

On Equivalence between Geometric Ergodicity and Geometric Decay of the Stationary Tail

Y.Q. Zhao, *Carleton University, Canada*

J. ZOU, *Central South University, PRC*, E-mail: jzzou@mail.csu.edu.cn

KEY WORDS: Ergodicity, geometric decay, stationary tail asymptotics, $GI/G/1$ type of Markov chain

MATHEMATICAL SUBJECT CLASSIFICATION: 60J10, 60K25, 68M20

Abstract: Ergodicity and the tail asymptotics of the stationary distribution for a stochastic process are two fundamental issues and often studied separately since in general they appear to be unrelated. In applications, say in queueing theory, very often the geometric ergodicity and the geometric decay of the tail in the stationary distribution are possessed coherently by the same model. This motivated us to ask the question if there is a relationship between these two concepts for a class of models or processes. In this talk, we show the equivalence of these two concepts for Markov chain of $GI/G/1$ type.