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Kasso A Okoudjou* (kasso@math.umd.edu), Department of Mathematics, University of Maryland, College Park, MD 20742, and **Laurent Saloff-Coste** and **Alexander Teplyaev**.

Uncertainty principle for fractals, graphs and metric measure spaces. Preliminary report.

We formulate and prove a weak uncertainty principle for functions defined on fractals, graphs and more generally on metric measure spaces. In particular, this uncertainty inequality is proved under different assumptions such as an appropriate measure growth condition with respect to a specific metric, or, in the absence of such a metric, we assume the Poincaré inequality and reverse volume doubling property. We also consider the weak uncertainty inequality in the context of Nash-type inequalities. (Received September 25, 2006)