

A 0–1 LAW FOR FREQUENTLY RECURRENT BACKWARD SHIFTS

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Frequently recurrent operators naturally arise in the study of invariant measures in linear dynamics. Roughly speaking, they admit vectors whose orbits return infinitely often, with positive lower density, to every neighborhood of the vector. In this talk, we present a characterization of frequent recurrence for weighted backward shifts acting on sequence spaces with unconditional basis.

Our main result establishes a 0–1 law: if weighted backward shift admits a nonzero frequently recurrent vector, then the operator itself is frequently recurrent. The proof relies on the introduction of a new family of subsets of the integers, called *RAT*-families (Recurrent Arithmetic Thickening), which extend the classical notion of *IP*-sets introduced by Furstenberg and may be of independent interest.

As a consequence, we obtain a complete characterization of frequently recurrent weighted backward shifts in terms of their weights, providing a counterpart to the classical characterization of frequently hypercyclic weighted shifts.

Trabajo en conjunto con Santiago Muro (Universidad Nacional de Rosario y Conicet).