# Application of frame energy based DCT moments for the damage diagnosis in steel plates using FLNN

## Abstract

This paper discusses the application of frame energy based Discrete Cosine Transformation (DCT) moment features for the detection of damages in steel plates. A simple experimental model is devised to suspend the steel plates in a free-free condition. Experimental modal analysis methods are analyzed and protocols are formed to capture vibration signals from the steel plate using accelerometers when subjected to external impulse. Algorithms based on frame energy based DCT moment feature extraction are developed and prominent features are extracted. A Functional Link Neural Network (FLNN) is modeled to classify the condition of the steel plate. The output of the network model is validated using Falhman testing criterion and the results are compared.