Regularity results for local minimizers of degenerate convex functionals with discontinuous coefficients

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June 14, 2016

Abstract

I will present some higher integrability and higher differentiability results for vectorial local minimizers of integral functionals of the calculus of variations of the form

$$\mathcal{F}(v, \Omega) = \int_{\Omega} f(x, Dv)\, dx.$$

The main feature of our study is that the energy density $f(x, \xi)$ can be assumed to be uniformly convex and with radial structure, with respect to the gradient variable only at infinity, i.e. only for large values of the gradient variable.

Moreover, we assume that the partial map $x \to f(x, \xi)$ belongs to a suitable Sobolev class, and therefore can be discontinuous.

We point out that we deal both with the case of standard and the non standard growth conditions.

References

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