



基于变频变压器的异步联网和潮流控制
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摘要：分析了变频变压器（variable frequency transformer, VFT）异步联网和控制潮流的基本原理，建立了VFT稳态运行时的数学模型，设计了VFT的转子转速控制器和传输功率控制器。然后，利用PSCAD/EMTDC软件，进行了VFT在传输功率跃变和短路故障下的仿真实验。仿真结果表明，VFT能够平稳地连接两个频率不同的异步电网，准确地控制电网间传输的潮流，并能够减轻一侧电网故障对另一侧电网的影响，是一种性能优良的异步联网装置，可以作为异步电网互联的另一种选择。

关键词：变频变压器；异步联网；潮流控制

VFT Based Asynchronous Grid Interconnection and Power Flow Control

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Abstract: The operation principle of VFT (variable frequency transformer) for asynchronous interconnection and power flow control is analyzed, and the control systems for the VFT are designed based on the mathematical model for the VFT established in this paper. Then computer simulations with PSCAD/EMTDC are implemented to validate the transient and dynamic performance of the VFT. The results show that VFT is capable of transferring desired power between asynchronous networks and is a good alternative for asynchronous interconnection.

Key words: variable frequency transformer ; asynchronous interconnection; power flow control

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