1125-VB-3073 **Prem M. Talwai*** (pmt55@cornell.edu). *A Trace Operator for the Laplacian on the Sierpinski Gasket.*

As our world grows increasingly irregular, it is imperative that we reformulate our mathematical models to accurately describe this inherent natural roughness. The classical "smooth" analysis on manifolds is inadequate for a comprehensive study of the dynamic fractal phenomena that permeate nature. In the last two decades, a theory of analysis on fractals has been developed that centers on the construction of a Laplacian on "rough" sets such as the Sierpinski gasket SG (also called the Sierpinski triangle). This project characterizes the trace of the domain of this Laplacian operator (dom Δ) to the boundary of the gasket. In particular, if SG is embedded in $\mathbb{R}^2$ such that its base coincides with the unit interval I, and $u \in \text{dom } \Delta \cap C(SG)$, we apply a biharmonic spline approximation scheme and a novel convergence condition for the Laplacian to elucidate the regularity properties of $u|_I$. We show that the trace of dom Δ is contained in the Besov space $B_{\alpha}^{2,2}$(I) with $\alpha = \frac{\ln 3}{\ln 4} + \frac{1}{2}$. (Received September 20, 2016)