Fredholm conditions on non-compact manifolds through groupoids

mercredi 31 mai 2017 09:00 (45 minutes)

In many classes of non-compact manifolds, a (pseudo)differential operator is Fredholm if, and only if, it is elliptic and a certain family of invariant operators is invertible.

In this talk, we discuss this type of Fredholm conditions in the framework of Lie groupoids over manifolds with corners, and provide a setting where they can be explicitly identified.

Representation theory of groupoid C^*-algebras plays a significant role, namely recent work by Roch and Nistor, Prudhon on strictly spectral and exhaustive families.

We discuss examples, and consider, in particular, the commutative case, where we see that the classical Atiyah-Singer index formula applies. As a consequence, we obtain an index formula for even-dimensional Callias type operators with unbounded potentials.

This is joint work with V. Nistor and Y. Qiao.

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