Probabilistic methods in linear dynamics

Frédéric Bayart

On a Banach space X, a bounded linear operator T is said to be *hypercyclic* if it admits a vector x with a dense orbit. These operators are connected to the *invariant subspace problem.*

There are three methods to prove that an operator is hypercyclic :

1. the constructive method ;
2. the topological method ;
3. the probabilistic method.

After reviewing the two first methods, we will concentrate on the third one. In particular, we intend to show how ergodic theory and geometry of Banach spaces come into play in this context.