

ON THE FIXED-POINT SET OF AN AUTOMORPHISM OF A GROUP

B. A. F. WEHRFRITZ

Abstract: Let ϕ be an automorphism of a group G . Under various finiteness or solubility hypotheses, for example under polycyclicity, the commutator subgroup $[G, \phi]$ has finite index in G if the fixed-point set $C_G(\phi)$ of ϕ in G is finite, but not conversely, even for polycyclic groups G . Here we consider a stronger, yet natural, notion of what it means for $[G, \phi]$ to have ‘finite index’ in G and show that in many situations, including G polycyclic, it is equivalent to $C_G(\phi)$ being finite.

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