

962-35-797

Friedemann Brock* (brock@math.missouri.edu), Department of Mathematics, University of Missouri-Columbia, Columbia, MO 65211. *A Symmetry Result for Overdetermined Degenerate Elliptic Problems.*

Let Ω a bounded smooth domain in \mathbf{R}^n , and let $u \in C^1(\overline{\Omega})$ a weak solution of the following overdetermined BVP: $-\nabla(g(|\nabla u|)|\nabla u|^{-1}\nabla u) = f(|x|, u)$, $u > 0$ in Ω and $u = 0$, $|\nabla u| = \lambda(|x|)$ on $\partial\Omega$, where $g \in C(\mathbf{R}_0^+) \cap C^1(\mathbf{R}^+)$ with $g(0) = 0$, $g'(t) > 0$ for $t > 0$, $f \in C(\mathbf{R}_0^+ \times \mathbf{R}^+)$, f is nonincreasing in $|x|$, $\lambda \in C(\mathbf{R}_0^+)$ and λ is positive and nondecreasing. We show that Ω is a ball and u satisfies some “local” kind of symmetry. The proof is based on the method of continuous Steiner symmetrization. (Received September 26, 2000)