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Definable subgroups of nilpotent groups.

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Abstract:

A subgroup H of a group G is called first-order *definable* if there is a first-order formula $\phi(x)$ of the language of groups such that for any $g \in G$ one has

$$g \in H \iff G \models \phi(g).$$

If the formula ϕ contains parameters from G (other than identity 1), then H is called *definable with parameters* if ϕ does not have such parameters, then H is called *absolutely definable* or 0-definable. In the talk we will describe definable subgroups of some abelian and nilpotent groups. In particular, it will be shown that there are finitely generated subgroups that can't be first order definable in almost all nilpotent groups, which implies that such nilpotent groups can't be bi-intepretable with the ring of integers.

The talk is based on a joint work with A. Miasnikov.