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Ulysses A Andrews* (ulysses.andrews@uconn.edu). *The existence and uniqueness of diffusions on infinitely ramified $4N$ gaskets.*

Following the methods used by Barlow and Bass to prove the existence of a diffusion on the Sierpinski Carpet we establish the existence of a diffusion for a class of planar fractals which are not post critically finite. As a corollary, we establish the existence of a diffusion on the Octagasket, thus answering a question posed by Strichartz. By following the Barlow-Bass proof of a uniform elliptic Harnack inequality we can give heat kernel asymptotics and resistance estimates for the above class of fractals. This allows us to use the techniques of Barlow, Bass, Kumagai, and Teplyaev to establish the uniqueness of the diffusion. (Received January 31, 2016)