Abstract

Let b be a positive integer. A Lévy function with parameter s>0 is defined by the series of terms \{b^nx\}/b^{ns}, where \{\cdot\} is the fractional part. We study the level sets consisting of points of given Hölder exponents of a Lévy function and a translated Lévy function. The multivariate multifractal spectrum, i.e., the function for each couple of levels associated the Hausdorff dimension of the above level set, is determined. The proofs are based on the studies of Diophantine approximation of b-adic rational numbers. This is a joint work with Stéphane Jaffard and Qian Zhang.