Aperiodic subshifts on groups

Emmaneul Jeandel

A subshift of finite type (SFT for short) on a finitely group G is the set of all colorings of G satisfying some finite set of local constraints. A central question in symbolic dynamics on groups is to find for which groups there exists aperiodic SFT, i.e. if on which groups there exists local constraints that force all possible colorings that follow the constraints to be not periodic.

It is easy to see that $\mathbb{Z}$ has no aperiodic SFT and the Robinson tiling shows for example that $\mathbb{Z}^2$ has an aperiodic SFT.

In this talk we will first give a survey of the groups for which an aperiodic SFT is known, and then show that having an aperiodic SFT is a geometric property, in the sense that if a group G geometrically contains a finitely presented group with an aperiodic SFT, then it also has an aperiodic SFT. The notion of geometric containment we use for this result is the concept of translation-like actions of Whyte (1999), which is a geometric generalization of subgroup containment.