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Joel Kilty* (joel.kilty@centre.edu), 600 W. Walnut Street, Centre College, Danville, KY 40422, and **Jun Geng**. *The L^p Regularity Problem for the Stokes System on Lipschitz Domains*.

The goal of this talk is to present two results concerning the stationary Stokes system on bounded Lipschitz domains. The first result establishes a necessary and sufficient condition for the solvability of the $L^p(\partial\Omega)$ regularity problem when $p > 2$ in terms of a weak reverse Hölder inequality for $L^2(\partial\Omega)$ solutions which vanish on part of the boundary. The second result establishes the $W^{1,p}(\Omega)$ estimate for solutions of a Poisson-type Dirichlet problem when $|\frac{1}{p} - \frac{1}{2}| < \frac{1}{2d} + \varepsilon$ on a bounded Lipschitz domain $\Omega \subset \mathbb{R}^d$. (Received July 17, 2012)