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On the Hausdorff dimension of self-affine sets and measures

In the last few years considerable attention has been paid for the dimension theory of self-affine sets and measures, furthermore new methods and new techniques appeared in this field. The Furstenberg measure, which is the stationary measure induced by the cocycle of the matrices, plays an important role. We will show that self-affine measures satisfy the Ledrappier-Young formula, and from the dimension of the induced Furstenberg measure we can conclude to the dimension of the self-affine measure. This two facts allows us to give two different, almost every type results on the dimension w.r.t. the matrices.

The talk is based on my joint works with Antti Käenmäki, Henna Koivusalo, Michał Rams and Károly Simon.