

An Existence Theorem for Hessian Equations in Small Domains

Iulia Susnea
University of Ulm

We want to improve an existence result of John Urbas for Hessian equations. He proved that the Dirichlet problem

$$\begin{aligned} F_m(D^2u) &= f(x, u, Du) && \text{in } \Omega \\ u &= \varphi && \text{on } \partial\Omega \end{aligned}$$

has an admissible solution in a ball $\Omega = B_\varepsilon$ with radius sufficiently small, assuming that φ satisfies $\|\varphi\|_{C^1(B_\varepsilon)} \leq C_\varepsilon$ for all $0 < \varepsilon < 1$. We will prove that the result still holds when replacing the ball with a strictly convex set with diameter sufficiently small.