A 2-categorical approach to building six functor formalisms

Sil Linskens (Uni Regensburg)

The idea of six functors formalisms originates in Grothendieck's work on duality for étale cohomology of schemes. Much more recently, a simple and powerful definition of this structure was given using the theory of higher categories. This has greatly improved our ability to work with such structures. However, it does not simplify our task of constructing six functor formalisms, and in fact apriori it makes it much harder. Nevertheless, work of Liu-Zheng formalized the most important construction principle, which goes back to the original work of Artin, Grothendieck and Verdier on the six functor formalism on étale cohomology. I will explain a new approach to this construction principle which is joint work with Bastiaan Cnossen and Tobias Lenz. To do this we recast the problem as that of computing a certain universal (infinity,2)-category, which we then do by combining methods from parametrized and (infinity,2)-category theory.