



Seminar

Systems and Control Group - CIDMA

05 de julho de 2019, 14h00

Departamento de Matemática, Universidade de Aveiro
Sala Sousa Pinto

Optimal leader–follower control for the
fractional opinion formation model

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Abstract

This work deals with an opinion formation model, that obeys a nonlinear system of fractional-order differential equations. We introduce a virtual leader in order to attain a consensus. Sufficient conditions are established to ensure that the opinions of all agents globally asymptotically approach the opinion of the leader. We also address the problem of designing optimal control strategies for the leader so that the followers tend to consensus in the most efficient way. A variational integrator scheme is applied to solve the leader-follower optimal control problem. Finally, in order to verify the theoretical analysis, several particular examples are presented.

The talk is based on the joint work

R. Almeida, A. B. Malinowska, T. Odziejewicz,
Optimal Leader-Follower Control for the Fractional Opinion Formation Model,
J. Optim. Theory. Appl. (2018).
<https://doi.org/10.1007/s10957-018-1363-9>

This seminar was supported in part by the Portuguese Foundation for Science and Technology (FCT – Fundação para a Ciência e a Tecnologia), through CIDMA - Center for Research and Development in Mathematics and Applications, within project UID/MAT/04106/2019.