

# BERNOULLIS TAFELRUNDE

GRADUATE STUDENT SEMINAR

**Thursday, 8 March 2018, 12:15-13:00**  
Seminarraum 00.003, Spiegelgasse 1

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## Shape Optimization by Finite Elements

### ABSTRACT

Shape optimization is a tool for designing and constructing industrial components. The general idea is to minimize a functional defined over a set of admissible domains. In this talk, we consider the specific example of maximizing the Dirichlet energy functional with respect to the domain subject to a fixed volume in two dimensions. The shape optimization is performed by using finite elements. Therefore, a mesh is needed in every step of the shape optimization algorithm. We explain how the mesh is generated using the marching cubes algorithm and how the mesh is improved. Using the mesh, shape optimization is performed for a model problem.