Title: Multifractal structure of Bernoulli convolutions

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Abstract

(Biased) Bernoulli convolutions (BCs) are perhaps the simplest, most important and most studied family of self-similar measures on the line. It is well known that in some parameter ranges they are typically absolutely continuous, and in other ranges they are always singular.

We investigate the multifractal structure of BCs, and in particular partially verify the multifractal formalism for typical parameter values in the so-called "transversality region". Here "typical" means for almost all contraction ratios; our exceptional set is independent of the bias parameter and the value of the local dimension, and we are able to handle some range of local dimensions strictly larger than 1, unlike other recent related results. An interesting consequence of the results is that absolute continuity may coexist with a rich and regular multifractal structure.

This is joint work with T. Jordan and B. Solomyak.