

Programme on  
“Optimal Transport”

April 15 – June 14, 2019

organized by

**Mathias Beiglböck (U Vienna), Alessio Figalli (ETH Zürich), Jan Maas (IST Austria), Robert McCann (U Toronto), Justin Solomon (MIT, Cambridge)**

• **Thursday, April 18, 2019**

13:45 – 14:45 **Eric Carlen (Rutgers U)**

*Brascamp Lieb inequalities for fermions and non-commutative mass transport*

14:45 – 15:45 **Yvain Bruned (U of Edinburgh)**

*Geometric stochastic heat equations*

Abstract: We will explain how to solve a class of one-dimensional stochastic PDEs driven by space-time white noise using the theory of Regularity Structures invented by Martin Hairer. This class of equations is invariant under the action of the diffeomorphism group and covers many singular stochastic PDEs as the stochastic heat equation, rough Burgers equations and the KPZ equation. The main point is to find solutions satisfying different symmetry properties as the invariance under the action of diffeomorphisms and It's isometry. This is a joint work with Franck Gabriel, Martin Hairer and Lorenzo Zambotti.

15:45 – 16:45 **Josef Teichmann (ETH Zürich)**

*Machine Learning in Finance*

Abstract: We consider certain learning tasks, which appear, e.g., in mathematical finance, from the point of view of controlled differential equations. By means of hypo-ellipticity results, certain universal expansions and corresponding transport equations, we shed some new light on generic learning algorithms and their amazing efficiency. (joint work with Christa Cuchiero and Martin Larsson)

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