Joseph Feneuil* (joseph.feneuil@temple.edu). *The Dirichlet problem for sets with higher co-dimensional boundaries.*

Let $\Gamma \subset \mathbb{R}^n$ be a set of dimension $d < n - 1$ and $\Omega = \mathbb{R}^n \setminus \Gamma$ be its complement. We develop an elliptic theory adapted to $\Omega$, where we introduce a new notion of harmonic measure on $\Gamma$. When $\Gamma$ is a special Lipschitz set with small Lipschitz constant, we solve the Dirichlet problem $(D_p)$ for any $p \in (1, +\infty)$. In particular, we prove that the harmonic measure on $\Gamma$ is $A_\infty$-absolutely continuous with respect to the $d$-dimensional Hausdorff measure. This is a joint work with Guy David, Svitlana Mayboroda and Zihui Zhao. (Received September 04, 2018)