LTCC Course

Title: Towards moduli of foliations

Basic details:
Core audience: 1st - 3rd year PhD students
Course format: Extended: 5 x2hr lectures

Course description

- Key words**:** Algebraic geometry, foliation theory, deformation theory.
- Syllabus: Moduli theory provides the language and tools to classify geometric objects with additional structures—such as curves, surfaces, vector bundles, or varieties—understanding not only the individual objects but also how they vary in families. In recent decades, it has been fundamental to the development of modern algebraic geometry. Holomorphic foliations arise naturally in various areas of mathematics and form a very active field of research. They have played an important role in major advances in complex algebraic geometry over the past few decades.
  In this course, we will explore the different attempts to construct a moduli theory for foliations, starting from the basic aspects of foliations and their deformation theory. Our final destination will be to discuss recent work that provides a satisfactory moduli theory for foliations, building on recent developments in their birational geometry.
- Recommended reading: "Irreducible components of the space of foliations of degree two in CP(n), n≥3" by D. Cerveau and A. Lins Neto, "Families of varieties of general type" by J. Kollar, "Stacks and moduli" by J. Alper.
- Prerequisites: students should be comfortable with the basic notions of algebraic/complex geometry (e.g. at the level of Hartshorne or a similar book). Some prior exposure to foliations or deformation theory will be advantageous but not strictly necessary.

Format:

- Electronic lecture notes to be given out after each lecture.

Lecturer Details:

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