The Mill 2020 vs Corona – Round 2

Lukas Miaskiwskyi (TU Delft)

Lie Algebras of Vector Fields and Localization of Cohomology

9 April 2020
14.15h – Please note the changed schedule!

Abstract

Given a Lie algebra, its Lie algebra cohomology (or Chevalley-Eilenberg cohomology) is a space of algebraic invariants which have direct connections to the representation and deformation theory of the associated Lie algebra. Of physical relevance are in particular certain infinite-dimensional Lie algebras of (e.g. symplectic, divergence-free, Hamiltonian or compactly supported) vector fields on a manifold; calculating the cohomology of such spaces, however, is very different from the well-understood finite-dimensional cases, as this requires unraveling the nontrivial interaction between the topological properties of the underlying manifold and the algebraic relations contained in the Lie bracket. We will present ideas to systematically separate those two pieces of information in a given setting, for all Lie algebras of vector fields which "behave well under restrictions", i.e. for sheaves of vector fields.

We meet 15min before the talk starts on discord, make sure to have zoom installed. Write to mschotz (YouKnowWhatSymbolComesHere) ulb.ac.be if you don't have access yet or have any questions.