

”Random Sierpinski gaskets. Geometric, analytic and stochastic properties”

Abstract: Self similar fractals are often used in modeling porous media. Hence, defining a Laplacian and a Brownian motion on such sets describes transport through such materials. However, the assumption of strict self similarity could be too restricting. So, we present several models of random fractals which could be used instead. After recalling the classical approaches of random homogenous and recursive random fractals, we show how to interpolate between these two model classes with the help of so called V-variable fractals. This concept (developed by Barnsley, Hutchinson & Stenflo) allows the definition of new families of random fractals, hereby the parameter V describes the degree of ‘variability’ of the realizations. We discuss how the degree of variability influences the geometric, analytic and stochastic properties of these sets. - These results have been obtained with Ben Hambly (University of Oxford) and John Hutchinson (ANU Canberra).