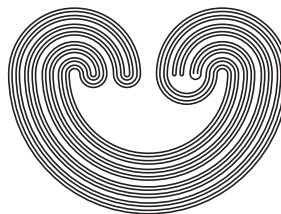

TOPOLOGY PROCEEDINGS

Volume 60, 2022

Pages 169–167



SEQUENTIAL SHADOWING IMPLIES SPECTRAL DECOMPOSITION

by

ABDUL GAFFAR KHAN, PRAMOD KUMAR DAS, AND TARUN DAS

Electronically published on April 25, 2022

This file contains only the first page of the paper. The full version of the paper is available to Topology Proceedings subscribers. See <http://topology.nipissingu.ca/tp/subscriptioninfo.html> for information.

Topology Proceedings

Web: <http://topology.nipissingu.ca/tp/>

Mail: Topology Proceedings

Department of Mathematics & Statistics

Auburn University, Alabama 36849, USA

E-mail: topolog@auburn.edu

ISSN: (Online) 2331-1290, (Print) 0146-4124

COPYRIGHT © by Topology Proceedings. All rights reserved.



SEQUENTIAL SHADOWING IMPLIES SPECTRAL DECOMPOSITION

ABDUL GAFFAR KHAN, PRAMOD KUMAR DAS, AND TARUN DAS

ABSTRACT. We study chain recurrence for finitely generated group actions on metric spaces under the presence of the shadowing property. We introduce the sequential shadowing property for such actions and prove that this property implies the spectral decomposition property if the phase space is compact.

1. INTRODUCTION

The purpose of this paper is to study the spectral decomposition property of finitely generated group actions. This property was first proved by S. Smale [9] for Anosov diffeomorphisms and the result is popularly known as the spectral decomposition theorem. It states that the non-wandering set of Anosov diffeomorphisms can be decomposed into a union of finitely many disjoint closed invariant sets on each of which the diffeomorphism is transitive. The fact that Anosov diffeomorphisms are expansive [7, p. 108] and possess the shadowing property [3, p. 74] inspired Nobuo Aoki [1] to extend the spectral decomposition theorem to expansive homeomorphisms with the shadowing property on compact metric spaces. The shadowing property and the concept of expansivity are two of the most influential concepts in the development of topological dynamics. Most of

2020 *Mathematics Subject Classification.* Primary 37B05, 37C50.

Key words and phrases. chain recurrence, expansivity, non-wandering set, shadowing.

The first author is supported by CSIR-Senior Research Fellowship (File No.-09/045(1558)/2018-EMR-I) of Government of India.

©2022 Topology Proceedings.

This file contains only the first page of the paper. The full version of the paper is available to Topology Proceedings subscribers.
See <http://topology.nipissingu.ca/tp/subscriptioninfo.html> for information.