

ASYMPTOTIC BEHAVIOUR IN THE SET OF
NONHOMOGENEOUS CHAINS OF STOCHASTIC
OPERATORS ¹

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Abstract

We study different types of asymptotic behaviour in the set of (infinite dimensional) nonhomogeneous chains of stochastic operators acting on $L^1(\mu)$ spaces. In order to examine its structure we consider different norm and strong operator topologies. To describe the nature of the set of nonhomogeneous chains of Markov operators with a particular limit behaviour we use the category theorem of Baire. We show that the geometric structure of the set of those stochastic operators which have asymptotically stationary density differs depending on the considered topologies.

Keywords: Markov operator, asymptotic stability, residuality, dense G_δ .

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