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RELATIONS BETWEEN PROXIMALITY, MIXING AND PISOT EXPANSION FACTORS FOR TILING SPACES

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It is well known that the combinatorial properties of tiling spaces are carried by their topology, which is understood through the asymptotic composants. The geometric properties are connected to the dynamics (of translation) of the tiling.

In this talk, we will establish ways in which the dynamics can be linked to the structure of the proximal composants. In particular we will look at certain classes of tilings that are weak mixing, and look at conditions under which they are also topologically mixing. Particularly, we will focus on the interplay between the notions of mixing, the disagreements in proximal pairs, the eigenvalues of certain transition matrices along with the properties of Pisot numbers.

We will end with an open question on interpreting how certain pieces of the cohomology of the tiling space are necessary for topological mixing.

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