

# Distributed Model Predictive Control for Consensus of Constrained Homogeneous Linear Systems

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**Abstract:** We consider the problem of designing a distributed control strategy such that a homogeneous multi-agent system is asymptotically driven to consensus. The agents' dynamics are assumed to be linear, discrete-time and subject to convex input and state constraints. We propose a sequential distributed model predictive control algorithm that asymptotically steers the agents to consensus in the outputs. In their individual model predictive control optimisation problems, the agents track an auxiliary target output while simultaneously minimising its distance to those of their neighbours.

*Keywords:* Predictive Control, Multi-agent systems, Consensus, Linear systems

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