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Translation flows and operator algebras

There has been a long history of important interactions between dynamical systems and operator algebras. The construction of operator algebras from dynamical systems has provided many enlightening examples. At the same time, operator algebra techniques have brought new ideas to the study of dynamics.

This talk will focus on a construction of certain dynamical systems on surfaces given by K. Lindsey and R. Trevino. Their starting data is a Bratteli diagram, a combinatorial object first used in the 1970's to describe a rich class of C*-algebras. The first goal is to relate these C*-algebras with those of the dynamics on the surface. The more ambitious goal is to exploit this relation to better understand the dynamics. The essence of this relation is the under-appreciated subtleties of decimal expansion (and some of its generalizations). This is joint work, in progress, with Rodrigo Trevino (Maryland).