

CONTINUATION OF THE THEORY OF $E_{\mathfrak{F}}$ -GROUPS¹

I. L. Sokhor

MSC: 20D10; 20D35

DOI: 10.21538/0134-4889-2021-27-1-268-272

We describe the structure of finite groups with \mathfrak{F} -subnormal or self-normalizing primary cyclic subgroups when \mathfrak{F} is a subgroup-closed saturated superradical formation containing all nilpotent groups. We prove that groups with absolutely \mathfrak{F} -subnormal or self-normalizing primary cyclic subgroups are soluble when \mathfrak{F} is a subgroup-closed saturated formation containing all nilpotent groups.

Keywords: finite group, primary cyclic subgroup, subnormal subgroup, abnormal subgroup, derived subgroup.

REFERENCES

1. Huppert B. *Endliche Gruppen I*. Berlin: Springer-Verl., 1967, 793 p.
2. Skiba A. N. On some results in the theory of finite partially soluble groups. *Commun. Math. Stat.*, 2016, vol. 4, no. 3, pp. 281–309. doi: 10.1007/s40304-016-0088-z.
3. Monakhov V. S. Finite groups with abnormal and \mathfrak{U} -subnormal subgroups. *Sib. Math. J.*, 2016, vol. 57, no. 2, pp. 352–363. doi: 10.1134/S0037446616020178.
4. Monakhov V. S., Sokhor I. L. Finite groups with formation subnormal primary subgroups. *Sib. Math. J.*, 2017, vol. 58, no. 4, pp. 663–671. doi: 10.1134/S0037446617040127.
5. Ballester-Bolinches A., Ezquerro L. M. *Classes of finite groups*. Dordrecht: Springer-Verl., 2006, 381 p.
6. Vdovin E. P. Carter subgroups of finite groups. *Sib. Adv. Math.*, 2009, vol. 19, no. 1, pp. 24–74. doi: 10.3103/S1055134409010039.
7. Monakhov V. S. Schmidt subgroups, their existence and some applications. *Proceedings of Ukrainian Mathematical Congress–2001*, Inst. Mat. NAN Ukrainy Publ., Kyiv, 2002, pp. 81–90 (in Russian).
8. Semenchuk V. N. Soluble \mathfrak{F} -radical formations. *Math. Notes.*, 1996, vol. 59, no. 2, pp. 261–266 (in Russian).
9. The GAP Group: GAP — Groups, Algorithms, and Programming. Ver. 4.11.0 released on 29 February 2020. Available at: <http://www.gap-system.org>.
10. Vasil'ev A. F., Melchenko A. G. Finite groups with absolutely formationally subnormal Sylow subgroups. *Probl. Fiz. Math. Tekh.*, 2019, no. 4 (41), pp. 44–50 (in Russian).

Received October 19, 2020

Revised January 15, 2021

Accepted January 25, 2021

Irina Leonidovna Sokhor, Can. Phys.-Math. Sci., Doc., Brest State A. S. Pushkin University, 224000 Brest, Belarus, e-mail: irina.sokhor@gmail.com.

Cite this article as: I. L. Sokhor. Continuation of the theory of $E_{\mathfrak{F}}$ -groups, *Trudy Instituta Matematiki i Mekhaniki URO RAN*, 2021, vol. 27, no. 1, pp. 268–272.

¹This paper is based on the results of the 2020 Ural Workshop on Group Theory and Combinatorics.