russian Academy of Sciences)
Jean-Paul Laumond (LAAS, Toulouse, France)
Antonio Lerario (ICJ, Lyon, France)

Richard Montgomery (Univ. Of California, Santa Cruz, USA)
Tudor Ratiu (Ecole Polytechnique Fédéral of Lausanne, Switzerland)
Mario Sigalotti (INRIA, Sophia Antipolis, France)
Gianna Stefani (Univ. degli studi di Firenze, Italy)
Iskander Taimanov (Steklov Ins. of Maths, RAS, Novosibirsk, Russia)
Emmanuel Trélat (UPMC Paris 6, France)
Dmitry V. Treschev (Steklov Math Ins., Moscow, Russia)
Richard Vinter (Imperial College, London, UK)
Dmitry Zenkov (North Carolina State University, Raleigh, USA)

PROGRAM

Tuesday November 25th

08.30 am – 09.00 am	Registration and Welcome coffee – IHP – Ground floor	
09.00 am – 09.40 am	Andrei A. Agrachev	Abnormal geodesics and the shape of sub-Riemannian spheres.
09.45 am – 10.25 am	Tudor Ratiu	Geometry of nonholonomic diffusion.
10.30 am – 11.00 am	Coffee break	IHP Ground floor
11.00 am – 11.40 am	Antonio Lerario	Quantitative topology of nonholonomic loop spaces.
11.45 am – 12.25 pm	Dmitry V. Treschev	Does the motion of a rigid ball on a plane look like a nonholonomic system?
12.30 pm – 02.15 pm	Lunch time	
02.15 pm – 02.55 pm	Bozidar Jovanovic	Various models of multidimensional nonholonomic rigid body dynamics.
03.00 pm – 03.40pm	Jean-Baptiste Caillau	L^1 minimization in space mechanics.
03.45 pm – 04.15 pm	Coffee break	IHP Ground floor
04.15 pm – 04.55 pm	Matthias Kawski	Approximating sub-Riemannian geodesics by highly oscillatory controls.
05.00 pm – 05.40 pm	Mario Sigalotti	Controllability of the discrete-spectrum Schrödinger equation.

Wednesday November 26th

09.00 am – 09.40 am	Manuel de León	Reduction of the Hamilton-Jacobi equation.
09.45 am – 10.25 am	Valery Kozlov	Dynamics in systems with constraints.
10.30 am – 11.00 am	Coffee break	IHP Ground floor
11.00 am – 11.40 am	Janusz Grabowski	Dirac Algebroids in Formalisms of Constrained Mechanics.
11.45 am – 12.25 pm	Frédéric Jean	Why don't we move slower? On the cost of time in the neural control of movement.
12.30 pm – 02.15 pm	Lunch time	
02.15 pm – 02.55 pm	Anthony Bloch	Optics, Action Principles and Nonholonomic Mechanics.
03.00 pm – 03.40pm	Emmanuel Trélat	The turnpike property in optimal control.
03.45 pm – 04.15 pm	Coffee break	IHP Ground floor
04.15 pm – 04.55 pm	Yuri Fedorov	Straight line rolling of an ellipsoid on a plane and the Chasles theorem.
05.00 pm – 05.40 pm	Richard Montgomery	Some open problems in (and around) sub-Riemannian geometry.

07.00 pm

Cocktail

Pierre and Marie Curie University
Zamansky Tower – 24th floor
4 place Jussieu – 75005 Paris
Subway line 7 – Station : Jussieu
Note : Bring your ID Card or Passport

Thursday November 27th

09.00 am – 09.40 am	Dmitry Zenkov	Hamel's Formalism and Variational Integrators.
09.45 am – 10.25 am	Fernando Jiménez	On the discretization of nonholonomic dynamics in \mathbb{R}^n .
10.30 am – 11.00 am	Coffee break	IHP Ground floor
11.00 am – 11.40 am	Yuliy Baryshnikov	Asymptotic of higher winding numbers of random walks and hypoelliptic diffusions.
11.45 am – 12.25 pm	Camillo De Lellis	Energy conservation and Onsager's conjecture on the Euler equations.
12.30 pm – 02.15 pm	Lunch time	
02.15 pm – 02.55 pm	Iskander Taimanov	On the integrability of geodesic flows on solvable Carnot 3-groups.
03.00 pm – 03.40 pm	Richard Vinter	Optimal Control for Differential Inclusions which have Bounded Variation w.r.t. Time.
03.45 pm – 04.15 pm	Coffee break	IHP Ground floor
04.15 pm – 04.55 pm	Jean-Paul Laumond	A geometric perspective of anthropomorphic action.
05.00 pm – 05.40 pm	Gianna Stefani	Strong-local optimality for trajectories containing a singular arc.

Friday November 28th

09.00 am – 09.40 am	Hélène Frankowska	First and second-order sensitivity relations in optimal control.
09.45 am – 10.25 am	Alexey V. Bolsinov	Topological monodromy as an obstruction to Hamiltonization of nonholonomic systems: pro or contra?
10.30 am – 11.00 am	Coffee break	IHP Ground floor
11.00 am – 11.40 am	Bronisław Jakubczyk	Connection and curvature of regular control systems and Lagrangian geometry.
11.45 am – 12.25 pm	Bernard Bonnard	Lunar and J2 perturbations of the metric associated to the averaged orbital transfer.