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Jingyu Chen, Luke Mohr, Hong-Kun Zhang and Pengfei Zhang*

(pzhang@math.umass.edu). *A new family of convex billiard tables with ergodicity.*

We investigate numerically a new family of convex tables $Q(r,R,d)$, obtained by intersecting two circles. It is shown that the billiard map is ergodic if the distance d between two centers takes an intermediate value. Moreover phase transitions are observed with extremal distances. (Received December 01, 2012)