



istanbul matematiksel bilimler merkezi
istanbul center for mathematical sciences

İSTANBUL ANALYSIS SEMINARS

HYPERCYCLIC SETS

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Abstract

A bounded linear operator T on a Banach or Fréchet space X is said to be hypercyclic if there exists a vector x in X whose orbit $\text{Orb}(x, T) := \{T^n x, n \geq 0\}$ under T is dense in X . Two classical results show that the definition of a hypercyclic operator can be somehow weakened: 1) If the union $\bigcup_{i=1}^l \text{Orb}(x_i, T)$ of finitely many orbits is dense in X , then one of these orbits also [Costakis/Peris, 2000/2001, independently]; 2) If the set

$$\text{Orb}(\mathbb{T}x, T) := \{\lambda T^n x, n \geq 0, |\lambda| = 1\}$$

is dense in X , then $\text{Orb}(x, T)$ also [Léon-Müller, 2004]. In this talk we will be interested in extensions of these results and we will discuss the following general question: which sets have the property that the density of their orbit under some operator T automatically implies the hypercyclicity of T ? This is a joint work with R. Ernst, which is the continuation of a previous work with R. Ernst and Q. Menet.

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Time: 15:40

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