

ON MAXIMAL PROPER SUBGROUPS OF FIELD AUTOMORPHISM GROUPS

M.ROVINSKY

Let G be the automorphism group of an extension F/k of algebraically closed fields of characteristic zero of transcendence degree n , $1 \leq n \leq \infty$. In this paper we

- construct some maximal closed non-open, and some (all, in the case of countable transcendence degree) maximal open subgroups of G ;
- describe, in the case of countable transcendence degree, the automorphism subgroups over the intermediate subfields (a question of W.Krull, *Über eine Verallgemeinerung des Normalkörperbegriffs*, J. Reine Angew. Math. 191, (1953). 54–63);
- construct a subfunctor Γ of the identity functor on the category of smooth representations of G , coincident (via the forgetful functor) with the functor Γ on the category of smooth admissible semi-linear representations of G constructed in M.Rovinsky, *Admissible semi-linear representations*, math.RT/0506043, in the case $n = \infty$ and $k = \overline{\mathbb{Q}}$.