

**DIFFUSION ON THE SCALING LIMITS OF CRITICAL
PERCOLATION CLUSTERS IN THE DIAMOND
HIERARCHICAL LATTICE**

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We construct critical percolation clusters on the diamond hierarchical lattice and show that the scaling limit is a graph directed random recursive fractal. A Dirichlet form can be constructed on the limit set and we consider the properties of the associated Laplace operator and diffusion process. In particular we contrast and compare the behaviour of the high frequency asymptotics of the spectrum and the short time behaviour of the heat kernel for the percolation clusters and for the underlying lattice. This is a joint work with B. M. Hambly (Oxford).