SIMION STOILOW INSTITUTE OF MATHEMATICS OF THE ROMANIAN ACADEMY

Monthly conference:

Wreath-like product groups and rigidity of their von Neumann algebras

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IMAR, *Miron Nicolescu* amphitheater

Abstract: In this talk, I will introduce a new class of countable groups, called wreath-like products. These groups arise naturally in the context of group theoretic Dehn filling and are close relatives of the classical (restricted) wreath products. However, unlike ordinary wreath products, many wreath-like products have Kazhdan's property (T). I will present several results showing that wreath-like product groups are remarkably rigid in the von Neumann algebra context. In particular, we obtain the first examples of property (T) groups G which are W*-superrigid, in the sense that the group von Neumann algebra L(G) remembers the isomorphism class of G. We also compute the automorphism and fundamental groups of von Neumann algebras of a wide class of wreath-like products. As an application, we show every finitely presented group can be realised as the outer automorphism group of L(G) for a property (T) group G. These results are part of a joint work with Ionut Chifan, Denis Osin and Bin Sun. Time permitting, I will also discuss a recent joint work with Ionut Chifan and Daniel Drimbe, in which we use wreath-like products to prove that any separable II_1 factor embeds into a II_1 factor with property (T).