



## ALGEBRA SESSION

### Self-similarity of finitely-generated torsion-free metabelian groups.

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14h - 14h50

Math Department- Auditorium

#### **Abstract.**

In this presentation, we will discuss results obtained in collaboration with A. C. Dantas, A. A. Berlatto, and S. N. Sidki.

A group  $G$  is self-similar if it acts on a one-rooted  $m$ -regular tree  $\mathcal{T}_m$ , where the states of its elements are elements of  $G$ . Additionally,  $G$  is transitive self-similar if it induces a transitive action on the first level of the tree. If a self-similar group  $G$  does not admit a transitive action, we refer to it as an intransitive self-similar group.

Let  $A$  be a finitely generated abelian group. We demonstrate that the group  $G = A \wr \mathbb{Z}^d$  exhibits an intransitive self-similar action in some tree  $\mathcal{T}_m$ . In particular, the group  $\mathbb{Z}^l \wr \mathbb{Z}^d$  is an intransitive self-similar group.

We establish that any 2-generated torsion-free nilpotent group of class 3 can be faithfully represented as a transitive self-similar group. Moreover, we provide an example of a 4-generated torsion-free nilpotent group of class 3 that does not admit such a representation. This particular example is derived from the work of V. Bludov and B. Gusev, leading us to the conclusion that the minimal class  $c$  for which examples of non-self-similar finitely-generated torsion-free nilpotent groups exist is 3.