1154-46-1547 **Karen R. Strung***, krstrung@gmail.com, and **Robin J. Deeley** and **Ian F. Putnam**.

Constructions in minimal amenable dynamics and applications to classification of C-algerbas.*

We study the existence of minimal dynamical systems, their orbit and minimal orbit-breaking equivalence relations, and their applications to the classification of C*-algebras. We show that given any finite CW-complex there exists a space with the same K-theory and cohomology that admits a minimal homeomorphism. The proof relies on the existence of homeomorphisms on point-like spaces, together with existence results for skew product systems due to Glasner and Weiss.

To any minimal dynamical system one can also associate minimal equivalence relations by breaking orbits at small subsets. Using the groupoid C*-algebra construction we can associate K-theory groups to minimal dynamical systems and orbit-breaking equivalence relations. We show that given arbitrary countable abelian groups G_0 and G_1 we can find a minimal orbit-breaking relation such that the K-theory of the associated C*-algebra is exactly this pair. These results have important applications to the Elliott classification program for C*-algebras. In particular, we make a step towards determining the range of the Elliott invariant of the C*-algebras associated to minimal dynamical systems with mean dimension zero and their minimal orbit-breaking relations. (Received September 16, 2019)