

## On the Design of Robust Governors of Steam Power Systems Using Polynomial and State-Space Based $H_\infty$ Techniques: A Comparative Study

**Authors :** Rami A. Maher, Ibraheem K. Ibraheem

**Abstract :** This work presents a comparison study between the state-space and polynomial methods for the design of the robust governor for load frequency control of steam turbine power systems. The robust governor is synthesized using the two approaches and the comparison is extended to include time and frequency domains performance, controller order, and uncertainty representation, weighting filters, optimality and sub-optimality. The obtained results are represented through tables and curves with reasons of similarities and dissimilarities.

**Keywords :** robust control, load frequency control, steam turbine,  $H_\infty$ -norm, system uncertainty, load disturbance

**Conference Title :** ICECSE 2014 : International Conference on Electrical and Computer Systems Engineering

**Conference Location :** Istanbul, Türkiye

**Conference Dates :** August 18-19, 2014