

Integrable lifts for transitive Lie algebroids

vendredi 2 juin 2017 14:50 (25 minutes)

In this seminar we report on work in progress with I. Androulidakis and I. Marcuț

In many constructions in noncommutative geometry, the passage from a singular space to a C^* algebra involves a Lie groupoid as an intermediate desingularization space.

The infinitesimal datum of a Lie groupoid is a Lie algebroid and they appear independently, for instance in :

- theory of foliations
- Poisson geometry
- Gauge theory.

However in general is not possible to integrate a Lie algebroid to a Lie groupoid (in contrast to the theory of Lie algebras).

Firstly we will be concerned with the discussion of Lie algebroids: basic definitions, examples, the integration problem, the obstructions to the integrability of Crainic-Fernandes and the discussion of the first non integrable example given by Molino.

Then we will explain our idea of “removing” the obstructions of a transitive algebroid, passing to a suitable integrable extension.

In these cases one can use this integrable lift to perform some of the basic constructions of index theory and noncommutative geometry.

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