FREE GROUPS AND AUTOMORPHISM GROUPS OF INFINITE FIELDS

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We consider the following question: *is there a field K whose automorphism group is a free group of cardinality greater than the cardinality of K?*

Saharon Shelah showed that such a field cannot be countable. In contrast, Wilfried Just, Saharon Shelah and Simon Thomas proved that the existence of such a field is consistent with the axioms of set theory.

In this talk, I want to present a result that shows that the existence of such a field already follows from the axioms of set theory. The methods developed in the proof of this result also allow us to show that the non-existence of such fields at a cardinal of uncountable cofinality yields an inner model containing large cardinals.

The results presented in this talk are joint work with Saharon Shelah.

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