

Abstract

**Characterisation of Finite Soluble Groups by
Two-Variable Commutator Identities**

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There are different approaches concerning the characterization of soluble groups. Some of them are generic. We use here another approach related to the study of the identities in finite soluble groups.

The solubility is checked by examining a counter-example of least possible order, i.e. we attempt to show that in minimal simple groups there are no such identities. Thus, we solve equations in matrix groups, especially for the series of groups $G = \text{PSL}(2, p)$, involving computer calculations.

The solution of such equations is connected to some well-known problems in finite matrix groups, as for example the Ore conjecture.