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Solvable groups and varieties of l-groups. (Russian, English) Zbl 1101.06011

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Summary: A sufficient condition is given under which factors of a system of normal convex subgroups of a linearly ordered (l.o.) group are abelian. Also, a sufficient condition is specified subject to which factors of a system of normal convex subgroups of an l.o. group are contained in a group variety $\mathcal{V}$. In particular, for every solvable l.o. group G of solvability index n, $n \geq 2$, factors of a system of normal convex subgroups are solvable l.o. groups of solvability index at most $n-1$. It is proved that the variety $\mathcal{R}$ of all lattice-ordered groups, approximable by linearly ordered groups, does not coincide with the variety generated by all solvable l.o. groups. It is shown that if $\mathcal{V}$ is any o-approximable variety of l-groups and if every identity in the group signature is not identically true in $\mathcal{V}$, then $\mathcal{V}$ contains free l.o. groups.

MSC:

06F15 Ordered groups
06F20 Ordered abelian groups, Riesz groups, ordered linear spaces
20F16 Solvable groups, supersolvable groups
20F60 Ordered groups (group-theoretic aspects)
20E10 Quasivarieties and varieties of groups

Keywords:

variety of l-groups; solvable group

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