

Probabilistic Operator Algebra Seminar

Organizer: Dan-Virgil Voiculescu

September 26 **Srivatsav Kunnawalkam Elayavalli**, IPAM at UCLA

Title: *Small at infinity compactification of a von Neumann algebra.*

We will discuss recent work with C. Ding and J. Peterson where we develop the theory of the small at infinity compactification of a von Neumann algebra. An important feature of this theory is that it can be seen as an application of the theory of operator bimodules to the classification of von Neumann algebras, thereby building on the program initiated by Connes, Haagerup and various other mathematicians in the era of 1970's to 2010's wherein ideas from operator system/space theory such as injectivity and so on were applied to the classification of von Neumann algebras with great success. We use this to define the notion of proper proximality for von Neumann algebras, and find several applications including the solution of a question of Popa asking if $L(G)$ where G is an inner amenable group can embed into $L(\mathbb{F}_2)$; the equivalence between the Haagerup property and the compact approximation property for II_1 factors settling an open problem from 1995; solid ergodicity for Gaussian actions without any mixing assumptions improving on results of Boutonnet, Chifan-Ioana.