

On the fractional Cucker–Smale optimal control problem

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Abstract

This work develops a sparse flocking control for the fractional Cucker–Smale multi-agent model. The Caputo fractional derivative, in the equations describing the dynamics of a consensus parameter, makes it possible to take into account in the self-organization of group its history and memory dependency. External control is designed based on necessary conditions for a local solution to the appropriate optimal control problem. Numerical simulations demonstrate the effectiveness of the control scheme.

References

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