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FLEXIBILITY OF GENERALIZED ENTROPY FOR WANDERING DYNAMICS

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Abstract. We show a flexibility result in the context of generalized entropy. The space of dynamical systems we work with are homeomorphisms on the sphere, whose non-wandering set consists of only one fixed point.

1. Introduction

The problem measuring of the complexity of a map in terms of its orbits is important in the theory of dynamical systems. The topological entropy of a system studies the exponential growth rate at which orbits are separated, and it has become a crucial tool for classifying highly chaotic dynamical systems. However, there are many interesting families of dynamical systems, where every system has a vanishing entropy, and therefore, another object is needed. The object that studies the polynomial growth rate is called polynomial entropy, and this was introduced by J.P. Marco in [8]. Interestingly enough, ten years before, S. Galatolo introduced in [4] a generalization of topological entropy that extends classical and polynomial entropy for one-parameter families of orders of growth. This concept is a translation of A. Katok and J.P. Thouvenot's notion of slow entropy defined in [7]. For a more detailed exposition on the works related to the previous quantities, check [6], [2] and [3]. In this article, we are going to work with the notion of generalized entropy introduced by the first author and

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