

**VENTOTENE INTERNATIONAL WORKSHOPS VI  
GRAZP: GROUPS AND RIGIDITY AROUND THE ZIMMER PROGRAM  
VENTOTENE, 11-16 SEPTEMBER 2023**

ACTIONS OF LATTICES ON GEOMETRIC AND FURSTENBERG BOUNDARIES

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Examples of nice actions of lattices include actions on the geometric boundary of the symmetric space and on the Furstenberg boundary of the Lie group. These boundary manifolds often carry algebraic structures. And the natural actions of lattices come from the restrictions of actions of the ambient Lie groups that give the manifolds acted on homogeneous structures. Thus often, these actions are smooth and exhibit lots of hyperbolicity. The natural question is whether there are other ways that lattices act on those manifolds. This minicourse focuses on the local rigidity aspect of the question. That is whether it is easy to perturb these actions to get completely new actions.

The minicourse consists of two main parts. Part one is an overview about these manifolds and actions as well as results of local rigidity of actions with high regularity or of rank one groups. In part two, we focus on the situation when the actions are of low regularity and are of higher rank groups.