Rigidity of C^*-algebras associated to dynamics

Søren Eilers
Introduction to rigidity of C^*-algebras associated to dynamics

I will give a broad and non-technical introduction to the topic of the master class, organised roughly chronologically relatively to the major discoveries which this far has shaped the area.

Xin Li
Continuous orbit equivalence, topological full groups, and geometric group theory

(I) Continuous orbit equivalence – an introduction
Abstract: We introduce various notions of orbit equivalence and give a brief overview of some classification results.

(II) Continuous orbit equivalence – rigidity
Abstract: We discuss rigidity and non-rigidity phenomena for continuous orbit equivalence.

(III) Topological full groups
Abstract: We introduce and study topological full groups, which are interesting invariants for continuous orbit equivalence.

(IV) Continuous orbit equivalence and geometric group theory
Abstract: We give a dynamic characterisation of quasi-isometry using the notion of continuous orbit equivalence, and discuss several consequences.

Toke Meier Carlsen
C^*-rigidity of dynamical systems and groupoids

C^*-rigidity of dynamical systems is the principle that dynamical systems can be recovered, up to a suitable notion of equivalence, from C^*-algebraic data associated to them.

Examples of this principle include characterisations of conjugacy, continuous orbit equivalence, and flow equivalence of topological Markov shifts in terms

of Cuntz–Krieger algebras; and characterisations of flip conjugacy and strong orbit equivalence of Cantor minimal systems in terms of crossed product C^*-algebras. Several of these results can be proved and generalised with the help of groupoids.

In my lectures I will explain how many of the above mentioned results, and also some new results, follows from a theorem about C^*-rigidity of étale groupoids.

(I) In the first lecture I will try to give some motivation for the results I will present by looking at some of the results about C^*-rigidity of dynamical systems mentioned above.

(II) In the second lecture I will give some background about étale groupoids and their C^*-algebras.

(III) In the third lecture I will talk about the above mentioned theorem about C^*-rigidity of étale groupoids.

(IV) Finally, in my fourth lecture I will explained how this result can be used to prove and generalise several of the results about C^*-rigidity of dynamical systems mentioned above.