

MODELING AND SIMULATION OF POWER SYSTEM USING SMIB WITH PSO BASED TCSC CONTROLLER

**SURYA PRAKASH JOSHI, JITENDRA BIKANERIA
AND KAPIL PARIKH**

Abstract

This paper presents a systematic procedure for modeling, simulation & optimum tuning the parameters of TCSC controller using particle swarm optimization (PSO) in Power system (SMIB). Power transmission network always affected by transients that create oscillations & voltage instability. FACTS devices are used to damp out the oscillations due to power grid networking. One of the FACTS device TCSC controller is used for stability of power system & parameter of TCSC controller is tuned by the particle swarm optimization. The effect of TCSC controller is demonstrated on power system (SMIB) using MATLAB/SIMULINK software package. Simulation result verified stability improvement in proposed model of power system.

Keywords: Power System, SMIB, FACTS, EHV, PSO, TCSC.