1046-35-208 **Tunde Jakab*** (tj8y@virginia.edu), Mathematics Department, Kerchof Hall, PO Box 400137, University of Virginia, Charlottesville, VA 22904-4137, **Irina Mitrea**, Mathematics Department, Kerchof Hall, PO Box 400137, University of Virginia, Charlottesville, VA 22904-4137, and **Marius Mitrea**, Mathematics Department, 330 Mathematical Sciences Building, University of Missouri, Columbia, MO 65211. *Sobolev estimates for the Green potential associated with the Robin-Laplacian.*

We show that if $u = G_\lambda f$ is the solution operator for the Robin problem for the Laplacian, i.e. $\Delta u = f$ in Ω, $\partial_\nu u + \lambda u = 0$ on $\partial\Omega$ (with $0 \leq \lambda \leq \infty$), then $G_\lambda : L^p(\Omega) \to W^{2,p}(\Omega)$ is bounded if $1 < p \leq 2$ and $\Omega \subset \mathbb{R}^n$ is a bounded Lipschitz domain satisfying a uniform exterior ball condition. This extends the earlier results of V. Adolfsson, B. Dahlberg, S. Fromm, D. Jerison, G. Verchota, and T. Wolff, who have dealt with Dirichlet ($\lambda = \infty$) and Neumann ($\lambda = 0$) boundary conditions. (Received August 19, 2008)