

**October 24th, 2016**  
**KAP 414**  
**2:00 P.M. – 3:00 P.M.**

## **Professor Beatrice Acciaio**

(London School of Economics/UC Santa Barbara)

### **“Causal Optimal Transport and its Links to Enlargement of Filtrations and Stochastic Optimization Problems”**

**Abstract:** The martingale part in the semimartingale decomposition of a Brownian motion, with respect to an enlarged filtration, is an anticipative mapping of said Brownian motion. In analogy to optimal transport theory, I will define causal transport plans in the context of enlargement of filtrations, as the Kantorovich counterparts of the aforementioned non-adapted mappings. I will present a necessary and sufficient condition for a Brownian motion to remain a semimartingale in an enlarged filtration, in terms of certain minimization problems over sets of causal transport plans. The latter will be also used in order to give an estimate of the value of having additional information, for some classical stochastic optimization problems.

This talk is based on a joint work with Julio Backhoff and Anastasiia Zalashko.