

# Probabilistic Operator Algebra Seminar

Organizer: Dan-Virgil Voiculescu

September 23     **Hari Bercovici**, Indiana University, Bloomington

Title: *On the support of free convolutions*

Recent work by Bao-Erdős-Schnelli, Ji, and Moreillon-Schnelli address the question of connectedness or, more generally, the number of connected components, of a free (additive or multiplicative) convolution of probability measures. These results were proved under the assumption that the measures being convolved are absolutely continuous, with a density supported by a finite union of compact intervals. We show that this regularity assumption is not necessary, and the supports of the measures need not be bounded for connectivity (of the support of the convolution) to hold. (Of course, the more refined statements concerning the edge behavior of the convolution do not hold in full generality.) In the talk, I will outline the technical details, some of which are already present in the earlier work, as well as some developments in the use of operator-valued subordination functions that may be helpful in studying free convolutions of measures on the unit circle. This is joint work with Serban Belinschi and Ching-Wei Ho.