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STOCHASTIC CONSENSUS OF MULTI-AGENTS FOLLOWING LEADER WITH IMPULSIVE PROTOCOL

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Abstract. In this paper, the consensus problem of noise perturbed multi-agents following leader with stochastic switching topology is investigated. The stochastic switching topology is dependent on a continuous time Markovian process. Based on Lyapunov stability theory and generalized Itô formula, the sufficient condition is given to guarantee the mean square consensus of all the agents following the virtual leader by designing the impulsive protocol for each agent. Numerical examples are given to illustrate the effectiveness of the proposed method.

Keywords. Multi-agent systems, Stochastic consensus, Impulsive protocols, Switching topology.

AMS (MOS) subject classification: 34H05; 93D05.

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