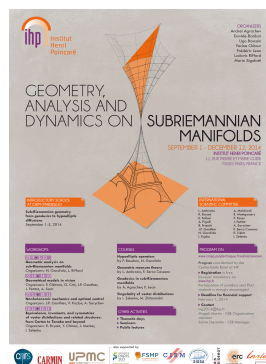


« Geometry, Analysis and Dynamics on Sub-Riemannian Manifolds »
September 1st – December 12th, 2014

Workshop
« Geometrical Models in Vision »
Paris, October 22nd – October 24th, 2014
Amphithéâtre Hermite



Scientific Committee

G. Citti (University of Bologna, Italy), **J.-P. Gauthier** (Université du Sud Toulon-Var, France), **J. Petitot** (CAMS, EHESS, France), **A. Sarti** (CAMS, EHESS, France)

Organizing Committee

F. C. Chittaro (Université du Sud Toulon-Var, France)

Speakers

Dmitri Alekseevsky (Kharkevich Institute, Moscow, Russia)

Giovanni Bellettini (Univ. Roma Tor Vergata, Italy)

Daniel Bennequin (UPMC, France)

Ugo Boscain (CNRS, CMAP, Ecole Polytechnique, France)

Pascal Chossat (Univ. Nice Sophia-Antipolis, France)

Jack Cowan (Univ. of Chicago, USA)

Remco Duits (Eindhoven Univ., The Netherlands)

Olivier Faugeras (INRIA, Sophia-Antipolis, France)

Yves Frégnac (CNRS, France)

Jean Lorenceau (CNRS, France)

Stéphane Mallat (Ecole Normale Supérieure, France)

Peter Michor (Univ. Wien, Austria)

Xavier Pennec (INRIA, Sophia-Antipolis, France)

Jean Petitot (CAMS, EHESS, France)

Alessandro Sarti (CAMS, EHESS, France)

Romain Veltz (INRIA Sophia Antipolis, France)

Fred Wolf (Max-Planck-Institut, Germany)

Steve Zucker (Yale Univ., New Haven, USA)

PROGRAM

Wednesday October 22nd

08.45 am – 09.30 am	Registration and Welcome coffee – IHP Ground floor	
09.30 am – 10.00 am	Jean Petitot	Introduction.
10.00 am – 10.45 am	Jack Cowan	Geometric Visual Hallucinations: what they tell us about the architecture of the brain.
10.45 am – 11.15 am	Coffee break	IHP Ground floor
11.15 am – 12.00 pm	Yves Frégnac	Perceptual association waves and collective belief in Visual Cortex.
12.15 pm – 01.00 pm	Jean Lorenceau	Dynamics of propagation through long range horizontal connections: spatial facilitation and spike time alignment.
01.00 pm – 02.30 pm	Lunch time	
02.30 pm – 03.15 pm	Pascal Chossat	Texture perception, one step forward beyond the ring model.
03.15 pm – 04.00 pm	Olivier Faugeras	Neural fields and Riemannian geometry as models for how colors and color edges may be represented in visual area V1.
04.00 pm – 04.30 pm	Coffee break	IHP Ground floor
04.30 pm – 05.15 pm	Fred Wolf	The neural field theory of visual cortical architecture. Symmetries, Optimization, and Phase space structure.

Thursday October 23rd

09.00 am – 09.45 am	Steve Zucker	Color, orientation and shape.
10.00 am – 10.45 am	Daniel Bennequin	Example of invariance for adaptation: spatial frequency and orientation in cat's V1.
10.45 am – 11.15 am	Coffee break	IHP Ground floor
11.15 am – 12.00 pm	Alessandro Sarti	Phenomenological Gestalten and figural completion: a neurogeometrical approach.
12.15 pm – 01.00 pm	Remco Duits	Lie Group Analysis for Medical Image Processing.
01.00 pm – 02.30 pm	Lunch Time	
02.30 pm – 03.15 pm	Stéphane Mallat	Invariant Image Classification with Deep Neural Networks.
03.30 pm – 04.15 pm	Xavier Pennec	Geometric Structures for Statistics on Shapes and Deformations in Computational Anatomy.
04.15 pm – 04.45 pm	Coffee break	IHP Ground floor
04.15 pm – 06.00 pm	POSTER SESSION	IHP Ground floor

Friday October 24th

09.30 am – 10.15 am	Romain Veltz	On the effects of the pinwheel network symmetries on cortical response.
10.15 am – 10.45 am	Coffee break	IHP Ground floor
10.45 am – 11.30 am	Ugo Boscain	Hypoelliptic diffusion and human vision: a semi-discrete new twist.
11.45 am – 12.30 pm	Dmitri Alekseevsky	Problem of conformal invariance in early vision.
12.30 pm – 02.30 pm	Lunch Time	
02.30 pm – 03.15 pm	Peter Michor	Overview on geometries of shape spaces, diffeomorphism groups, and spaces of Riemannian metrics.
03.30 pm – 04.15 pm	Giovanni Bellettini	Theory and algorithms for shape reconstruction from apparent contours.