

## عنوان مقاله:

CHARACTERIZATION OF COMPOSITE MATERIALS DAMAGE UNDER BUCKLING TEST USING WAVELET TRANSFORM

## محل انتشار:

کنفرانس ملی مهندسی مکانیک ایران (سال: 1392)

تعداد صفحات اصل مقاله: 12

## نویسندگان:

Saeid Abazary - *Department of Mechanical Engineering, Science and Research Branch, Islamic Azad University, Kermanshah, Iran*

Bahman Abazary - *Department of Mechatronic Engineering, Islamic Azad University, South Tehran Branch, Tehran, Iran*

## خلاصه مقاله:

The non-destructive Acoustic Emission (AE) techniques acquire and analyse the signals emitted from the deformation or fracture of materials under external loading. In this study, the AE techniques with statistical analysis were used to study the damage process of composite laminate under buckling loads. The obtained AE signals were decomposed into various wavelet levels. Different damage mechanisms are activated within the composite laminate during loading scenario. These damage entities are acting in different space and time scales within the service life of the structure and may be interdependent. Loading of composite laminates in particular leads to the accumulation of distinct damage mechanisms, such as matrix cracking, delamination between successive plies and fibre rupture at the final stage of loading. The tested of glass/polyester composite specimens include two lay-up patterns: [0]6s and [45/-45]6s. Moreover, the microscopic properties of different composite specimens after fracture are watched and analysed by scanning electron microscope (SEM). The results wavelet-transform based show that the energy of AE signals has been concentrated in two significant components for both types of specimens, and the dependency percentage of damages in the two specimens is different. The results indicate that wavelets-based signal processing may be a useful tool in the analysis of acoustic emissions.

## کلمات کلیدی:

Composites Material, Damage Mechanisms, Acoustic Emission, Wavelet Transform, SEM

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/247499>

