Subshifts of finite type and quasi-isometries beyond groups

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Résumé

In 1964, R. Berger proved the existence of strongly aperiodic subshifts of finite type (SFT) on ${Z}^2$, and used them to prove the undecidability of the Domino Problem. With the goal of understanding what aspects of ${Z}^2$ account for this result, there has been an effort in recent years to characterize the groups with undecidable Domino Problem, and groups that admit strongly aperiodic SFTs. A key result in this direction is a result by Cohen that states that both the decidability of the Domino Problem and the existence of strongly aperiodic SFTs are quasi-isometry invariants for finitely presented groups. In this talk, I will explain how to generalize this result to new structures called blueprints. I will show how this generalizes results from the literature that use structures other than groups, and use the result to show that the Domino Problem for multidimensional geometric tilings is undecidable. This is joint work with Sebastián Barbieri.

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