

عنوان مقاله:

GROUPING OF ACOUSTIC EMISSION SIGNALS EXTRACTED FROM MODE I DELAMINATION ON GLASS/EPOXY COMPOSITES BY COMBINATION OF TWO UNSUPERVISED PATTERN RECOGNITION TECHNIQUES

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خلاصه مقاله:

Acoustic emissions (AE) can be used to discriminate the different types of damage occurring in a constrained composite specimen. However, the main problem associated with data analysis is the classification of different AE sources. The aim of the cluster analysis is to classify a set of data into several classes that reflect the internal structure of the data. Indeed, clustering method is an essential tool for investigating and interpreting data. In this work, a procedure for the evaluation of delamination mechanism in glass/epoxy composite specimen with different configuration based on the analysis of the AE signals of presented. Fuzzy clustering means (FCM) clustering integrated with principal component analysis (PCA) are the tools that utilized for the classification of the monitored AE transients. To validation of the proposed methodology, tensile loading and mode I delamination carried out on epoxy resin, glass fibre bundle and glass/epoxy unidirectional specimens within different configuration. A cluster analysis of AE data is reached and the resulting clusters are correlated to the damage mechanisms of the material under Mode I delamination within different configurations

کلمات کلیدی:

Acoustic emission, Damage mode; Glass/epoxy composite; Unsupervised pattern recognition

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