A Review Of Some Recent Work On Hypercyclicity

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Even linear operators on infinite-dimensional spaces can display interesting dynamical properties and yield important links among functional analysis, differential and global geometry and dynamical systems, with a wide range of applications. In particular, hypercyclicity is an essentially infinite-dimensional property, when iterations of the operator generate a dense subspace. A Fréchet space admits a hypercyclic operator if and only if it is separable and infinite-dimensional. However, by considering the semigroups generated by multiples of operators, it is possible to obtain hypercyclic behaviour on finite dimensional spaces. This talk gives a brief review of some recent work on hypercyclicity of operators on Banach, Hilbert and Fréchet spaces.