Some problems in self-affine tiles

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Abstract

The attractor K of an iterated function system (IFS) on $\mathbb{R}^n$ is in general a fractal set. However under special self-affine IFS, K is a tile, i.e., it has nonvoid interior and tiles $\mathbb{R}^n$ by translation (Thurston, Kenyon, Lagarias and Wang). In this talk we will investigate the condition for K to be a tile and to consider various properties, e.g. connectedness, classification. The investigation depends very much on techniques in analysis and number theory.