

Title: Dimension and measure for typical random fractals

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Abstract

We will introduce and discuss a standard method for constructing random fractals via iterated function systems. Much work has been done on computing the ‘almost sure’ dimensions of such random fractals, where ‘almost sure’ refers to some probability measure defined on the sample space. In this talk we will consider an alternative approach to studying the ‘expected properties’ of random fractals which will be based on Baire category. We compute the typical dimensions (in the sense of Baire) and observe that our results are in stark contrast to those obtained using the probabilistic approach. Furthermore, we examine the typical Hausdorff and packing measures of the random fractals and give examples to illustrate some of the strange phenomena that can occur. The only restriction we impose on the maps is that they are bi-Lipschitz and we obtain our dimension results without assuming any separation conditions.