



Some ingredients of linear chaos

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IMAC, Universitat Jaume I de Castelló, Spain.

Alfred Peris

Universitat Politècnica de València

During the last years the study of hypercyclic and chaotic linear dynamics has experimented a great development. Many landmark problems have been solved and some new notions related to hypercyclicity have been introduced. Let us recall that a continuous linear operator $T: X \rightarrow X$ on a Banach (or Fréchet) space X is hypercyclic if it admits a vector $x \in X$ whose orbit $\text{Orb}(x, T) := \{x, Tx, T^2x, \dots\}$ is dense in X . If, moreover, T has a dense subset of periodic vectors then it is called a Devaney chaotic operator. These two notions are the core of what is known today as linear chaos. Due to its relation to chaotic (nonlinear!) dynamics, hypercyclicity has been in connection with different concepts from nonlinear finite-dimensional dynamical systems, especially during the recent years. We plan to present here some ingredients of linear chaos that have the origin in nonlinear dynamics, like disjointness (Furstenberg), distributional chaos (Schweizer and Smital), the structure of the set of periods (Sharkovski), and the specification property (Bowen).