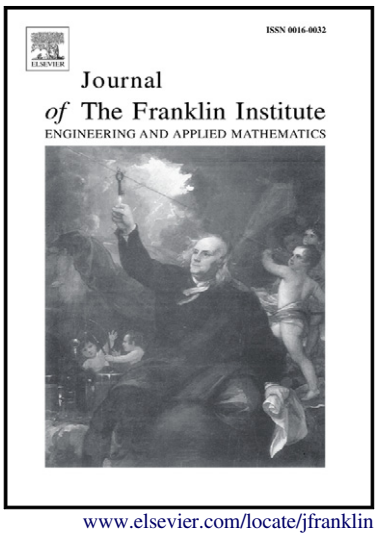

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Event-triggered consensus of multi-agent systems with noises

Aihua Hu[a,b], Jinde Cao[b,c,d*], Manfeng Hu[a], Liuxiao Guo[a]

[a)] *School of Science, Jiangnan University, Wuxi* 214122, *China*

[b)] *School of Automation, Southeast University, Nanjing* 210096, *China*

[c)] *Department of Mathematics, Southeast University, Nanjing* 210096, *China*

[d)] *Department of Mathematics, King Abdulaziz University, Jeddah* 21589, *Saudi Arabia*

Abstract

This paper investigates the issue of mean square consensus for multiple agents affected by noises over directed networks. The centralized and decentralized event-triggered protocols are adopted for driving the agents to converge to the average value of their initial states eventually. Each agent in the network is supposed to update the state according to the information from the neighbors, while the control actuation updates are decided by the proposed event-triggered scheme. The corresponding conditions for guaranteeing the consensus are derived based on the graph theory, the Lyapunov functional approach, and the stochastic theory. Additionally, the consensus for agents in networks with switching topologies is also analyzed. Some numerical examples are presented to demonstrate the effectiveness of the theoretical results.

Keywords: Multi-agent network; Consensus; Event-triggered protocol; Noise

*Corresponding author. Address: Department of Mathematics, Southeast University, Nanjing, 210096, China. Tel.: +86 25 52090596-8535. E-mail address: jdcao@seu.edu.cn (J. Cao).