

### 特高压输电技术

#### 特高压电网协调电压控制研究

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**摘要:** 主要研究特高压示范工程南部落点的协调电压控制问题。设计并开发潮流仿真平台, 能模拟电网无功电压调节的准稳态过程, 并兼顾电网安全约束和特高压线路绝缘要求。基于仿真平台, 对比研究了独立控制和协调控制两种模式, 并综合利用发电机进相、直流降压运行、停运500 kV线路等各种调节手段, 对三峡近区电网的电压控制进行了全过程仿真, 分析了影响特高压线路落点变电站电压下降的关键因素。

**关键词:** 特高压电网 电压控制 仿真

#### Research on Coordinated Voltage Control of UHV Power Grids

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**Abstract:** Research on coordinated voltage control in the UHV demonstration project is presented. To simulate the quasi-steady process of reactive power and voltage regulating, a power-flow-based simulation platform is developed, and it takes both operation constraints on security and insulation requirement of UHV transmission lines into consideration. The two modes of independent control and coordinated control are compared in this paper. The voltage regulating process of the power grids in Three Gorges area and its neighboring area is simulated, including generator under-excitation operation, HVDC reduced voltage operation and 500 kV transmission lines outage. Based on the simulation results, the key factors influencing voltage regulating for south terminal substations of the UHV demonstration project are pointed out.

**Keywords:** UHV power grid voltage control simulation

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