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The Burnside Problem on periodic groups for add exponents $n > 100$.

Abstract.

In 1902, W.Burnside formulated the following problem:

Is every group generated by finite number of generators and satisfying an identical relation $x^n = 1$ finite?

Maximal periodic groups $B(r, n)$ with r generators satisfying the identical relation $x^n = 1$ are called *free Burnside groups of exponent n*.

During several decades many mathematicians from different countries studied this problem.

In 1950 W.Magnus formulated a special question on the existence of a maximal finite quotient group of the group $B(r, n)$ for a given pair (r, n). Magnus named this question "*Restricted Burnside Problem*".

A negative solution of the full (nonrestricted) Burnside problem was given in 1968 by P.S. Novikov and S.I. Adian. It was proved that the groups $B(r, n)$ are infinite for any $r > 1$ and odd $n \geq 4381$.

In 1975 the author published a book where he presented an improved and generalized version of Novikov-Adian theory for odd exponents $n \geq 665$ and established some other applications of the method.

In this talk we introduce a new simplified modification of Novikov-Adian theory that allows to give a shorter proof and stronger results for add exponents. The main result is the following new theorem.

Theorem 1 *The free Burnside groups $B(m, n)$ are infinite for any add exponent $n > 100$.*

A detailed survey of investigations on the Burnside Problem and on the Restricted Burnside problem one can find in authors survey paper, published in "Russian Math. Surveys", 65:5 (2010), pp. 805 - 855.