

TOPOLOGICAL STABILITY AND SHADOWING OF DYNAMICAL SYSTEMS FROM MEASURE THEORETICAL VIEWPOINT

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ABSTRACT. In this paper it is proved that a topologically stable invariant measure has no sinks or sources in its support; an expansive homeomorphism is topologically stable if it exhibits a topologically stable nonatomic Borel support measure and a continuous map has the shadowing property if there exists an invariant measure with the shadowing property such that each almost periodic point is contained in the support of the invariant measure.

1. Introduction

Expansiveness and shadowing property are important dynamical properties of a homeomorphism of a compact metric space. Walters [9] proved that every expansive homeomorphism with the shadowing property of a compact metric space is topologically stable. Recently, Lee and Morales [4] introduced the notions of topological stability and shadowing property for a Borel measure and proved the “measure” version of Walters’ result, that is, every expansive measure with the shadowing property is topologically stable. Furthermore, they obtained many interesting properties about topologically stable measures. For instance,

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