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Spectral triples and fractal geometry.

There is a long tradition in mathematics of using algebraic tools to study the geometry of a space. The duality between the category of compact Hausdorff spaces and the category of commutative unital C^* -algebras means that one can study a topological space X by studying the algebra of continuous functions on X . Dropping the commutativity requirement leads to the study of noncommutative C^* -algebras and hence noncommutative spaces. The field of noncommutative fractal geometry uses operator algebraic tools to study geometry and analysis on fractal sets. We will see how one can use the spectral triples of noncommutative geometry to formulate notions of dimension, metric, and measure on fractal spaces. (Received September 09, 2017)