Abstract Submitted
for the TSF13 Meeting of
The American Physical Society

Numerical Methods for Multifractal Analysis YUI SHIOZAWA, BRUCE MILLER, Texas Christian University, JEAN-LOUIS ROUET, Institut des Sciences de la Terre d'Orléans — The discovery of a rather strange type of set, called fractal, led to the extension of the notion of dimension. Fractals play an important role in everything from medical imaging to cosmology. Fractals sets are characterized by self-similarity, and power laws can be associated with them. For a monofractal, the scaling pattern is homogeneous everywhere while it varies over the set for multfractals. By introducing the generalized dimension D_q, a spectrum of dimensions can be assigned to the set if it is a multifractal. In finding the generalized dimensions, the box-counting method has been by far the most popular choice among researchers across various fields. However, it is known that the class of methods which deal with partitions of equal size is ill-suited for computing the generalized dimensions on some domain of q. Two promising methods which utilize partitions of equal mass and distributed mass, rather than equal size, were investigated. Here we will report the results of our investigation.

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Date submitted: 12 Sep 2013 Electronic form version 1.4