

论文

一类随机时变种群扩散系统解的存在性、惟一性

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摘要:

在假设随机的外界环境对系统产生扰动的条件下,给出Hilbert空间中一类带扩散随机时变种群发展系统.利用Burkholder-Davis-Gundy不等式,Gronwall引理和Kolmogorov不等式,讨论了该系统解的存在性和惟一性,并通过例子对所得结论进行了说明.

关键词: 随机种群系统 It公式 Burkholder-Davis-Gundy不等式

Existence and uniqueness of solutions to stochastic age-dependent population system with diffusion

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Abstract:

For a population dynamics system, the influences of the stochastic external environment upon the system are not considered in ordinary age-dependent system models. When the system is perturbed by a random external environment, a class of stochastic age-dependent population dynamics system with diffusion was proposed. The existence and uniqueness of solution to a stochastic age-dependent population dynamics system with diffusion were discussed in Hilbert space by using the Burkholder-Davis-Gundy inequality, Gronwall lemma and Klmogrorov inequality. The result was illustrated by a specific example.

Keywords: stochastic population system It formula Burkholder-Davis-Gundy inequality

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