

**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****“Riemannian geometry in shape analysis and computational anatomy”****February 16 – 20, 2015****• Monday, February 16, 2015**9:00 – 9:30 **Opening & Registration**9:30 – 10:30 **Michael Miller***Bayesian models in computational anatomy, neurodegenerative illnesses and Brain Clouds*10:30 – 11:00 *Coffee / tea break*11:00 – 12:00 **Helmut Pottmann***Freeform architecture and differential geometry*12:00 – 14:00 *Lunch break*14:00 – 15:00 **Henry Jacobs***Approximation of diffeomorphisms with  $U(n)$  and the Hilbert–Schmidt group*15:00 – 16:00 **Volker Schulz***On the usage of the Riemannian geometry framework for PDE constrained shape optimization*16:00 – 16:30 *Break*16:30 – 17:30 **Jair Koiller***On the comparison of short processes*

- **Tuesday, February 17, 2015**

9:00 – 10:00 **Laurent Risser**

*Designing and learning Riemannian metrics in medical imaging (part I)*

10:00 – 11:00 **François-Xavier Vialard**

*Designing and learning Riemannian metrics in medical imaging (part II)*

11:00 – 11:30 *Coffee / tea break*

11:30 – 12:30 **Stephanie Allasonnière**

*Bayesian mixed effect atlas estimation with a LDDMM deformation model*

12:30 – 14:30 *Lunch break*

14:30 – 15:30 **Stanley Durrleman**

*Morphometry in neuroimaging*

15:30 – 16:15 **Irène Kaltenmark**

*A growth model in computational anatomy based on diffeomorphic matching*

16:15 – 16:45 *Break*

16:45 – 17:30 **Barbara Gris**

*Shape statistics with modular multi-scale diffeomorphic deformations*

- **Wednesday, February 18, 2015**

9:00 – 10:00 **Anuj Srivastava**

*Rate-invariant analysis of covariance trajectories with applications to video-based action recognition*

10:00 – 11:00 **Eric Klassen**

*Precise matching of piecewise linear curves using the square root velocity function*

11:00 – 11:30 *Coffee / tea break*

11:30 – 12:30 **Ganesh Sundaramoorthi**

*Deformable shape tracking and a new region-based Sobolev metric*

- **Thursday, February 19, 2015**

9:00 – 10:00 **Xavier Pennec**

*On an extension of PCA on manifolds*

10:00 – 11:00 **Stephen Marsland**

*Shape and image invariants under Lie group actions*

11:00 – 11:30 *Coffee / tea break*

11:30 – 12:15 **Nina Miolane**

*Statistics on Lie groups: can we obtain a consistent framework with pseudo-Riemannian metrics?*

12:15 – 14:15 *Lunch break*

14:15 – 15:00 **Nikki Sanderson**

*Title TBA*

15:00 – 16:00 **Fred Bookstein**

*Scaling dimension: a promising new parameter for morphometrics of organisms*

16:00 – 16:30 *Coffee / tea break*

16:30 – 17:30 **Marc Arnaudon**

*A stochastic algorithm finding generalized means on compact manifolds*

- **Friday, February 20, 2015**

9:00 – 10:00 **Giacomo Nardi**

*Matching of geometric-functional structures via a BV-energy*

10:00 – 11:00 **Stefan Sommer**

*Diffusion processes and dimensionality reduction on manifolds with affine connection*

11:00 – 11:30 *Coffee / tea break*

11:30 – 12:30 **François Demoures**

*Stochastic multisymplectic variational integrators for  $SE(3)$ -strand*

12:30 – 14:30 *Lunch break*

14:30 – 15:15 **José Iglesias**

*A level set method for the matching of implicit surfaces*

15:15 – 16:15 **Darryl Holm**

*Stochastic solitons in computational anatomy*

**All talks take place at the ESI, Boltzmann Lecture Hall**