

## S5E1 Graduate Seminar on Numerical Analysis

### Optimal Transport – Modelling, Analysis and Numerical Approximation

Optimal transport has been a highly active research area in the last two decades and has become a powerful tool in a variety of mathematical fields as well as in the modelling applications and in particular in image processing. The basic problem consist in finding the optimal, or most cost efficient, way of transporting mass between given initial and final configurations. In applications, effecient numerical approximation of a solution to the optimal tranport problem is essential, which turns out to be a challenging problem.

The seminar addresses students interested in the challenging computational aspects of optimal transport. We will cover essentials of the appealing theory underlying the transport problem and its analysis and will highlight some applications in modelling. The main focus of the seminar will be on different numerical methods for a robust and efficient numerical approximation of optimal transport maps and transport paths.

**Dates:** dates during the term will be based on agreement

**Preliminary meeting:** Thursday, July 20th at 16:15, seminar room 2.025 (LWK)

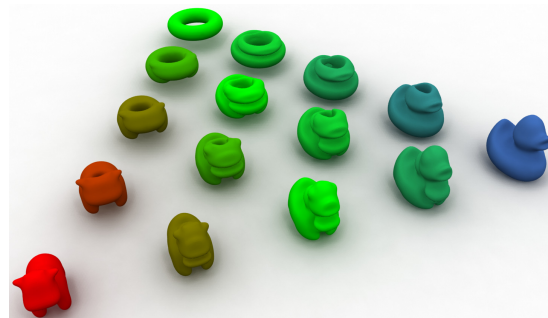
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Optimal transport path between Armadillo and sphere, pictures by Bruno Lévy



Shape interpolation via optimal transport, pictures by Butcher et al.



Optimal transport modelling of crowd motion, pictures by Gabriel Peyré