ROTATION SET AND ENTROPY

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In 1991 Llibre and MacKay proved that if f is a 2-torus homeomorphism isotopic to identity and the rotation set of f has non empty interior then f has positive topological entropy. Here, we give a converselike theorem. We show that the interior of the rotation set of a $C^{1+\alpha}$ 2-torus diffeomorphism isotopic to identity of positive topological entropy is not empty, under additional hypotheses. We also give examples that show that these additional hypothesis are necessary.