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基于改进BP神经网络的连铸漏钢预报

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摘要:
针对传统BP神经网络在训练过程中存在收敛速度慢的缺陷,将LM(levenberg marquardt)算法引入到BP神经网络的训练过程,建立了LM-BP神经网络模型,并将其应用于连铸过程中的漏钢预报系统。结合某钢厂连铸现场历史数据对系统进行了测试,测试结果以96.15%的预报率及100%的报出率,验证了基于LM算法的BP神经网络连铸漏钢预报方案的可行性和有效性。

关键词:
连铸;漏钢预报;LM算法;BP神经网络

Breakout Prediction Based on Improved BP Neural Network in Continuous Casting Process

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Abstract:
LM algorithm was introduced to the training process of a BP neural network and a LM-BP neural network model was established aiming at the defects of slow convergence in the training process of the traditional BP neural network.The LM-BP neural network model was applied to the breakout prediction in the continuous casting processes,and it was tested with the historical data collected from a steel mill.The feasibility and the validity of the model are verified by the results with the accuracy rate of 96.15% and the prediction rate of 100%.

Keywords:
continuous casting;breakout prediction;LM(Levenberg Marquardt) algorithm;BP neural network

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