

电力系统

自耦变压器供电方式下降低高速铁路钢轨电位的方法及其仿真分析

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摘要:

高速铁路较常速铁路钢轨电位急剧升高, 必须采取有效措施降低钢轨电位, 以保障人身和设备安全。用Matlab/Simulink建立了牵引供电系统钢轨电位分析模型。在不同技术参数和工况下, 将增大泄漏电导、增设钢轨与保护连接线、增设保护线接地等降低钢轨电位的方法应用到仿真模型中研究钢轨电位的分布规律。根据仿真结果分析评估了各种降低钢轨电位方法的效果。

关键词:

Methods to Reduce Rail Potential of High-Speed Railway Adopting Autotransformer Feeding System and Simulation Analysis on Them

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Abstract:

In view of the fact that the rail potential in high-speed railway is much higher than that in common railways, it is necessary to adopt effective measures to decrease rail potential in high-speed railway to ensure human safety and equipment security. A model to analyze rail potential in traction supply system is built by Matlab/Simulink. Under various technical parameters and working conditions, the measures to decrease rail potential such as enlarging leakage conductance, adding connector of protective wire and grounding protective wire are added into the simulation model to research the distribution law of rail potential. Based on the results of simulation, the effects of these measures in decreasing rail potential are analyzed and assessed.

Keywords:

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