

MSC: 20B07, 20B30, 20B35

DOI: 10.21538/0134-4889-2022-28-2-187-192

ON MIXED NORMAL SUBGROUPS OF THE GROUP $\text{Lim}(\mathbb{N})$

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Let \mathbb{N} be the set of natural numbers. A permutation g of the set \mathbb{N} is called limited if there exists $\alpha \in \mathbb{N}$ such that $|\beta - \beta^g| \leq |\alpha - \alpha^g|$ for every $\beta \in \mathbb{N}$. Denote by $G = \text{Lim}(\mathbb{N})$ the group of all limited permutations of the set \mathbb{N} . In 2010 N. M. Suchkov and N. G. Suchkova proved that $G = AB$, where A and B are locally finite subgroups of G . In 2016 the same authors described the locally finite radical R of the group G . In particular, the following result was proved: if H is a normal subgroup of G , then either $H \leq R$ or H is a mixed subgroup of G . In this paper we study mixed normal subgroups of the group G . It is proved that there exists a continuum set of such subgroups. We give examples of infinitely decreasing and infinitely increasing chains of mixed normal subgroups of G . In 2020 the authors proved similar results for locally finite normal subgroups of G .

Keywords: group, limited permutation, mixed group, normal subgroup, chains of subgroups.

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Received February 23, 2022

Revised March 30, 2022

Accepted April 4, 2022

Funding Agency: The research of the first author on the construction of infinitely decreasing and infinitely increasing chains of mixed normal subgroups of the group $\text{Lim}(\mathbb{N})$ (Theorem 1) was supported by the Russian Science Foundation (project no. 19-71-10017). The research of the second and third authors was supported by the Krasnoyarsk Mathematical Center, which is financed by the Ministry of Science and Higher Education of the Russian Federation (agreement no. 075-02-2022-876).

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Cite this article as: A. I. Sozutov, N. M. Suchkov, N. G. Suchkova. On mixed normal subgroups of group $\text{Lim}(N)$, *Trudy Instituta Matematiki i Mekhaniki UrO RAN*, 2022, vol. 28, no. 2, pp. 187–192.