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Acoustic emission from different types of rocks analysed by Spectral Techniques

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The analysis of acoustic emissions in different types of rocks has proven to be quite useful in studying the mechanisms involved in the fracture process. The knowledge of rock structure and parameters like density and porosity, complemented with the study of the P and S waves speed, enables us to determine the elastic dynamic parameters. This investigation main objective is to provide information that will be helpful to understand the mechanisms through the analyses of the spectral content of the acoustic emissions. Preliminary studies of the spectral evolution of the acoustic emissions enabled us to identify clearly the onset of fracture up to completely failure. Actually, near rupture the spectra are boarder, have more energy content and a significant decrease in the main frequency of the emissions is found. Different rocks will be tested [especially basalts (volcano research) and granites (earthquake investigation], and different spectral techniques used, like spectrograms, wavelet, and other.

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