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Consensus of fractional nonlinear dynamics stochastic operators for multi-agent systems (Article)

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Abstract
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In this paper, we consider nonlinear models of DeGroot, quadratic stochastic operators (QSO) and doubly stochastic quadratic operators (DSQO) with fractional degree for consensus problem in multi-agent systems (MAS). By the limit behaviour of nonlinear approach, we discuss the convergence of the solutions of the models considered. The findings from the results of the carried out investigation demonstrates an efficient approach to convergence for consensus problem in MAS. The main advantages of the proposed work are i) fast convergence to consensus ii) flexible and low complexity in computation iii) ability to achieve optimal consensus. The study is built on fractional representation of [Formula presented] where $n \to \infty$. Further, the simulation results on the related protocols are also presented. © 2017 Elsevier B.V.

Author keywords

(Consensus problem) (Fractional consensus) (Multi-agent systems) (Nonlinear stochastic operators)

Indexed keywords

Engineering controlled terms:	(Stochastic models) (Stochastic systems)
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