

Секция «Математика и механика»

On the lattice of all soluble Fischer classes

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All groups considered are finite and soluble. All unexplained notations and terminology are standard (see [1]).

The symbol \mathfrak{N} denotes the class of all nilpotent groups. Recall that for any class of groups $\mathfrak{F} \supseteq (1)$ an intersection of all such normal subgroups N of a group G that $G/N \in \mathfrak{F}$ is called an \mathfrak{F} -residual of G .

A closure operation on the set of classes of groups is a map c with the properties:

$$c\mathfrak{X} \subseteq c\mathfrak{Y} \text{ if } \mathfrak{X} \subseteq \mathfrak{Y} \text{ and } \mathfrak{X} \subseteq c\mathfrak{X} = c(c\mathfrak{X}).$$

A class of groups \mathfrak{X} is called c -closed if $\mathfrak{X} = c\mathfrak{X}$.

Let \mathfrak{X} be a class of groups. Then

$$N_0\mathfrak{X} = (G \mid \exists N_i \triangleleft\triangleleft G, N_i \in \mathfrak{X} \text{ where } i = 1, \dots, r \text{ and } G = \langle N_1, \dots, N_r \rangle);$$

$$S_F\mathfrak{X} = (G \mid G \leq H \in \mathfrak{X} \text{ and } G^m \triangleleft\triangleleft H).$$

The class of groups $\mathfrak{X} \neq \emptyset$ is called a *Fischer class* if $\mathfrak{X} = S_F\mathfrak{X}$ and $\mathfrak{X} = N_0\mathfrak{X}$.

A lattice L is said to be an *algebraic lattice* if it is a complete lattice and every element of L can be written as a join of compact elements. With respect to inclusion \subseteq the set of all soluble Fischer classes is a complete lattice.

Theorem. *The lattice of all soluble Fischer classes is algebraic.*

Литература

1. Doerk K., Hawkes T. Finite soluble groups – Berlin – New York: Walter de Gruyter, 1992. – 891 p.