



ACOUSTIC EMISSION BASED DEFECTS MONITORING OF THREE-DIMENSIONAL BRAIDED COMPOSITES USING WAVELET NETWORK

Su Hua^{*,1}, Zhang Tianyuan¹ and Zhang Ning¹

^{*,1}Tianjin Polytechnic University, Binshui Road 399,
Xiqing District, Tianjin, 300387, P.R. China

Email: hua_207@126.com

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Abstract- In order to effectively differentiate all kinds of defects inside the composites, this paper carries out testing on the internal defects of three-dimensional (3d) braided composites by use of acoustic emission nondestructive detecting technology. It puts forward the processing method for acoustic emission signals for the internal defects of three-dimensional braided composites based on wavelet neural network (WNN). This method does wavelet transformation on real-time collected acoustic emission signals, takes the characteristics of internal defect energy to be obtained as network input, selects the wavelet neural network (WNN) with “compact” type and realizes the recognition on the classification of micro cracks and pores of 3d braided composites.

Index terms: Three-dimensional (3d) Braided Composites, Acoustic Emission Detection, Wavelet Neural Network (WNN), Defect Detection.