1016-35-30   **Zhongwei Shen*** (`shenz@ms.uky.edu`), Department of Mathematics, University of Kentucky, Lexington, KY 40506. *Necessary and Sufficient Conditions for the Solvability of the L^p Dirichlet Problem on Lipschitz Domains.*

We study the homogeneous elliptic systems of order 2ℓ with real constant coefficients on Lipschitz domains in R^n, $n \geq 4$. For any fixed $p > 2$, we show that a reverse Hölder condition with exponent p is necessary and sufficient for the solvability of the Dirichlet problem with boundary data in L^p. We also obtain a simple sufficient condition. As a consequence, we establish the solvability of the L^p Dirichlet problem for $n \geq 4$ and $2 - \varepsilon < p < \frac{2(n-1)}{n-3} + \varepsilon$. (Received January 10, 2006)

1