The reductive Borel–Serre compactification as a model for the K-theory space

Mikala Ørsnes Jansen

The reductive Borel–Serre compactification, introduced by Zucker in 1982, is a stratified space which is well suited for the study of L^2-cohomology of arithmetic groups and has come to play a central role in the theory of compactifications. We determine its stratified homotopy type (the exit path ∞-category) to be a 1-category defined purely in terms of parabolic subgroups. This category makes sense in a much more general setting, in fact for any exact category, but in this talk we restrict ourselves to well-behaved rings. With direct sum, these naturally give rise to a monoidal category, and we show that (the loop space of the classifying space of) this monoidal category is a model for the K-theory space. For finite fields, we encounter much better homological stability properties than for the general linear groups.
This is joint work with Dustin Clausen.