Bernoullis Tafelrunde

Graduate Student Seminar

Thursday, 04 April 2019, 12:15-13:00
Seminarraum 05.002, Spiegelgasse 5

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On Compensated Compactness and Hardy Spaces

Abstract

In this talk I will cover how the properties of various nonlinear quantities arising from the theory of compensated compactness can be used to achieve better regularity, namely belonging to corresponding Hardy spaces. Consider for example the Jacobian $J(u) := \det(\nabla u)$. Using rather elementary arguments from harmonic analysis we shall see that the range of the mapping $J : W^{1,n}(\mathbb{R}^n)^n \to L^1(\mathbb{R}^n)$ is actually contained in the Hardy Space $H^1(\mathbb{R}^n)$. We will furthermore see some questions and results that arise from this observation.