Dynamical systems arising from random substitutions and quadratic number field

Abstract:

In the first part of the talk, we consider higher-dimensional random substitutions over a finite set of prototiles, where each prototile is mapped to a finite set of possible configurations over the same set of prototiles. We discuss some dynamical and spectral properties of such systems.
Then, we consider the symbolic dynamical system derived as the closure of power-free points in the ring of integers of a biquadratic number field. Using the underlying divisibility properties of the ring, we compute its symmetry group and extended symmetry group.