## Sobolev monotone mappings Jani Onninen University of Jyväskylä

An approximation theorem of Youngs (1948) asserts that a continuous map between compact oriented topological 2-manifolds (surfaces) is monotone if and only if it is a uniform limit of homeomorphisms. In this talk we discuss analogous approximation results for Sobolev mappings. These results originated in studying variational problems of geometric nature. To build a viable theory we first have to address the question of how to enlarge the class of homeomorphisms to ensure the existence of minimizers. Tadeusz Iwaniec and I introduced Sobolev monotone mappings and established the existence of energy-minimal deformations within the class of such mappings. Related open questions are also discussed.