

1154-37-2767

Christopher L Cox*, Clcox@tarleton.edu. *Mass distribution and persistent periodicity in no-slip billiards.*

No-slip billiards use a physically motivated collision model in which linear and angular momentum may be exchanged at boundary collisions. Particles of uniform mass distribution in a triangular billiard have been shown to exhibit persistent periodicity, with any set of initial conditions yielding periodic orbits of period six or eight. We present many new examples of persistently periodic billiards, and examples that suggest persistent periodicity becomes more prevalent for billiards with particles having certain decentralized mass distributions. (Received September 17, 2019)