

Meeting: 1005, Newark, Delaware, SS 2A, Special Session on Singular Analysis and Spectral Theory of Partial Differential Equations

1005-35-61 **Victor Nistor***, Math Dept, University Park, PA 16801, and **Costel Bacuta** and **Ludmil Zikatanov**. *Well posedness and regularity for the Laplace equation on polyhedral domains.*

We prove that the inhomogeneous Laplace equation $\Delta u = f$ with Dirichlet boundary conditions has a unique solution in the *weighted* Sobolev spaces $K_{a+2}^{m+2}(P)$, provided that the data f is in $K_a^m(P)$ and $|a+1| < \eta$, where $m \in Z_+$ and $\eta > 0$ is a constant depending only on the polyhedral domain P . The weight is the distance to the faces of dimension $n-2$, that is, the distance to the singular points of the boundary. This result is due to Kozlov, Mazya, and Rossmann in dimension $n=2$. (Received January 25, 2005)