

LOCALLY LINEARIZABLE BILLIARD MAPS

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We study symmetric billiard tables for which the billiard map is locally (near an elliptic periodic orbit of period 2) conjugated to a rigid rotation. We obtain an equation (the conjugacy equation) for such tables, prove that if α , the rotation angle, is rationally incommensurable with π , the conjugacy equation has a solution in the category of formal series. We present numerical evidences that for “good” rotation angles the series have positive radii of convergence. The conjecture on local convergence of these series still remains open.