Mathematics seminar

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Ocneanu-type uniqueness for certain group actions on strongly self-absorbing C*-algebras

Thursday 26 January 2017, 14:15-15:15
IMADA seminar room

Abstract

The classification problem for amenable group actions on injective factors emerged as a natural aim after Connes' phenomenal classification results in the 70s, which involved the classification of cyclic group actions on type II-factors. After Jones' breakthrough for finite group actions, it was Ocneanu who settled the type II case for all amenable groups in the 80s, in particular verifying that every amenable group has a unique cocycle conjugacy class for outer actions on the hyperfinite II_1-factor. Viewing strongly self-absorbing C*-algebras as the natural C*-algebraic analogs of the hyperfinite II_1-factor, it is natural to ask whether Ocneanu's result can hold its ground in this setting. That is, for a given amenable group G and a strongly self-absorbing C*-algebra D, is there a unique cocycle conjugacy class for strongly outer G-actions on D? It is by now well-known that such rigid behavior is obstructed by torsion in G, but I will argue why the answer to the aforementioned question could be 'Yes' for torsion-free groups. As of yet, however, this problem remained open even for Z3-actions on the Jiang-Su algebra. I will explain how the theory of strongly self-absorbing actions can be employed to settle this problem in the abelian case, and maybe even far beyond that.

Host: David Kyed