

Purely infinite orbit-breaking constructions

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Orbit-breaking in topological dynamical systems was introduced by Ian Putnam in his study of the C^* -algebras associated to Cantor minimal systems. By breaking an orbit at a single point, Putnam was able to construct all simple unital AF algebras as subalgebras by way of a Cantor minimal system. Since then, orbit-breaking algebras have been used to construct dynamical models for many stably finite "classifiable" C^* -algebras.

In this talk, I introduce orbit-breaking of a surjective local homeomorphism. The C^* -algebraic output is a simple and purely infinite C^* -algebra embedded in the Cuntz algebra on two generators or its stabilization. We can realise all stable UCT Kirchberg algebras in this way. The construction also provides Cartan subalgebras of arbitrarily high (finite) dimension. Furthermore, if A and B are stable UCT Kirchberg algebras with $K_* (A) = G_*$, $K_* (B) = H_*$, we show that a group homomorphism from G_* to H_* gives rise to an explicit embedding of A into B .

This is joint work with Robin Deeley and Ian Putnam.