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Comparison of Hypercyclicity and Disjoint Hypercyclicity

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Abstract

Linear dynamics, also known as hypercyclicity, examines the dynamics of linear operators on separable, infinite dimensional Banach spaces. Formally, an operator T on a Banach space X is *hypercyclic* if there exists a vector x in X for which its orbit $\mathrm{Orb}(T,x) = \{T^n x : n \geq 0\}$ is dense in X. In 2007, Bès and Peris, and Bernal-González independently introduced the concept of disjoint hypercyclic. We say two linear operators T_1, T_2 are *disjoint hypercyclic* if there exists a vector x in X for which the orbit $\mathrm{Orb}(T_1 \oplus T_2, (x,x)) = \{(T_1^n x, T_2^n x) : n \geq 0\}$ is dense in direct sum $X \oplus X$. In the present talk, we will compare the dynamical properties of traditional hypercyclicity with the newer disjoint hypercyclicity, and we will see that many of the standard dynamical properties of hypercyclic operators fail to hold true in the disjoint setting.

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Place : IMBM Seminar Room, Boğaziçi University South Campus