

Some Results on Pseudofinite Fields

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Infinite fields that share all the common (first order) properties of finite fields are called pseudofinite fields. Pseudofinite fields exist and they can be realized as ultraproducts of finite fields. We will define geometrically representation of a group \mathbf{G} in a theory \mathbf{T} , then show that in a complete theory \mathbf{T} of pseudofinite fields, geometric representation of a group whose order is divisible by p in \mathbf{T} , heavily depends on the presence of p^n th roots of unity in models of \mathbf{T} . Finally model theoretic consequences of this result will be discussed.

This is joint work with Ehud Hrushovski.