

自动化

单元制再热凝汽式汽轮机数学模型分析及其动态特性仿真

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摘要: 将单元机组的锅炉、汽轮机等分开孤立地建模,存在若干难以解释的问题。从单元机组的运行机制加以考虑,将汽轮发电机组置于锅炉和单元机组协调控制系统的整体运行环境下,提出一种用于电力系统稳定分析的改进型数学模型。既适用于暂态仿真,同时又可用于电力系统中长期动态仿真。通过自定义建模方法,在电力系统分析综合程序中进行仿真试验表明,闭环控制系统对机械功率输出和汽轮机通汽量的动态超调过程有一定的影响,而回热系统影响该动态超调量的幅度,同时对动态过程有延迟效应。

关键词:

Analysis on Mathematical Model of Reheat Condensing Turbine for Power Unit and Simulation of Its Dynamic Response

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Abstract: There are some problems difficult to explain when boiler and steam turbine of generation unit are modeled respectively and isolatedly. Considering operation mechanism of thermal generation unit and regarding boiler, turbo-generator set and the coordinated control system as a whole, an improved mathematical model for stability analysis of power system is proposed. The proposed model is not only suitable to transient simulation, but also can be utilized in medium- and long-term dynamic simulation of power system. By means of user-defined modeling, simulation results of power system analysis software package (PSASP) show that closed-loop control system influences output of mechanical power and dynamic overshooting process of the steam flowing through the turbine a certain extent; the regenerative system influences the amplitude of the dynamic overshooting meanwhile they has a delayed effect on the dynamic process.

Keywords:

收稿日期 2010-02-21 修回日期 2010-04-19 网络版发布日期 2010-12-10

DOI:

基金项目:

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