

Structure and classification of simple amenable C^* -algebras

Stuart White

University of Oxford

`stuart.white@maths.ox.ac.uk`

In this talk I will give an overview of recent progress in the structure theory of simple amenable C^* -algebras and classification results. C^* -algebras are norm closed self-adjoint subalgebras of the bounded operators on a Hilbert space, with examples arising naturally from unitary representations of groups, and topological dynamics. They have a topological flavour, seen through the commutative algebras of continuous functions on locally compact Hausdorff spaces.

The classification of C^* -algebras has its spiritual origins in the powerful structure and classification theorems for von Neumann algebras of Connes in the '70s. However, in the topological setting of C^* -algebras, higher dimensional phenomena can obstruct classification in general. Progress over the last decade has seen the identification of abstract structural conditions which give the maximal family of algebras which can be classified by K -theory and traces. These conditions now have equivalent formulations of very different natures, which can be used to bring naturally occurring examples within the scope of classification.

The talk is based in part on joint works with Castillejos, Carrión, Evington, Gabe, Schafhauser, Tikuisis, and Winter.