

Title: On weakly σ -permutable subgroups of finite groups

Author(s): Chi Zhang, Zhenfeng Wu and Wenbin Guo

Let G be a finite group and $\sigma = \{\sigma_i | i \in I\}$ be a partition of the set of all primes $\mathbb{P}$. A set $\mathcal{H}$ of subgroups of G with $1 \in \mathcal{H}$ is said to be a complete Hall σ -set of G if every non-identity member of $\mathcal{H}$ is a Hall σ_i -subgroup of G and $\mathcal{H}$ contains exactly one Hall σ_i -subgroup of G for every $\sigma_i \in \sigma(G)$. A subgroup H of G is said to be σ -permutable if G possesses a complete Hall σ -set $\mathcal{H}$ such that $HA^x = A^xH$ for all $A \in \mathcal{H}$ and all $x \in G$. We say that a subgroup H of G is weakly σ -permutable in G if there exists a σ -subnormal subgroup T of G such that $G = HT$ and $H \cap T \leq H_{\sigma G}$, where $H_{\sigma G}$ is the subgroup of H generated by all those subgroups of H which are σ -permutable in G . By using this new notion, we establish some new criteria for a group G to be a σ -soluble and supersoluble, and also we give the conditions under which a normal subgroup of G is hypercyclically embedded.

Address:

Chi Zhang
School of Mathematical Sciences
University of Science and
Technology of China
230026 Hefei
P. R. China

Address:

Zhenfeng Wu
School of Mathematical Sciences
University of Science and
Technology of China
230026 Hefei
P. R. China

Address:

Wenbin Guo
School of Mathematical Sciences
University of Science and
Technology of China
230026 Hefei
P. R. China