Partial Regularity of Constrained Minimisers

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Abstract

We will discuss a partial regularity result for constrained minimisers of integral functionals of the form $\mathcal{F}[v] = \int_\Omega F(Dv)$, where $v : \Omega \to M$ and M is an embedded submanifold of $\mathbb{R}^N$. This will be achieved using the linearisation strategy implemented by way of the $\mathbb{A}$-harmonic approximation lemma and a Caccioppoli inequality of the 2nd kind under natural growth and quasiconvexity assumptions on the integrand F. Particular attention will be given to the application of the so-called Luckhaus' lemma.