**Department of Mathematics** 

University of Houston

## **Analysis Seminar**

## FRIDAY, September 21, 2018

## 13:00-14:00 – Room 646 PGH

**Speaker:** Alex Bearden (University of Texas at Tyler)

**Title:** The Furstenberg-Hamana Boundary of a Unitary Representation

**Abstract:** We introduce and study a generalization of the notion of the Furstenberg boundary of a discrete group  $\Gamma$  to the setting of a general unitary representation  $\pi : \Gamma \to B(H_{\pi})$ . This generalized space, which we call the "Furstenberg-Hamana boundary," is a  $\Gamma$ -invariant subspace of  $B(H_{\pi})$  that carries a canonical  $C^*$ -algebra structure. In many natural cases, the Furstenberg-Hamana boundary of  $\pi$  is commutative, but we show that this is not always the case. We study several examples (including when  $\pi$  is a quasi-regular representation or, more generally, a Koopman representation) and also give a few applications. This is joint work with Mehrdad Kalantar.