

Lower semicontinuity and relaxation of signed functionals with linear growth in the context of \mathcal{A} -quasiconvexity

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Abstract

We will discuss lower semicontinuity results with respect to weak-* convergence of measures for functionals of the form

$$\mu \in \mathcal{M}(\Omega; \mathbb{R}^d) \rightarrow \int_{\Omega} f(\mu^a(x)) dx + \int_{\Omega} f^{\infty} \left(\frac{d\mu^s}{d|\mu^s|}(x) \right) d|\mu^s|(x),$$

where $\mu = \mu_a(x)dx + \mu_s$ is the Radon-Nikodym decomposition of the bounded Radon measure μ with respect to the Lebesgue measure, along sequences constrained by a first order partial differential operator of constant coefficients and constant rank. The integrand f has linear growth and L^{∞} -bounds from below are not assumed.

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