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Michel L. Lapidus* (lapidus@math.ucr.edu), University of California, Department of Mathematics, Riverside, CA 92521-0135, and **Jonathan J. Sarhad**. *Noncommutative Geometry, Analysis on Fractals, Dirac Operators and Geodesic Metric on Fractal Manifolds*.

We construct Dirac operators and spectral triples for certain, not necessarily self-similar fractal sets built on curves. Connes' distance formula in noncommutative geometry provides a natural metric on the fractal. As an important motivating example, we consider the harmonic Sierpinski gasket, which represents the ordinary (Euclidean) gasket from the analytical point of view. We prove that the noncommutative metric coincides with the natural geodesic metric on the harmonic gasket (recently studied by J. Kigami). The present work extends to the non-Euclidean (and analytically relevant) setting some of the main results of the paper by E. Christensen, C. Ivan and M.L. Lapidus (*Adv. in Math.* No. 1, 217 (2008, pp.42-78)). Our current, broader framework allows for several further potential applications to geometric analysis on fractal manifolds. (Received February 08, 2013)