1113-51-50 **Jean V Bellissard*** (jeanbel@math.gatech.edu), Georgia Tech, School of Mathematics, 686 Cherry Street, Atlanta, GA 30332-0160. *Non-commutative Geometry on Fractals.*

The main tool describing the geometry of compact metric spaces is the concept of "spectral triple" proposed by Connes in the late eighties. Given a compact metric space, the construction of a spectral triple, made by Ian Palmer, will be presented. It will be shown that metric invariants like the Hausdorff dimension or the corresponding Hausdorff measure, can be recovered from this algebraic point of view. If time allows, the question of constructing the analog of a Laplace-Beltrami operator will be addressed. In particular the construction of the Pearson Laplacian will be described. In addition, using the case of the Sierpinski gasket as a model, the problem of defining a local gradient exponent will be described. (Received August 04, 2015)