

# Sonderforschungsbereich 1060

The Mathematics of Emergent Effects

Einladung zu einem Vortrag im SFB-Seminar

**Prof. Dr. Alessio Figalli**

University of Texas at Austin, USA

spricht zum Thema

**Recent applications of transport theory**

**Zeit: Dienstag, den 17. März 2015, 14.15 Uhr**

**Ort: Lipschitz-Saal 1.016, Endenicher Allee 60**

**Kaffee/Tee: anschl. im Plücker-Raum 1.015**

gez. **Martin Rumpf**

**Abstract:** The optimal transport problem consists in finding the cheapest way to transport a distribution of mass from one place to another.

Apart from its applications to economics, optimal transport theory has been used in several other areas of mathematics: first of all, several equations coming from meteorology, biology, and populations dynamics can be successfully studied using optimal transport. In addition, optimal transport can be used to investigate the stability of minimizers of several geometric/functional inequalities. The latter is an important issue in order to understand and/or predict the evolution in time of a physical phenomenon. For instance, quantitative stability results allows one to quantify the rate of convergence of the system to some steady state, and they can also be used to understand how much the system changes under the influence of exterior factors (such as external forces).

More recently, transport theory has been successfully applied in random matrix theory to show universality results for the distribution of eigenvalues in random matrix theory. The aim of this talk is to give an overview of these results.