Periodic points at the service of hypercyclicity

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If a vector possesses a dense orbit, we say that the vector is hypercyclic. On the other hand, a periodic point for an operator T is a vector x such that $T^d x = x$ for some $d \geq 1$. It can seem a little bit surprising but the existence of periodic points can be useful for obtaining hypercyclic vectors. The goal of this talk will consist in showing how the existence of a dense set of periodic points satisfying some properties can be used for constructing hypercyclic vectors, U-frequently hypercyclic vectors and frequently hypercyclic vectors. These criteria can for instance be used for finding new counterexamples in linear dynamics.

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