

Algebraic groups: abstract isomorphisms, Diophantine problems, and model theory

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Abstract. In this talk I will mostly focus on three problems: describing abstract automorphisms of a given algebraic group G ; describing which algebraic groups are elementarily equivalent to G ; and describing which abstract groups are elementarily equivalent to G . Recent results on the classical matrix groups, Chevalley groups, and unipotent groups indicate that there are some powerful uniform methods to approach all these problems. These methods are based on the technique of interpretations from model theory. I will also show some applications of these methods to Diophantine problems in algebraic groups.

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