Endomorphisms of $\aleph_n$-free modules over the p-adic integers

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It has been a long tradition in module theory and in particular in Abelian group theory to construct large modules/groups that have a prescribed endomorphism ring. In ordinary set-theory ZFC these constructions mostly used a combinatorial principle due to Saharon Shelah and called *Black-Box*. The resulting modules or groups had additional freeness properties, e.g. in the torsion-free case every countable subset was contained in a free submodule. Whenever a stronger freeness-condition was required replacing countable by larger cardinalities one had to assume additional set-theoretic axioms to carry out the construction. Examples are the diamond principle in Gödel's universe or Martin's axiom.

In this talk we will present a recent result showing the existence of large $\aleph_n$-free J_p-modules with prescribed dual/endomorphism ring in ZFC. Necesaarily these modules have to be very-large to ensure the freeness-property in ZFC. A new combinatorial principle called $\aleph_n$-*free Black Box* is used.

This is joint work with Rüdiger Göbel and Saharon Shelah from [1].

Keywords: abelian groups, endomorphism rings, p-adic integers

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Referencias

[1] R. GÖBEL, S. SHELAH, L. STRÜNGMANN, $\aleph_n$-*free Modules over complete discrete valuation domains with almost trivial dual*. to appear in Forum Mathematicum.

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