



Robust Coordinated Design of PSS and TCSC using PSO Technique for Power System Stability Enhancement

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Power system stability improvement by coordinated design of a Power System Stabilizer (PSS) and a Thyristor Controlled Series Compensator (TCSC) controller is addressed in this paper.

Particle Swarm Optimization (PSO) technique is employed for optimization of the parameterconstrained nonlinear optimization problem implemented in a simulation environment. The proposed controllers are tested on a weakly connected power system. The non-linear simulation results are presented for wide range of loading conditions with various fault disturbances and fault clearing sequences as well as for various small disturbances. The eigenvalue analysis and simulation results show the effectiveness and robustness of proposed controllers to improve the stability performance of power system by efficient damping of low frequency oscillations under various disturbances.

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