

Self-similar Sets: Projections, Sections and Percolation

Kenneth Falconer
The University of St Andrews

Abstract

The relationship between the Hausdorff dimensions of the orthogonal projections and sections of a set E in \mathbb{R}^2 and the dimension of E itself was established by Marstrand 60 years. His results hold for projections in almost all directions. If the set E has more structure, such as being self-similar or resulting from percolation process on a self-similar set, then under certain conditions the conclusion of Marstrand's theorem holds for projections in all, rather than just almost all, directions. The talk will discuss such recent results relating to projections and sections of fractal sets. This is joint work with Xiong Jin.