

V-variable fractals: A new approach and their spectral analysis

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It is natural to think of fractal sets as constructed in a sequence of steps corresponding to increasingly fine resolution.

Random fractals correspond to a random such construction. A physical motivation for fractals is their use in modelling disordered media.

The class of V-variable fractals (V a natural number) interpolate between homogeneous (Hambly, Stenflo) and recursive (Falconer, Graf, Mauldin and Williams) fractals. Such fractals may be either deterministic or random. Much work has been done concerning the geometry and analysis of both deterministic fractals (Kigami, Barlow, Lapidus and many others) and random fractals (Hambly and then many others). I will discuss a new approach to V-variable fractals via "types" and then some work in progress with Freiberg and Hambly on analysis, and in particular spectral asymptotics, for V-variable fractals.