

# Periodic groups saturated by direct products of Suzuki groups and elementary abelian 2-groups<sup>1</sup>

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Let  $\mathfrak{M}$  be a nonempty set of finite groups. A group  $G$  is *saturated* with groups from  $\mathfrak{M}$ , if every finite subgroup of  $G$  is contained in some subgroup in  $G$ , which is isomorphic to an element of  $\mathfrak{M}$  [3].

A review of the results on the structure of groups saturated by various sets of groups is contained in [1].

In particular, K. Philippov [2] showed, that a periodic group saturated by simple groups of Suzuki, is isomorphic to a simple group of Suzuki over a locally finite field of characteristic 2.

This paper deals with generalizations of this result.

Let  $\mathfrak{M} = \{Sz(2^{2m+1}) \times V_n \mid m = 1, 2, \dots, n = 1, 2, \dots\}$  where  $V_n$  is an elementary abelian 2-group of order  $2^n$ .

**Theorem.** *If  $G$  is a periodic group, saturated by  $\mathfrak{M}$  then  $G \simeq P \times V$  where  $V$  is an elementary abelian 2-group, and  $P \simeq Sz(Q)$  for some locally finite field  $Q$  of characteristic 2. In particular,  $G$  is a locally finite.*

## References

- [1] A.A. Kuznetsov, K.A. Filippov, *Groups saturated by specified set of groups*, Siberian Electronic Mathematical Reports, 8 (2011), 230—246.
- [2] K.A. Filippov, *Groups saturated by finite nonabelian groups and their extensions*: dis. ... cand. Phys. and Math. science. Krasnoyarsk, 2006.
- [3] A.K. Shlepkov, *Conjugate biprimitive finite groups that contain nonsolvable subgroups*, 3rd Internat. Conf. on Algebra, Krasnoyarsk, (1993), 363.

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