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K-theoretic duality for Smale spaces

K-theoretic duality for a pair of C^*-algebras was formulated by Kasparov to generalize the notion of Poincaré duality for topological spaces. When C^*-algebras A and B are dual there are canonical isomorphisms between the K-theory of A and the K-homology of B and between the K-theory of B and the K-homology of A.

Smale spaces will be introduced by example along with their associated C^*-algebras. In particular, we will discuss the stable and unstable Ruelle algebras of a hyperbolic toral automorphism. These algebras will then be shown to satisfy K-theoretic duality by explicitly constructing the duality classes.

This is joint work with Jerry Kaminker and Ian Putnam.