

Department of Mathematics, BGU

Operator Algebras and Operator Theory

On Monday, November ,7 2022

At 16:00 – 17:00

In Bldg ,72 Room 110

Ilan Hirshberg (BGU)

will talk about

On the values of Rokhlin dimension for finite group actions

Abstract: Rokhlin dimension is a regularity property for group actions on C^* -algebras. It was originally introduced for actions of the integers and finite groups, and later the definition was extended to other classes of groups. Rokhlin dimension comes in two flavors, commuting and non-commuting towers, which at least for finite group actions, turn out to be different. The main interest in Rokhlin dimension was as a tool to show that various regularity properties of a C^* -algebra pass to the crossed product. For those types of theorems, one only cares about whether this dimension is finite or infinite, and not the actual value. For actions of finite groups on simple C^* -algebras, the only known examples had dimensions 0,1,2 or infinity. Nuclear dimension, a related non-dynamical dimension for C^* -algebras, is known to only admit the values 0,1 or infinity on simple

C^* -algebras, so it might seem plausible that Rokhlin dimension would exhibit similar behavior. In this talk, I'll describe work in preparation which shows that arbitrarily large values can be achieved (though we don't know how to achieve all known examples), as well as finer conclusions which can be deduced from the actual value, as opposed to merely whether the dimension is finite. This shows that the value Rokhlin dimension can in fact be seen as an interesting invariant of the group action. The tools required for proving it involve equivariant K-theory and the Atiyah-Segal completion theorem; I will not assume that the audience is familiar with those.

This is joint work with N. Christopher Phillips.

Please Note the Unusual Place!