distinguish different flaws with signal analysis and classification methods. The features of radio-frequency signal and demodulated signal is described, and an evaluation method of distance and identification index is given in this paper, which is used to compare the possibility of being classified. The flaw signal classification is presented on the combination of wavelet analysis and neural network. Results obtained demonstrate the effectiveness of RBFN than BPN in learning speed and generalization.

Key words: Ultrasonic inspection Radio-frequency signal Distance between-and-within classes Flaw classification

☆☆☆080216

车轮轮箍超声波探伤计算机检测技术

陈昌华(马钢股份公司钢研所)

摘要：超声波探伤数字化检测技术，介绍了由时域分析过度到频域、图象处理等复杂的数字化信号识别，使复杂的超声波缺陷信号背景噪声干扰，削弱信号中的多余信息量的研究，成了一项基础性工作。本系统实现了车轮、轮箍两条超声波探伤生产线智能化检测功能。

关键词：车轮 轮箍 超声波探伤 计算机 高速采集 信息处理分析

COMPUTER INSPECTION TECHNOLOGY OF WHEEL AND RING ULTRASONIC TESTING

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Abstract: The numeralization inspection technology of ultrasonic testing recommend signal analysis from time-field to frequency-field,image processing and complex numeralization signal identify. This made dealing with the complex ultrasonic defecting signal,which have backgroung noise interaction and weakening signal superfluity messages a basic work. The system realized intelligent inspection function of the wheel and ring ultrasonic testing in two on-lines.

Key words: Wheel Ring Ultrasonic testing Computer Super-speed sample Signal processing analysis

☆☆☆080290

基于径向基神经网络的声发射信号模式识别方法

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摘要：基于声发射信号的特征在实际中是非线性可分的情况，构造了一种以径向基神经网络为分类器的声发射信号模式识别方法，并把该方法与基于 BP 网络的分类器作比较，试验结果表明，在解决声发射信号模式识别的问题中，径向基神经网络在逼近能力、分类能力和学习速度方面均优于 BP 网络。

关键词：径向基神经网络 声发射 模式识别

PATTERN RECOGNITION METHOD OF ACOUSTIC EMISSION SIGNAL BASED ON RADIAL BASIS FUNCTION NETWORK

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Abstract: Based on the fact that the characteristic of acoustic emission signal is nonlinear separable, the paper constructed a pattern recognition method for acoustic emission signal in that the radial basis function (RBF) network is used as classifier and compared this method with that based on BP network. The experimental result suggested that RBF preceded BP in imminent ability, classifier ability and learning speed while solving the problem, pattern recognition of acoustic emission signal.

Key words: Radial basis function network（RBF） Acoustic emission Pattern recognition