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The nonlinear limit control of EDSQOs on finite dimensional simplex

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Abstract

Consensus problems in multi agent systems (MAS) are theoretical aspect convergence of doubly stochastic quadratic operators. This work has presented the dynamic classifications of extreme doubly stochastic quadratic operators (EDSQOs) on finite-dimensional simplex (FDS) based on the limit behaviour of the trajectories. The limit behaviour of the trajectories of EDSQOs, on FDS is either in state of convergence, or fixed or periodic. This paper aimed at examining the behaviour of these states. The paper modelled the states and proves theoretically the characteristics of each state. The results indicate that convergence operators converge to the centre (1/m), and EDSQOs point are fixed with two or more points whereas periodic states exhibit sinusoidal behaviour. This work has contributed in understanding the limit of EDSQOs of the exterior initial points as fixed and periodic points developed spread attribute toward a fixed point.

Keywords

Author Keywords: [Dynamic classifications](#); [extreme doubly stochastic quadratic operators](#); [convergence](#); [fixed](#); [periodic](#); [finite-dimensional simplex](#)

KeyWords Plus: [QUADRATIC STOCHASTIC OPERATORS](#); [CONSENSUS](#); [SET](#)

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