

1096-37-292

**Michel L. Lapidus** ([lapidus@math.ucr.edu](mailto:lapidus@math.ucr.edu)), 900 University Ave, Surge Building, Department of Mathematics, Riverside, CA 92521, **Robyn L. Miller** ([r1m35@cornell.edu](mailto:r1m35@cornell.edu)), Department of Mathematics, 310 Malott Hall, Cornell University, Ithaca, NY 14853, and **Robert G. Niemeyer\*** ([niemeyer@math.unm.edu](mailto:niemeyer@math.unm.edu)), Science and Math Learning Center 332, 311 Terrace NE, MSC01 1115, Albuquerque, NM 87131. *Billiard dynamics on the  $T$ -fractal billiard table.*

Substantial progress has been made in determining periodic orbits of the  $T$ -fractal billiard table. We detail some of the recent results concerning periodic orbits, determined in collaboration with M. L. Lapidus and R. L. Miller. Less has been done to determine what may constitute a dense orbit of the  $T$ -fractal billiard. We provide substantial experimental and theoretical evidence in support of the existence of an orbit that is dense in the  $T$ -fractal billiard table but is not a space-filling curve. We briefly touch on a long-term goal of determining a topological dichotomy for the flow on the  $T$ -fractal billiard table, namely that, in a fixed direction, the flow is either closed or minimal. (Received August 27, 2013)