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Uniqueness of graphs of least gradient

In this talk we address some characteristics of minimization problems concerning variational integrals of linear growth. As a model case we study the minimization of the integral

$$\int_{\Omega} \sqrt{1 + |Dw|^2} dx$$

in Dirichlet classes of vector-valued functions w . We first discuss existence and uniqueness (up to additive constants) of generalized minimizers. We then investigate the phenomenon of non-uniqueness, which – as in the scalar case, i.e. the non-parametric least area problem – is closely related to the possible non-attainment of the boundary values.