

# Changwen Li

## *On weakly $s$ -permutably embedded subgroups*

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**Abstract:** Suppose  $G$  is a finite group and  $H$  is a subgroup of  $G$ .  $H$  is said to be  $s$ -permutably embedded in  $G$  if for each prime  $p$  dividing  $|H|$ , a Sylow  $p$ -subgroup of  $H$  is also a Sylow  $p$ -subgroup of some  $s$ -permutable subgroup of  $G$ ;  $H$  is called weakly  $s$ -permutably embedded in  $G$  if there are a subnormal subgroup  $T$  of  $G$  and an  $s$ -permutably embedded subgroup  $H_{se}$  of  $G$  contained in  $H$  such that  $G = HT$  and  $H \cap T \leq H_{se}$ . We investigate the influence of weakly  $s$ -permutably embedded subgroups on the  $p$ -nilpotency and  $p$ -supersolvability of finite groups.

**Keywords:** weakly  $s$ -permutably embedded subgroups,  $p$ -nilpotent,  $n$ -maximal subgroup

**AMS Subject Classification:** 20D10, 20D20

### REFERENCES

- [1] Kegel O.H., *Sylow-Gruppen and Subnormalteiler endlicher Gruppen*, Math. Z. **78** (1962), 205–221.
- [2] Ballester-Bolinches A., Pedraza-Aguilera M.C., *Sufficient conditions for supersolvability of finite groups*, J. Pure Appl. Algebra **127** (1998), 113–118.
- [3] Wang Y.,  *$c$ -Normality of groups and its properties*, J. Algebra **180** (1996), 954–965.
- [4] Wang Y., Wei H., Li Y., *A generalization of Kramer's theorem and its application*, Bull. Austral. Math. Soc. **65** (2002), 467–475.
- [5] Skiba A.N., *On weakly  $s$ -permutable subgroups of finite groups*, J. Algebra **315** (2007), 192–209.
- [6] Robinson D.J.S., *A Course in the Theory of Groups*, Springer, New York, 1982.
- [7] Li Y., Qiao S., Wang Y., *On weakly  $s$ -permutably embedded subgroups of finite groups*, Comm. Algebra **37** (2009), 1086–1097.
- [8] Doerk K., Hawkes T., *Finite Soluble Groups*, Walter de Gruyter, Berlin-New York, 1992.
- [9] Li Y., Wang Y., Wei H., *On  $p$ -nilpotency of finite groups with some subgroups  $\pi$ -quasinormally embedded*, Acta. Math. Hungar. **108** (2005), 283–298.
- [10] Asaad M., Heliel A.A., *On  $s$ -quasinormally embedded subgroups of finite groups*, J. Pure Appl. Algebra **165** (2001), 129–135.
- [11] Huppert B., *Endliche Gruppen I*, Springer, Berlin, 1968.
- [12] Guo W., *The Theory of Classes of Groups*, Science Press-Kluwer Academic Publishers, Beijing-Boston, 2000.
- [13] Guo X., Shum K.P., *On  $c$ -normal maximal and minimal subgroups of Sylow  $p$ -subgroups of finite groups*, Arch. Math. **80** (2003), 561–569.
- [14] Ramadan M., Mohamed M.E., Heliel A.A., *On  $c$ -normality of certain subgroups of prime power order of finite groups*, Arch. Math. **85** (2005), 203–210.
- [15] Heliel A.A., Alharbia S.M., *The influence of certain permutable subgroups on the structure of finite groups*, Int. J. Algebra **4** (2010), 1209–1218.
- [16] Wei H., Wang Y., *On  $c^*$ -normality and its properties*, J. Group Theory **10** (2007), 211–223.
- [17] Li S., Li Y., *On  $s$ -quasinormal and  $c$ -normal subgroups of a finite group*, Czechoslovak. Math. J. **58** (2008), 1083–1095.
- [18] Schmidt P., *Subgroups permutable with all Sylow subgroups*, J. Algebra **207** (1998), 285–293.
- [19] Li Y., Qiao S., Wang Y., *A note on a result of Skiba*, Siberian Math. J. **50** (2009), 467–473.
- [20] Miao L., *On weakly  $s$ -permutable subgroups*, Bull. Braz. Math. Soc., New Series **41** (2010), 223–235.