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**Robert S Strichartz.** *Numerical integration for fractal measures.* Preliminary report.

We find estimates for the error in replacing an integral  $\int f d\mu$  with respect to a fractal measure  $\mu$  with a discrete sum  $\sum_{x \in E} w(x)f(x)$  over a given sample set  $E$  with weights  $w$ . Our model is the classical Koksma-Hlawka theorem for integrals over rectangles, where the error is estimated by a product of a *discrepancy* that depends only on the geometry of the sample set and weights, and *variance* that depends only on the smoothness of  $f$ . We deal with self-similar measures on p.c.f. self-similar fractals on which Kigami has constructed notions of *energy* and *Laplacian* ( $\Delta$ ). We develop generic results where we take the variance to be either the energy of  $f$  or the  $L^1$  norm of  $\Delta f$ , and we show how to find the corresponding discrepancies for each variance. We work out the details for a number of interesting examples of sample sets for the Sierpinski gasket. (Received January 29, 2016)