"Small" Groups of Finite Morley Rank

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It has been hoped for the last few years that infinite simple groups of finite Morley rank whose Sylow 2-subgroups are infinite of bounded exponent can be classified using ideas from the classification of finite simple groups. This is a large project mainly carried out by T. Altinel, A. Borovik, and G. Cherlin, with regards to an "ideal" conjecture according to which all such groups should be algebraic groups over algebraically closed fields.

The project has its origin in the *tame* context of groups of finite Morley rank which involve no *bad* groups and no *bad* fields, two pathologies for the ideal conjecture whose existences are not yet known by model-theorists. Nevertheless, it has been shown that this "tameness" assumption can be avoided in a fundamental recognition theorem of $PSL_2(K)$, where K is of characteristic 2, in the context of groups of finite Morley rank and in an inductive setting for the ideal conjecture.

The aim of this talk is to give an overview of these crucial configurations of small simple groups of finite Morley rank which have to be studied, between bad groups and $PSL_2(K)$: the *full Frœbenius* groups (a notion which generalizes the notion of bad group), the lack of involutions and the need of an extension of the Feit-Thompson's theorem, and finally a recognition theorem of $PSL_2(K)$ (where $char(K) \neq 2$) for FT-groups of odd type.

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