

FINITE GROUPS ADMITTING A FROBENIUS GROUP OF AUTOMORPHISMS WITH FIXED-POINT-FREE KERNEL

E. I. KHUKHRO

Suppose that a finite group G admits a Frobenius group of automorphisms FH with kernel F and complement H such that $C_G(F) = 1$. Then G is soluble by a theorem of V. V. Belyaev and B. Hartley (using CFSG). It is natural to expect many parameters of G to be close to the same parameters of $C_G(H)$ (possibly, depending on $|H|$). I will discuss several recent results in this direction, some obtained jointly with N. Yu. Makarenko and P. Shumyatsky. Results concerning bounding the order, the sectional rank, and the Fitting height of G are based on representation theory. Various Lie ring methods are used for bounding the nilpotency class and the exponent of G . Some further results, examples, and open problems are mentioned.

SOBOLEV INSTITUTE OF MATHEMATICS, NOVOSIBIRSK (RUSSIA)
E-mail address: `khukhro@yahoo.co.uk`