Meeting: 1001, Evanston, Illinois, SS 7A, Special Session on Geometric Partial Differential Equations

1001-35-259 **Eugenie Hunsicker*** (hunsicke@lawrence.edu), Department of Mathematics, Lawrence University, Appleton, WI 54912. *Ideal boundary conditions and intersection cohomology.*

In the early 1980's, Cheeger introduced the idea of ideal boundary conditions in order to compute the L^2-cohomology of a cone, $C(N)$, for any n-manifold, N. He showed that when the middle degree cohomology $H^{n/2}(N) = \{0\}$, then $H^*_{(2)}(C(N)^{reg}, g_c) \cong IH^*_{\mathfrak{m}}(C(N))$, where $\mathfrak{M}$ is the unique middle perversity intersection cohomology of the cone.

I will present some generalizations of this result, and in particular, show how for other types of metrics with various ideal boundary conditions on the Laplacian, the L^2 cohomology (and corresponding spaces of L^2 harmonic forms) are computed by intersection cohomology for other perversities. (Received August 28, 2004)