

## Seminar on K-theory and Characteristic classes.

This semester we will study index theorem.

Since we are interested mostly in  $K$ -theory applications we will start with the  $K$ -theoretic proof of the index theorem.

We will be using the book "Spin Geometry" by H.B Lawson and M. Michelsohn (1989).

Later we will also try to study purely analytic proofs of the index theorem.

We will use the book "Heat Kernels and Dirac Operators" by Nicole Berline, Michele Vergne, N. Berline, Michle Vergne, Ezra Getzler (1992).

One of the applications we plan to study is the construction of the direct image map in the equivariant  $K$ -theory.

We also plan to study the equivariant  $K$ -theory in general. Here we are going to use lectures by G. Segal on equivariant  $K$ -theory.