962-20-652 **Karel Dekimpe*** (Karel.Dekimpe@kulak.ac.be), Universitaire Campus, E. Sabbelaan 53, B-8500 Kortrijk, Belgium. *Plane Polynomial Crystallographic Groups.*

We study questions of the following form: Let X be a space and let S be a set of homeomorphisms of X. Problem: What groups act properly discontinuously and cocompactly on X via maps in S? When $X = E$, the Euclidean space in dimension n, and $S = Isom(E)$, the groups obtained are the crystallographic groups. If $S = Aff(E)$, we get the so-called affine crystallographic groups. A intriguing open question in this area is due to Auslander (1964):

Is it true that all affine crystallographic groups are polycyclic-by-finite?

If we enlarge S to the group $P(E)$ of polynomial diffeomorphisms of E, we obtain the so-called polynomial crystallographic groups. We were able to make some progress for the analogue of Auslander's problem. Our main results are:

1. Any polycyclic-by-finite and planar polynomial crystallographic group is of bounded degree.

2. Any planar polynomial crystallographic group of bounded degree is a polycyclic-by-finite group.

This last result gives a positive answer to the problem of Auslander in dimension 2 and for polynomial actions. (Received September 19, 2000)