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Alexander Teplyaev* (teplyaev@math.uconn.edu), Department of Mathematics, University of Connecticut, Storrs, CT 06269-3009. *Uniqueness of locally invariant Laplacian, Dirichlet form and Brownian motion on Sierpinski carpets.*

We prove that, up to scalar multiples, there exists only one Dirichlet form on a generalized Sierpinski carpet that is invariant with respect to the local symmetries of the carpet. Consequently for each such fractal the law of Brownian motion is uniquely determined and the notion of Laplacian is well defined.

This is a joint work with M. T. Barlow, R. F. Bass, T. Kumagai. (Received March 02, 2009)