Exponent of a finite group admitting a coprime automorphism

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Abstract. Let G be a finite group admitting a coprime automorphism ϕ of order n. Denote by G_ϕ the centralizer of ϕ in G and by $G_{-\phi}$ the set $\{x^{-1}x^\phi;\ x \in G\}$. In this talk, I will present some results bounding the exponent of G. In particular, I will give an idea of the proof of the following theorem:

Suppose that G_ϕ is nilpotent of class c. If $x^e = 1$ for each $x \in G_{-\phi}$ and any two elements of $G_{-\phi}$ are contained in a ϕ-invariant soluble subgroup of derived length d, then the exponent of $[G, \phi]$ is bounded in terms of c, d, e, n.

This is a joint work with Pavel Shumyatsky.