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国家重点基础研究项目

微型燃气轮机发电系统直流侧的建模方法

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摘要

为更方便、经济地研究微型燃气轮机的电特性，可采用斩波器来模拟微型燃气轮机发电系统直流侧的电特性，通过对微型燃气轮机的模型进行近似线性化和降阶处理，得到了其传递函数。根据实测数据，采用时变系统最小二乘法对传递函数的参数进行辨识，并将上述模型的输出信号作为斩波器的输入参考信号。将采用该模型得到的仿真结果与实测数据进行对比，验证了该建模方法的正确性和可行性。

关键词 微型燃气轮机；近似线性化；参数辨识；直流侧建模

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A Modeling Approach of DC Link of Micro-Gas Turbine Generation System

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Abstract

To research the electric characteristics of micro turbine more conveniently and economically, the chopper, DC chopper is adopted to simulate the DC link electric characteristic of micro-turbine generation system. By means of approximate linearization and reducing order to micro turbine model, its transfer function is obtained. According to the measured data and using the least squares method of time-varying system, the parameters of the transfer function are identified and the output signal of above-mentioned model is taken as the input reference signal of the chopper. Comparing the simulation results by the proposed model with the measured data, the correctness and feasibility of the proposed modeling approach are validated.

Key words micro-turbine；approximate linearization；parameter identification；modeling of DC link

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