# Diagnosis of Wear in Woodworking Tools Using Pattern Recognition of Cutting Sound

In order to recognize the state of wear from the characteristics of the cutting sound, a recognition system was constructed using the algorithm of RCEnetwork, one of the neural network techniques available as a technique of pattern recognition.

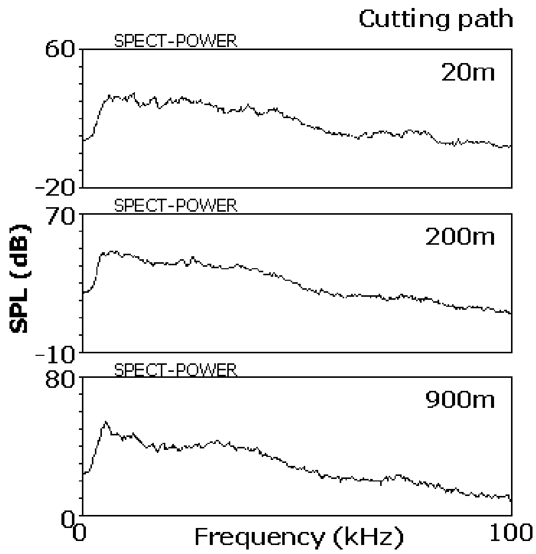


**Figure.1 Frequency spectra of cutting sound for three stages of wear of fixed knife planer**

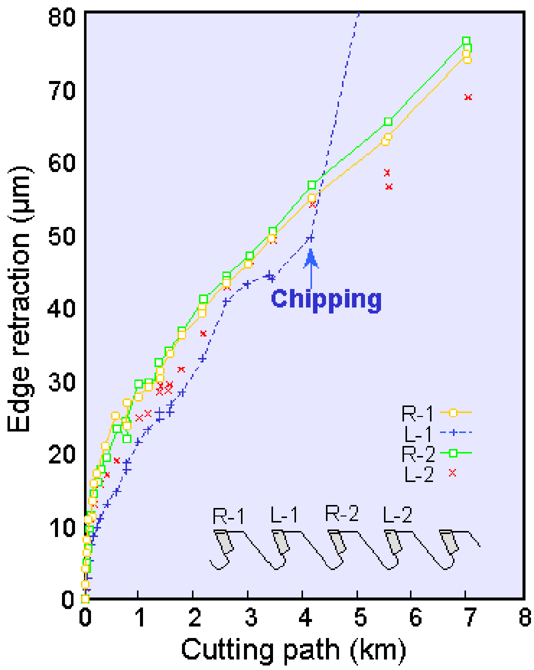


Figure 2. Relationship between cutting length and edge retraction in circular saw teeth.

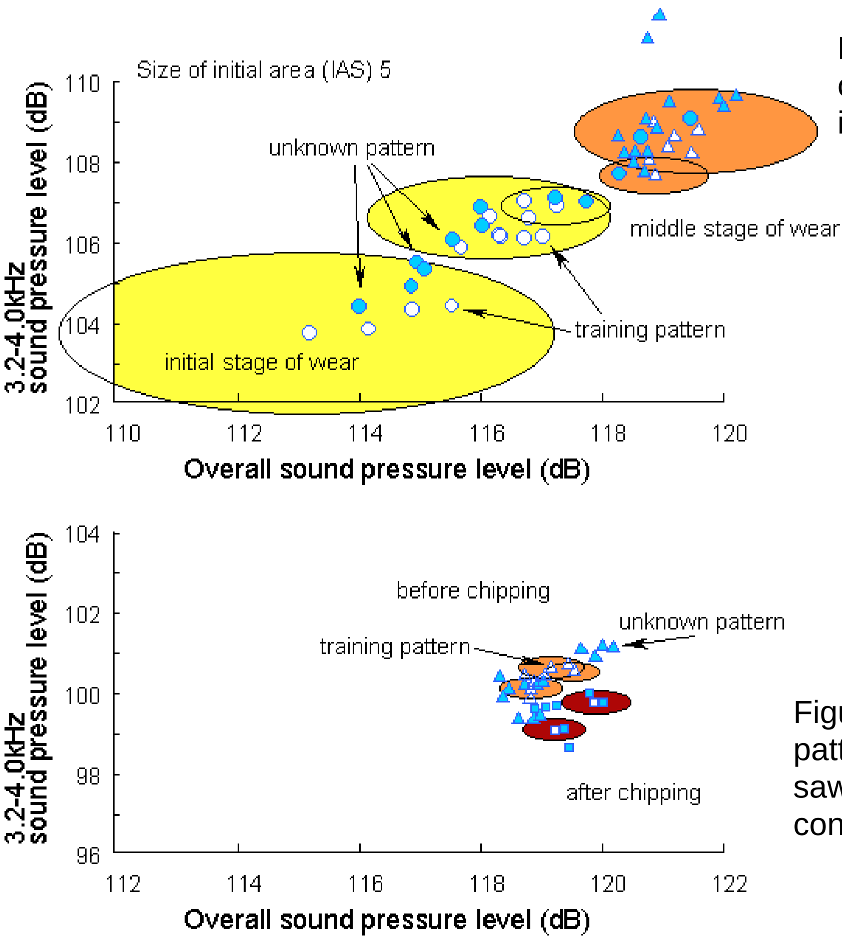


Figure 3. Recognition of unknown patterns of cutting sound from circular saw machine using the RCE network constructed.