

THE ROKHLIN DIMENSION OF STRONGLY OUTER ACTIONS

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The notion of Rokhlin dimension was introduced by Hirshberg, Winter and Zacharias, as a weakening of the Rokhlin property which is strong enough to obtain satisfactory results about the structure of the crossed product. Actions with finite Rokhlin dimension are very common: for instance, Rokhlin dimension at most one is generic for actions of certain discrete amenable groups on Jiang-Su stable C^* -algebras. Recently, Liao has shown that for nice enough C^* -algebras (unital, separable, simple, with finite nuclear dimension and for which the trace space is a Bauer simplex with finite dimensional extreme boundary), actions of \mathbb{Z}^n which fix all traces have finite Rokhlin dimension if and only if they are strongly outer. In this talk, we will see that a similar result is valid for finite groups, without any assumptions on the induced action on the trace space. More explicitly, for finite group actions on C^* -algebras as above, strong outerness, Rokhlin dimension at most one, and the weak tracial Rokhlin property, are all equivalent. Furthermore, if a given action satisfies these properties, then it absorbs tensorially the identity on the Jiang-Su algebra.

In fact, as we will discuss, the same strategy can be used to extend this result to a large class of discrete amenable group actions whose induced action on the trace space factors through a finite quotient.

This is joint work with Ilan Hirshberg.