DIFFERENTIAL GEOMETRY SEMINAR

MONDAY, APRIL 17
COMMUNICATIONS 226
3:45 P.M.

A Bound on the Counting Function for the Rough Laplacian on a Vector Bundle

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Let $E \to M$ be a Riemannian vector bundle over a compact Riemannian manifold. Let D be a connection on E which is compatible with the fiber metric. Then the *rough Laplacian* D^*D acts on the sections of the bundle. Its spectrum is discrete and its eigenvalues are non-negative. For any positive number λ we let $N(\lambda)$ be the number of eigenvalues less than or equal to λ. (N is called the *counting function* for D^*D.) We present a result of S. Gallot which provides an estimate for the counting function in terms of geometric data. This result yields bounds on many interesting quantities, e.g. a lower bound on the i^{th} eigenvalue of the Laplace-Beltrami operator and upper bounds on the Betti numbers. Some of these applications will be discussed, time permitting.

For more information about this seminar, view the Differential Geometry Seminar World-Wide Web page at

`http://www.math.washington.edu/~lee/Seminars/dg.html`