Meeting: 998, Houston, Texas, SS 3A, Special Session on Harmonic and Functional Analysis

998-35-382 **O. Mendez*** (mendez@math.utep.edu), 500W University Ave., 124 Bell Hall, El Paso, TX 79968, and **J. Lang** (lang@math.ohio-state.edu), Ohio State University, 100 Math Tower, 231 West 18 Ave., Columbus, OH 43210. *Weighted Sobolev Spaces and Boundary Value Problems in exterior non-smooth Domains.*

Via Potential Theory, we obtain optimal solvability results in weighted Sobolev spaces for the Poisson's Problem for the Laplacian, with Dirichlet and Neumann boundary conditions in the exterior Ω of a bounded Lipschitz domain. As an application, we present suitable Helmholtz decompositions of vector fields defined on Ω. Our methods also apply to the study of similar regularity issues for the 3-dimensional Stokes System in Ω. (Received March 02, 2004)