Programme on

"Infinite-dimensional Riemannian geometry with applications to image matching and shape analysis"

January 7 – February 27, 2015

organized by

Martin Bauer (U Vienna), Martins Bruveris (Brunel), Peter W. Michor (U Vienna)

Workshop on

"Infinite-dimensional Riemannian geometry"

January 12 – 16, 2015

- **Monday, January 12, 2015**

  09:00 – 09:30 **Opening & Registration**

  09:30 – 10:30 **Boris Kolev**
  Local and global well-posedness of the fractional order EPDiff equation on $\mathbb{R}^d$

  10:30 – 11:00 *coffee / tea break*

  11:00 – 12:00 **Peter W. Michor**
  Uniqueness of the Fisher–Rao metric on the space of smooth densities

  12:00 – 14:00 *lunch break*

  14:00 – 15:00 **Thomas Kappeler**
  On the convexity of the KdV Hamiltonian

  15:00 – 16:00 **Nadia Konovenko**
  Conformal invariants in shape analysis and image recognition

  16:00 – 16:30 *break*

  16:30 – 17:30 **Valentin Lychagin**
  On invariants of diffeomorphism group actions

- **Tuesday, January 13, 2015**

  09:00 – 10:00 **Yuri Neretin**
  The group of diffeomorphisms of the circle and its completions

  10:00 – 11:00 **Armin Rainer**
  On Lie groups of diffeomorphisms generated by time-dependent vector fields

11:00 – 11:30 *coffee / tea break*

11:30 – 12:30 **Stephen Preston**
The exponential map on the area-preserving diffeomorphism group for a bounded surface

12:30 – 14:30 *lunch break*

14:30 – 15:15 **Pearce Washabaugh**
Geometry of the group of axisymmetric volumorphisms

15:15 – 16:00 **Boramey Chhay**
Conjugate points on the contactomorphism group

16:00 – 16:30 *break*

16:30 – 17:15 **James Benn**
L^2-geometry of the symplectomorphism group

- **Wednesday, January 14, 2015**

  09:00 – 10:00 **David G. Ebin**
  The initial value problem for fluids with free boundary and surface tension

  10:00 – 11:00 **Klas Modin**
  Diffeomorphic density matching using Fisher–Rao geodesics

  11:00 – 11:30 *coffee / tea break*

  11:30 – 12:30 **Christian Becker**
  String connections via the caloron correspondence

- **Thursday, January 15, 2015**

  09:00 – 10:00 **Mario Micheli**
  Matrix-valued kernels for shape deformation

  10:00 – 11:00 **Sergey Kushnarev**
  PCA on manifolds: application to spaces of landmarks

  11:00 – 11:30 *coffee / tea break*

  11:30 – 12:15 **Jakob Møller-Andersen**
  An example of a shape space modelled on Hilbert space

  12:15 – 15:00 *lunch break*

  15:00 – 16:00 **François Gay-Balmaz**
  Infinite dimensional manifold structures on spaces of submanifolds with boundary

  16:00 – 16:30 *coffee / tea break*

  16:30 – 17:30 **Andrea Mennucci**
  Probabilities and manifolds

- **Friday, January 16, 2015**

  09:00 – 10:00 **Sylvain Arguillère**
  Infinite-dimensional sub-Riemannian geometry

  10:00 – 11:00 **Emmanuel Trélat**
  Sub-Riemannian structures on the group of diffeomorphisms

  11:00 – 11:30 *coffee / tea break*

11:30 – 12:30 **Kai Zheng**
The gradient and the weighted metrics for the space of Kähler metrics

12:30 – 14:30 *lunch break*

14:30 – 15:30 **Ugo Boscain**
The intrinsic hypoelliptic Laplacian on sub-Riemannian manifolds

15:30 – 16:30 **Jean-Paul Gauthier**
Reconstruction and pattern recognition via the Petitot model of the primary visual cortex

All talks take place at the ESI, Boltzmann Lecture Hall