BACKWARD NON-HOMOGENEOUS MARKOV SYSTEMS: WEAK ERGODICITY

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Dedicated to the memory of C. Charalambides

ABSTRACT. The foundation of the novel stochastic process Backward Non-Homogeneous Markov system ($\mathcal{B}$-NHMS) is provided in the present. This process is closely connected with the problem of tendency to consensus in an information exchanging operation. A problem which has attracted more than a few thousands of citations in the literature and where backward products of stochastic matrices appear. For forward NHMS with chronological order it is known that weak ergodicity does not necessarily imply strong ergodicity. In a basic Theorem it is proved that in $\mathcal{B}$-NHMS with chronological order weak ergodicity always imply strong ergodicity.

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