Geometric approach to nonvariational degenerate/singular elliptic equations

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1 Abstract

We will discuss systematic geometric approaches to study fully nonlinear elliptic equations, $\mathcal{L}(X, \nabla u, D^2 u) = f$, whose diffusion properties (ellipticity) degenerate along the a priori unknown set of critical points of existing solution, $\mathcal{S}(u, \nabla u)$. The key novelty of our results concern optimal regularity for such solutions. This quantitative information plays a decisive role in the analysis of a number of analytic and geometric problems.