BMO-ESTIMATES FOR THE P-LAPLACIAN AND P-FLUIDS

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Abstract

We consider the p-Laplace problem

$$-\operatorname{div}\left(|\nabla u|^{p-2}\nabla u\right) = \operatorname{div} F. \tag{1}$$

We show that $F \in \mathrm{BMO}$ implies $|\nabla u|^{p-2}\nabla u \in \mathrm{BMO}$. This is the limiting case of the nonlinear Calderon-Zygmund theory, which was initiated by Iwaniec. Furthermore, we generalize this result to the two-dimensional setting of p-fluids.