Analysis Seminar

FRIDAY, October 21, 2016

13:00-14:00 – Room 646 PGH

Speaker: Robin Tucker-Drob (Texas A&M University)

Title: Invariant means and the structure of inner amenable groups

Abstract: We study actions of countable discrete groups which are amenable in the sense that there exists a mean on X which is invariant under the action of G. Assuming that G is nonamenable, we obtain structural results for the stabilizer subgroups of amenable actions which allow us to relate the first l^2-Betti number of G with that of the stabilizer subgroups. Moreover, for any marked finitely generated nonamenable group G we establish a uniform isoperimetric threshold for Schreier graphs G/H of G, beyond which the group H is necessarily weakly normal in G. More can be said when G is inner amenable. We show that inner amenable groups have fixed price 1. We establish cocycle superrigidity for the Bernoulli shift of any nonamenable inner amenable group. In addition, we provide a concrete structure theorem for inner amenable linear groups. We also completely characterize linear groups which are stable in the sense of Jones and Schmidt, leading to new examples of stable groups; notably, all nontrivial countable subgroups of the group $H(R)$, studied by Monod, are stable. This includes nonamenable groups constructed by Monod and by Lodha and Moore, as well as Thompson's group F.