Title: On a graph of a $p$-solvable normal subgroup

Author(s): Ruifang Chen, Xiuyun Guo and Xianhe Zhao

Let $N$ be a $p$-solvable normal subgroup of a group $G$. In this paper, we prove that $N$ is solvable if $\alpha > \beta > 1$ are the two maximal sizes in $c_{G}(N_{p'})$ such that $(\alpha, \beta) = 1$ and $\beta$ is a $p'$-number dividing $|N/(N \cap Z(G))|$. Moreover, the structure of $N$ is given.

Address:
Ruifang Chen
Department of Mathematics
Shanghai University
Shanghai, 200444
P.R. China

Address:
Xiuyun Guo
Department of Mathematics
Shanghai University
Shanghai, 200444
P.R. China

Address:
Xianhe Zhao
College of Mathematics
and Information Science
Henan Normal University
Xinxiang, Henan, 453007
P.R. China