

## Tukia's theorem and boundary theory for solvable groups

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### **Abstract**

We prove a foliated version of Tukia's theorem on uniformly quasiconformal groups for boundaries of certain solvable groups.

We then present two applications of this theorem;

(1) Eskin–Fisher–Whyte recently proved quasi-isometric rigidity for a wide class of polycyclic groups. One of the ingredients in their proof is our version of Tukia's theorem.

(2) Our original motivation for this theorem was the following question; For which locally compact groups can we have our solvable group as a lattice? This question has been studied by Furman in the case of lattices in semisimple lie groups and by Mosher–Sageev–Whyte in the case of free groups.

The talk will focus mostly on describing the geometry of these solvable groups and explaining the statement and proof idea of the theorem and on the proof of the second application.