

**Nogueira, A.; Rudolph, D.**

**Topological weak-mixing of interval exchange maps.** (English) Zbl 0958.37010  
Ergodic Theory Dyn. Syst. 17, No. 5, 1183-1209 (1997).

Summary: An interval map with only one discontinuity is isomorphic to a rotation of the circle, and has continuous eigenfunctions. We show here that for almost every choice of lengths of the intervals, this is the only way an irreducible interval exchange can have a somewhere continuous eigenfunction. We show slightly more, considering certain towers over the interval exchange, showing that outside of a set of choices for interval lengths of measure zero these have a somewhere continuous eigenfunction only if they are isomorphic to either a rotation, or a tower of constant height over an interval exchange.

**MSC:**

- [37E05](#) Dynamical systems involving maps of the interval (piecewise continuous, continuous, smooth)
- [37A30](#) Ergodic theorems, spectral theory, Markov operators
- [54H20](#) Topological dynamics (MSC2010)

Cited in <b>1</b> Review Cited in <b>17</b> Documents
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**Keywords:**

[interval map](#); [irreducible interval exchange](#); [somewhere continuous eigenfunction](#)

**Full Text:** [DOI](#)