

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**

Simplicial multivalued maps and the witness complex

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

All talks take place at the ESI, Boltzmann Lecture Hall