

WICHITA STATE UNIVERSITY
Department of Mathematics and Statistics

*The Lecture Series in the
Mathematical Sciences Presents Our Guest:*

Dr. Eugenie Hunsicker
Lawrence University, Wisconsin

*"Ideal boundary conditions, intersection cohomology,
and the Leray spectral sequence of a fibre bundle"*

Abstract:

Abstract: In order to understand which shapes of universes are possible in string theory, physicists are interested in the space of self-dual harmonic forms on a variety of noncompact and singular manifolds. Cheeger and Dai have examined L^2 cohomology on manifolds whose ends have the geometry of a fibre bundle over a compact manifold, where the fibres are the cone on a second compact manifold. They have proved that the L^2 cohomology of such a manifold is isomorphic to the middle perversity intersection cohomology of the natural compactification of the manifold in the case that the cones in the fibres are over an odd dimensional manifold. In this case, they have also used analysis of the spectral sequence of the boundary fibration to prove a signature theorem. This talk will present a generalization of their results which shows a broader relationship between L^2 cohomology of singular spaces, intersection cohomology of varying perversities, and the spectral sequence of a fibration.

Friday, February 11, 2005
3:00 PM in 372 Jabara Hall

*Please come join us for refreshments before the lecture
at 2:30 p.m. in room 353 Jabara Hall.*