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Self-affine systems

The dimension theory of iterated function systems (IFS) is relatively well understood when the maps are conformal transformations and there is separation between the cylinders. However, the situation becomes significantly more difficult if the maps are non-conformal, even when they are affine transformations. This series of lectures is devoted to calculate the Hausdorff dimension of planar self-affine sets under the strong separation of cylinders and strong irreducibility of linear parts. We go through the basic results of Falconer as well as the recent developments. The talks are based on two papers, which are joint with Antti Kaenmaki, and Mike Hochman and Ariel Rapaport.