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## The Invariant Principle for .....Chain

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摘要

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## The Invariant Principle for .....Chain

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**Abstract** There are two parts in this paper. In the first part we construct the Markov chain in random environment (MCRE), the skew product Markov chain and  $\mathbb{P}^{\theta}$  chain from a random transition matrix and a two-dimensional probability distribution, and in the second part we prove that the invariance principle for  $\mathbb{P}^{\theta}$  chain, a more complex non-homogeneous Markov chain, is true under some reasonable conditions. This result is more powerful.

**Key words** [random transition matrix](#) [Markov chain in random environment](#) [skew product Markov chain](#)  $\mathbb{P}^{\theta}$  [invariance principle](#)

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