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$\mathcal{F}$ Mixing and $\mathcal{F}$ Scattering

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Abstract: In this paper, we study the complexity of group actions from the viewpoint of Furstenberg families, we characterize the $\mathcal{F}$ uniform rigidity and $\mathcal{F}$ equicontinuity using topological sequence complexity function, and we establish the connection between $\mathcal{F}$ mixing and $\mathcal{F}$ scattering.

Keywords: *$\mathcal{F}$ uniform rigidity; $\mathcal{F}$ mixing; $\mathcal{F}$ scattering.*

Mathematics Subject Classification (2010): 37B05, 54H20.

1 Introduction

Blanchard, Host and Maass used open covers to define a complexity function for a continuous map on a compact metric space, and discussed the equicontinuity and scattering properties. Subsequently, Yang discussed the relations of $\mathcal{F}$ mixing and $\mathcal{F}$ scattering of a continuous map(see [1–3]). We study the complexity of group actions from the viewpoint of Furstenberg families. The results are as follows: we characterize the $\mathcal{F}$ uniform rigidity and $\mathcal{F}$ equicontinuity using topological sequence complexity function, and we establish the connection between $\mathcal{F}$ mixing and $\mathcal{F}$ scattering.

Suppose (X, T) is a semi-dynamical system, where X is a compact metric space, T is a topological semigroup and contains the unit element.

• Suppose X is a topological space, T is a topological semigroup, if a map

$$\pi : X \times T \to X$$

satisfies

$$\pi(\pi(x,t), s) = \pi(x, ts), \forall x \in X,\ \forall t, s \in T,$$

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