

Sobolev Monotone mappings

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The talk is based on the joint work with Tadeusz Iwaniec

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. The bday boy and I introduced Sobolev monotone mappings and established the existence of energy-minimal deformations within the class of such mappings.