1072-46-254 **Fabio E.G. Cipriani*** (fabio.cipriani@polimi.it), Piazza Leonardo da Vinci 32, 20133 Milano, Italy. *Spectral Triples on the Sierpinski gasket.*

The aim of the seminar is to reports on collaborations with D. Guido, T. Isola (Roma - University Tor Vergata)and J.L. Sauvageot (University Paris VII) show how to construct Dirac operators D and Spectral Triples $(\mathcal{F}, D, H)$, in the sense on A. Connes, on the Sierpinski gasket K, starting from the canonical Dirichlet form $(\mathcal{E}, \mathcal{F})$ on it. We determine the whole dimensional spectrum showing also that the Hausdorff measure of K can be obtained as a residue at a pole $d_D < 2$ of the analytic continuation of the volume-zeta functional of D. We also introduce a natural energy-zeta functional associated with D from which the Dirichlet form can be obtained as a residue at a pole $\delta_D < 2$. We finally study the Connes metric proving that the induced metric on K is bi-Lipshiz with respect to the Euclidean geodesic metric of K. As a last result we prove that the Fredholm module associated with D couples nontrivially with all generators of the K_1-theory group of the gasket. (Received June 29, 2011)