

# The Auslander conjecture for affine and nil-affine crystallographic groups

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A classical crystallographic group is a uniform discrete subgroup of  $\text{Isom}(\mathbb{R}^n)$ . Such groups act properly discontinuously and cocompactly on  $\mathbb{R}^n$ . The structure of such groups is well known by the Bieberbach theorems: they are finitely generated virtually abelian. The structure of affine crystallographic groups is more complicated. In 1964 Auslander conjectured that they are virtually solvable. This is not proved in general until today. There are partial results by Abels, Soifer and Margulis.

We introduce the class of nil-affine crystallographic groups and prove a generalization of Auslander's conjecture in dimension  $1 \leq n \leq 6$ .

[1] Dietrich Burde, Karel Dekimpe, Sandra Deschamps: *The Auslander conjecture for NIL-affine crystallographic groups*, Math. Ann. 332, No. 1, 161-176 (2005).

[2] H. Abels: *Properly discontinuous groups of affine transformations: a survey*, Geom. Dedicata 87 (2001), 309–333.

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