

Abstract

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Adaptive controller using dynamic safety margin for hybrid laboratory plant

A large disturbance model parameters variation in controlled systems may lead to system failure and decrease system safety. Adapting controller parameters is essential to compensate the system disturbance model uncertainties. In this work, controller parameters have been adapted based on the dynamic safety margin (DSM) index to increase the system safety during different operation condition. Fuzzy controller is used to supervise DSM and to adapt the controller parameters. Also predictive controller based on DSM is discussed. The real time implementation for adaptive controller based on DSM is tested on a hybrid laboratory plant.