

Application of H_∞ Control Theory to PWR Power Control

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Abstract

In this paper, a robust controller is designed by the use of H_∞ control theory for the PWR power control. The design specification is incorporated by the frequency weights using the mixed-sensitivity problem. The robustness of H_∞ control is verified by comparing with the classical output feedback control and LQG control in the case of measurement delay of the power measurement system. The H_∞ optimal control shows excellent stability-robustness and performance-robustness for external disturbances and noises, model parameter variations, and modeling errors. It also provides a practical design method because the design specification can be easily implemented.

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