Instituto Universitario de Investigación de Matemáticas y Aplicaciones Universidad Zaragoza

Departamento de Matemáticas Universidad Zaragoza

Seminario de Álgebra

Conferencia

por

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"Simple groups separated by homological finiteness properties"

Abstract:
A group is simple if it has no non-trivial quotients. Simple groups have long played a distinguished role in group theory. Recently, the geometry of simple groups and their finiteness properties have received a lot of attention, for instance through their role in the Boone--Higman Conjecture. The homotopical finiteness properties F_n and the homological finiteness properties $FP_n(R)$, where R is a unital abelian ring, generalize finite generation (which is equivalent to both F_1 and $FP_1(R) for any R) and finite presentability (which is equivalent to F_2). Skipper, Witzel and Zaremsky proved that for every $n\geq 0$ there is a simple group of type F_n and not F_{n+1}. This raises the question of how varied the homological finiteness properties of infinitely presented simple groups can be. In this talk, I will explain a construction of examples of simple groups with the same homotopical and homological finiteness properties as Bestvina—Brady groups. In particular, our examples imply the existence of a simple group of type $FP_2(\mathbb{Z})$ which is not finitely presented, answering a question of Zaremsky. This is joint work with Eduard Schesler and Xiaolei Wu.

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