

ERGODIC THEORY OF LINEAR DYNAMICAL SYSTEMS

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Abstract

A linear dynamical system is given by a pair (X, T) , where X is a separable Banach space and T is a bounded linear operator on X . If m is a Borel probability measure on X which is invariant under the action of T , then (X, T, m) becomes a probability-preserving system, which is worth studying from the ergodic-theoretic point of view: for instance, what can be said about the long-time behaviour of m -almost every orbit under the action of T ?

My talk will be an introduction to this topic. I will in particular explore the connection with the notion of frequent and U -frequent hypercyclicity: the operator T is said to be frequently hypercyclic (resp. U -frequently hypercyclic) if it admits a vector x whose orbit under the action of T visits any non-empty open subset of X on a set of integers with positive lower (resp. upper) density.