DIFFERENTIAL GEOMETRY/PDE SEMINAR

Friday, April 2
Padelford C-401
3:45 pm

Conformally Covariant Pseudo-Differential Operators

Larry Peterson
(University of North Dakota)

Let M be a compact manifold without boundary. For any complex number k we construct a conformally covariant pseudo-differential operator on M of order $2(\mathrm{Re}\, k)$. In odd dimensions this operator is well-defined modulo smoothing operators. In even dimensions it is well-defined modulo operators of order $2(\mathrm{Re}\, k) - [\frac{n}{4}] - 1$.

My talk will begin with a short discussion of some background material on conformal geometry and pseudo-differential operators. I will then discuss the conformally covariant differential operators of Graham, Jenne, Mason, and Sparling as well as my proof of the existence of a special formula for the symbols of these operators. I will explain how I use this formula to create pseudo-differential symbols and pseudo-differential operators of order $2(\mathrm{Re}\, k)$. The talk will conclude with some remarks about why my operators are well-defined and conformally covariant.