

ERGODICITY FOR THE $GI/G/1$ -TYPE MARKOV CHAIN

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SUMMARY

Ergodicity is a fundamental issue for a stochastic process. In this paper, we refine results on ergodicity for a general type of Markov chain to a specific type of the $GI/G/1$ -type Markov chain, which has many interesting and important applications in various areas. It is of interest to obtain conditions in terms of system parameters or the given information about the process, under which the chain has various ergodic properties. Specifically, we provide necessary and sufficient conditions for geometric, strong and polynomial ergodicity, respectively.

Keywords and phrases: Ergodicity, geometric ergodicity, strong ergodicity, polynomial ergodicity, light tailed, heavy tailed, queueing system, $GI/G/1$ -type.

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