工程与应用

短期电力负荷预测的灰色-小波网络组合模型

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摘要　短期电力负荷数据具有离散、无规则波动的特点，先利用灰色预测弱化其波动性，然后将负荷原始检测数据与其相对应的灰色预测数据进行重构后作为小波网络的训练样本，在此基础上建立基于灰色-小波网络组合模型的短期电力负荷预测新方法。该方法有效整合了灰色理论、小波分析和人工神经网络的优点，与传统BP网络相比，收敛速度更快，预测精度更高。仿真试验表明了该方法用于短期电力负荷预测的可行性和有效性。

关键词　灰色-小波网络　短期电力负荷预测　组合模型　GM（1,1）预测

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Short-term electric power load forecasting based on grey-wavelet network combinational model

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Abstract

Short-term electric power load data have the traits of fluctation and discretization.The paper uses grey forecasting to reduce fluctation of original load data and combines it with the data of grey forecasting to get new series，and thus takes the new series as training samples to put forward a new method for forecasting short-term electric power load based on grey-wavelet network combinational model.The new method combines the advantages of grey theory，wavelet analysis and artificial neural network effectively.Compared with BP network，its speed of convergence and precision are much higher than BP network.The results shown by the simulation indicate that the method is effective and feasible for forecasting short-term electric power load.

Key words　grey-wavelet network　short-term electric power load forecasting　combinational model　GM（1,1）　forecasting

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