Iwanik, Anzelm

Period structure for pointwise periodic isometries of continua. (English) Zbl 0674.54020

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An isometry T of a compact metric space X is said to be pointwise periodic if for every $x \in X$ there exists $n \in N$ such that $T^n x = x$. A subset S of N is said to be (a) finitely based if it has finitely many minimal elements when partially ordered by the divisibility relation $m|n$; (b) connected if it forms a connected subgraph of the graph of the partially ordered set (N,|). Let S(X,T) stand for the set of all minimal periods of points of X. The following result is shown. If $\emptyset \neq S \subset N$ is finitely based and connected, then there exists a continuum X and a pointwise periodic isometry T such that $S = S(X,T)$. Conversely, if T is a pointwise periodic isometry of a continuum X then S(X,T) is finitely based and connected.

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MSC:

54E40 Special maps on metric spaces
54C10 Special maps on topological spaces (open, closed, perfect, etc.)
54F15 Continua and generalizations

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finitely based isometry; pointwise periodic isometry

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