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Robert G Niemeyer* (niemeyer@math.unm.edu), Department of Mathematics & Statistics, MSC01 1115, 1 University of New Mexico, Albuquerque, NM 87131, **Michel L Lapidus** (lapidus@math.ucr.edu), 900 University Ave., Surge Bldg., Department of Mathematics, Riverside, CA 92512, **Joe P. Chen** (joe.p.chen@cornell.edu), Cornell University, 310 Malott Hall, Department of Mathematics, Ithaca, NY 14853, and **Robyn L Miller** (rmiller@math.cornell.edu), Cornell University, 310 Malott Hall, Department of Mathematics, Ithaca, NY 14853. *Recurrent orbits and nontrivial paths in particular fractal billiard tables.*

In this talk, we will present examples of sequences of compatible periodic orbits of prefractal billiard tables. In particular, we will demonstrate the existence of such sequences for the Koch snowflake fractal billiard table, a self-similar Sierpinski carpet billiard table and the T-fractal billiard table. In each case, we will see that certain sequences of compatible periodic orbits exhibit interesting dynamical behavior and, in some cases, converge to recurrent (periodic) orbits. We will close by providing possible approaches to determining a wider class of recurrent orbits in each fractal billiard table. The material presented will be summarizing separate joint projects with M. L. Lapidus, J. P. Chen and R. L. Miller. (Received February 07, 2013)