GROTHENDIECK–VERDIER FUNCTORS

MAX DEMIRDILEK

Grothendieck–Verdier categories, also known as star-autonomous categories, are monoidal categories equipped with a duality structure that generalizes rigid duality. In this talk, I will introduce Grothendieck–Verdier functors between such categories. These functors generalize Frobenius monoidal functors, with Frobenius algebras arising as a special case.

I will then show how categories of modules over Hopf algebroids, as well as categories of bimodules, modules, and local modules over (commutative) algebras inherit Grothendieck–Verdier duality structures via these functors.

If time permits, I will also present coherence theorems for Grothendieck–Verdier functors and categories. These combinatorial results, from joint work with Christian Reiher and Christoph Schweigert, simplify computations and admit a geometric reformulation in terms of directed paths in polytopes.