

**VENTOTENE INTERNATIONAL WORKSHOPS IV
QUASI-ISOMETRIES AND GROUPS: RIGIDITY AND CLASSIFICATION
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QUASI-ISOMETRIC RIGIDITY FOR CERTAIN CLASSES OF SOLVABLE GROUPS

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In this mini-course we will survey results and techniques used to prove quasi-isometric rigidity for various solvable groups. The class of finitely-generated solvable groups is not closed under quasi-isometry and in general few solvable groups are understood up to quasi-isometry. We will focus on subclasses of solvable groups whose coarse geometry is currently tractable. Specifically we will focus on groups that act geometrically on horocyclic products of $CAT(-1)$ spaces. These groups include the solvable Baumslag–Solitar groups, lamplighter groups and various families of lattices in solvable Lie groups. The techniques involved in proving quasi-isometric rigidity involve coarse topology in some cases, coarse differentiation in others, as well as analysis on boundaries of the associated $CAT(-1)$ spaces. By studying all of these groups from one geometric perspective we will try to gain insight into how we can attempt to approach other classes of solvable groups.