ROKHLIN DIMENSION FOR GROUP ACTIONS ON C*-ALGEBRAS

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Abstract: The study of C*-dynamical systems (ie. group actions on C*-algebras) and their as sociated crossed products plays an important role in understanding how dynamical properties interact with C*-algebraic structure. A central question in this context is the following:

For a given C*-dynamical system, under what conditions on the action do struc tural properties pass from the C*-algebra to the crossed product?

Gardella, Hirshberg, and Santiago introduced the notion of Rokhlin dimension for compact group actions and showed that several important structural properties pass to crossed products when the action has finite Rokhlin dimension with commuting towers.

In this talk, we begin by recalling the definition of Rokhlin dimension for finite group actions. We then extend the discussion to actions of residually finite groups, in which we give an alternate definition of Rokhlin dimension that more closely parallels with the compact group definition. As an application, we describe the ideal structure of the crossed product, various permanence results, and related consequences.

We conclude with a construction of an action of Z that arises as an approximation by finite group actions and indicate why we expect this action to have higher Rokhlin dimension.