

多机系统调速侧电力系统稳定器GPSS的设计

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摘要

低频振荡是一种不利于电力系统安全和稳定运行的现象, 而电力系统稳定器(PSS)可以有效抑制低频振荡。由于励磁系统和电力系统运行方式及工况之间的密切关系, 致使电力系统中PSS的协调设计和安装地点的选择成了PSS能否用于电力系统的关键。作者设计了一种调速侧电力系统稳定器, 其设计原理和传统的PSS一样简单, 且具有较好的鲁棒性, 同时还具有多机解耦特性, 给本机带来阻尼的同时不会给其它机组带来负阻尼, 避免了参数协调和安装地点的选择。最后利用算例仿真验证了调速侧电力系统稳定器不仅可以抑制低频振荡, 还可以提高电力系统暂态稳定性。

关键词 [电力系统; 低频振荡; 电力系统稳定器; 调速侧电力系统稳定器; 调速系统控制](#)

分类号

Design of a Governor-side Power System Stabilizer for Multi-Machine Power System

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Abstract

Low frequency oscillation is harmful to power system security and stability, and as one of solutions power system stabilizer (PSS) can effectively restrain such a phenomena. Due to the close relation between excitation system and power system operating modes and conditions, the selection of installation site for PSS and the coordination design of PSS become key factors that relate to whether PSS could be used in power system or not. For this reason the authors design a governor-side PSS, its design principle is as simple as traditional PSSs and it possesses good robustness and decomposing-coupling characteristic in multi-machine system. It will not bring about negative damping to other machines while it provide damping for local machine, so the coordination of parameters and selection of installation site can be avoided. The results of simulation for calculation examples show that not only the proposed governor-side PSS can restrain low frequency oscillation, but also improve transient stability of power system.

Key words [power system; low frequency oscillation; power system stabilizer \(PSS\); governor-side PSS; governor system control](#)

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