

Title: Determining if C^* -algebras are simple

Abstract:

A C^* -algebra is an infinite dimensional analogue of the set of square matrices of a fixed dimension. C^* -algebras were introduced to aid in the study of group representations and then shortly were used to provide a mathematical framework for quantum mechanics. In these studies it is important to determine if two C^* -algebras are isomorphic. This is an intractable question in general but for certain simple C^* -algebras complete classification results are known. However it is often difficult to determine if a C^* -algebra is simple. In recent work with my collaborators Clark, Farthing and Sims, we were able to completely characterize when members of a large class of C^* -algebras are simple. In this talk, I will introduce C^* -algebras through important examples and explain how our result can be applied to some of these examples.