

Fault-Tolerant Control of Nuclear Steam Generator Water Level

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Abstract

This paper is concerned with a fault-tolerant control with guaranteed H_∞ performance for nuclear steam generator. The fault-tolerant control having passive redundant structure guarantees both stability and faults of controllers and sensors. The systematic design method is drawn in terms of Linear Matrix Inequalities (LMIs). Also the sufficient condition of fault-tolerant control is provided. The computer simulation demonstrates the fault-tolerant control works well under failure of controllers and in view of the performance it is superior to conventional PID controller.