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**Dynamics of stochastic hybrid Gilpin-Ayala system with impulsive perturbations.** (English)

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**Summary:** This paper is mainly concerned with the dynamics of the stochastic Gilpin-Ayala model under regime switching with impulsive perturbations. The goal is to analyze the effects of Markov chain and impulse on the dynamics. Some asymptotic properties are considered and sufficient criteria for stochastic permanence, extinction, non-persistence in the mean and weak persistence are obtained. The critical value among the extinction, non-persistence in the mean and weak persistence is explored. Our results demonstrate that the dynamics of the model have close relations with the impulse and the stationary distribution of the Markov chain.

**MSC:**

**34F05** Ordinary differential equations and systems with randomness

**34D05** Asymptotic properties of solutions to ordinary differential equations

**Keywords:**

Gilpin-Ayala model; Markov chain; impulsive perturbations; stochastic permanence; extinction

**Full Text:** [DOI](#)

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