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Computational Simulations on Stability of Model Predictive Control for Linear Discrete-Time Stochastic Systems

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Abstract : Model predictive control is a kind of optimal feedback control in which control performance over a finite future is optimized with a performance index that has a moving initial time and a moving terminal time. This paper examines the stability of model predictive control for linear discrete-time systems with additive stochastic disturbances. A sufficient condition for the stability of the closed-loop system with model predictive control is derived by means of a linear matrix inequality. The objective of this paper is to show the results of computational simulations in order to verify the validity of the obtained stability condition.

Keywords : computational simulations, optimal control, predictive control, stochastic systems, discrete-time systems
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