

## Michael Wemyss: **Aspects of the Homological Minimal Model Program**

I will talk about the homological version of the minimal model program, with applications to VGIT and group actions on derived categories. The story begins with an analogy between flops and cluster theory, and lifts this analogy to a functorial isomorphism between the flop functor and a mutation functor, suitably interpreted. Then, to actually run the program, the key new ingredient is the theory of noncommutative deformations, which at any given stage allows us to detect which curves are floppable in an easy way, in a manner that (as yet) has no counterpart in cluster theory.

The key point is that all this technology allows us to iterate, and hence jump between the minimal models in a canonical way. Tracking all this information back to the original space/algebra has many applications, and I will describe some of these, mainly to VGIT, chamber structures, and autoequivalences.