

1057-35-119

Jun Geng* (jgeng@ms.uky.edu), 700 Woodland Ave. Apt E127, Lexington, KY 40506, and
Zhongwei Shen. *The Neumann Problem and Helmholtz Decomposition in Convex Domains.*

We show that the Neumann problem for Laplace's equation in a convex domain Ω with boundary data in $L^p(\partial\Omega)$ is uniquely solvable for $1 < p < \infty$. As a consequence, we obtain the Helmholtz decomposition of vector fields in $L^p(\Omega, R^d)$. (Received January 15, 2010)