

# **Robust Design Of Electrical Power-Based Stabilizers Using Tabusearch**

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## **Summary**

Robust design of multimachine power system stabilizers (PSSs) using tabu search (TS) optimization technique is presented in this paper. The proposed approach employs TS for optimal parameter settings of a widely used conventional fixed-structure lead-lag PSS (CPSS) that employs electrical power as input. The parameters of the proposed stabilizers are selected using TS in order to shift the system. poorly damped electromechanical modes at several loading conditions and system configurations simultaneously to a prescribed zone in the left hand side of the s-plane. Incorporation of IS as a derivative-free optimization technique in PSS design significantly reduces the computational burden. The performance of the proposed PSSs under different disturbances and loading conditions is investigated for a multimachine power system. The eigenvalue analysis and the nonlinear simulation results show the effectiveness of the proposed PSSs to damp out the local as well as the interareas modes and enhance greatly the system stability over a wide range of loading conditions and system configurations

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