On Group Embeddings and their Asymptotic Invariants

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The results of the talk have been obtained jointly with Denis Osin and with Tara Davis.

The balls B_i of radii $i = 1, 2, \ldots$ with respect to a finite set of generators form an ascending filtration of at most exponential growth. We prove that arbitrary symmetric (i.e. invariant under inversion) filtration of at most exponential growth in a group H is equivalent to a filtration $B_1 \cap H \subset B_2 \cap H \subset \ldots$, where B_i-s are the balls in a bigger finitely generated group G. Moreover G inherits some properties of H (e.g., solvability, amenability), which implies the answers to some known questions. Our new results on the most known asymptotic invariants of group embeddings (relative growth, distortion) are also based on the embedding theorem.

References

[1] A. Yu. Olshanskii, D. V. Osin, A quasi-isometric embedding theorem for groups, accepted to "Duke Math. Journal".

[2] T. C. Davis, A. Yu. Olshanskii, Relative subgroup growth and subgroup distortion, http://arxiv.org/abs/1212.5208.