
THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Algebraic Geometry and Representation Theory Seminar

Room 155 ,Ziskind Building
on Tuesday, Jul 03, 2018at 11:15

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Fields with free operators in positive characteristic

Abstract:

Moosa and Scanlon defined a general notion of "fields with operators", that generalizes those of difference and differential fields. In the case of "free" operators in characteristic zero they also analyzed the basic model-theoretic properties of the theory of such fields. In particular, they showed in this case the existence of the model companion, a construction analogous to that of algebraically closed fields for usual fields. In positive characteristic, they provided an example showing that the model companion need not exist.

I will discuss work, joint with Beyarslan, Hoffman and Kowalski, that completes the description of the free case, namely, it provides a full classification of those free operators for which the model companion exists. Though the motivating question is model theoretic, the description and the proof are completely algebraic and geometric. If time permits, I will discuss additional properties, such as quantifier elimination. All notions related to model theory and to fields with operators will be explained (at least heuristically).

SPECIAL NOTE: this will be part of a model theory day. Thus, the talk will be preceded by an introduction to algebraic geometry by the same speaker, 10-10:45 (in Room 1) and followed by a talk by Nick Ramsey " Classification Theory and the Construction of PAC Fields" , 14-16 (in Room 155). See <https://mt972.weebly.com/> for more information