

电力市场

## 电力市场环境下的新型负荷频率控制方法

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摘要

针对电力市场环境中的两区域互联系统, 研究了负荷频率控制的非线性、参数的不确定和纯延迟特性等问题, 提出了一种基于模糊径向基函数神经网络的自适应控制器, 即利用径向基函数神经网络进行自学习、修正与完善模糊规则, 改善其动态性能。将Matlab与Labview软件相结合进行仿真, 结果表明上述方法具有较强的自适应和自学习能力, 将其应用于复杂的非线性电力系统的负荷频率控制中, 取得了较好的控制效果。

关键词

[负荷频率控制](#); [模糊径向基函数\(RBF\)神经网络](#); [自适应控制](#); [电力市场](#)

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## New Method of Load Frequency Control in Electricity Market Environment

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Abstract

Aiming at the two-area interconnected system, the nonlinearity, parameter uncertainty and pure time-delay characteristic of load frequency control are researched, then an adaptive controller based on fuzzy radial basis function (RBF) neural network is proposed, namely, by means of RBF neural network the self-learning, modification and improvement of fuzzy rules are conducted to improve dynamic performance of the adaptive controller. Combining Matlab software with Labview software, the simulation of the proposed adaptive controller is carried out. Simulation results show that the proposed adaptive controller possesses high adaptivity and self-learning ability. Applying the proposed adaptive controller to load frequency control of complex nonlinear power system, a favorable control effect is obtained.

Key words

[load frequency control](#); [fuzzy radial basis function \(RBF\) neural network](#); [adaptive control](#); [electricity market](#)

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