1021-28-204 **Michael Jeremy Barany*** (mjb245@cornell.edu), Department of Mathematics, 310 Malott Hall, Cornell University, Ithaca, NY 14853-4201, and **Luke Rogers**. *Dirichlet Forms on Higher-Dimensional Analogues of the Sierpinski Gasket.*

Much of the theory of analysis on fractals is built from an understanding of Dirichlet Energy forms, and both existence and uniqueness results are known in many interesting cases. Using recent results on such forms for post-critically finite iterated function systems, we develop a program for constructively proving the existence of Dirichlet forms on Sierpinski-type fractals with countably many boundary vertices. As part of this program, we provide a method of producing a Dirichlet form on a Sierpinski-type fractal on n+1 boundary vertices as a perturbation of an n vertex fractal, and give numerical evidence that this method can be extended to produce non-degerate Dirichlet forms on such fractals with countably large boundaries. (Received September 05, 2006)