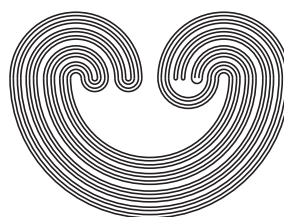


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by

EVGENII REZNICHENKO AND OL'GA SIPACHEVA

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FIXED POINTS OF HOMEOMORPHISMS AND BASICALLY DISCONNECTED GROUPS

EVGENII REZNICHENKO AND OL'GA SIPACHEVA

ABSTRACT. It is proved that if X is a Tychonoff space with $\dim_0 X < \infty$, $h: X \rightarrow X$ is a fixed-point-free homeomorphism, and there exists a coarser paracompact topology on X with respect to which h remains a homeomorphism, then the extension βh of h to βX is fixed-point-free. Consequences for topological groups are derived. In particular, it is proved that any finite-dimensional F -group of countable pseudocharacter contains an open Boolean subgroup and that the existence of an ω -representable basically disconnected group not being a P -space is equivalent to the existence of a nondiscrete Boolean basically disconnected group of countable pseudocharacter.

1. INTRODUCTION

In [1] van Douwen proved that if X is a paracompact Tychonoff space with $\dim X < \infty$ and $h: X \rightarrow X$ is a fixed-point-free homeomorphism, then the extension βh of h to βX is fixed-point-free as well. He also gave an example of a locally compact metrizable space X (with $\dim X = \infty$) and a fixed-point-free involution $h: X \rightarrow X$ such that βh has fixed points. In this paper we extend van Douwen's theorem to the case of an arbitrary topological space X with $\dim_0 X < \infty$ and a fixed-point-free autohomeomorphism of X which is a homeomorphism with respect to a coarser paracompact topology on X and derive some consequences for basically disconnected groups.

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Key words and phrases. Fixed-point-free autohomeomorphism, basically disconnected group, F -group, P -space.

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