1030-42-335   **Marius Mitrea*** (`marius@math.missouri.edu`), 202 Mathematical Sciences Building, Department of Mathematics, University of Missouri, Columbia, MO 65211. *Calderon-Zygmund Theory on uniformly rectifiable domains.* Preliminary report.

I will discuss the theory of layer potentials and related singular integral operators as a tool in the study of elliptic boundary problems on a family of domains introduced by Semmes and Kenig-Toro. This extends the classic work of Fabes, Jodeit, and Riviere in several ways. For one, the class of domains considered contains the class of VMO1 domains, which in turn contains the class of C1 domains. In addition, it is possible to treat not only the Dirichlet and Neumann boundary problems, but also a variety of others. This is joint work with Steve Hofmann and Michael Taylor. (Received August 06, 2007)