

DISSERTATION
DEFENSE

Linear Preserver Problems and Cohomological Invariants

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Abstract: Let G be a simple linear algebraic group over a field F . In this work we prove several results about G and its representations. In particular we determine the stabilizer of a polynomial f on an irreducible representation V of G for several interesting pairs (V, f) . We also prove that in most cases if f is a polynomial whose stabilizer has identity component G then there is a correspondence between similarity classes of twisted forms of f and twisted forms of G . In a different direction we determine the group of normalized degree 3 cohomological invariants for most G which are neither simply connected nor adjoint.

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