Stability study of model predictive control in presence of undesirable factors.

ABSTRACT

In this study, the stability behavior of Generalized Predictive Controllers (GPC) as one of model predictive control algorithm is studied and effects of noise, error in delay estimation, input disturbances, unstable system and non-minimum phase system is analyzed. The results showed that GP-controller can be achieved stability and resist against wrong parameterization. This stability studies is completed by means of a numerical example. The results show that the GP algorithm can guarantee the stability of this system.

Keyword: Dynamic control; Model based control; Non-minimum phase system; Receding horizon control; Robustness of MPC.