G312

Denoising Acoustic Emission Signal Using Wavelet Transforms for Determining the Source Location Micro Crack on Concrete

I Gede Pasek Suta Wijaya
Informatics Engineering and Electrical Engineering Dept.
Engineering Faculty, Mataram University
Jl. Majapahit 62 Mataram
Mataram Lombok, Indonesia
gpsutawijaya@te.ftunram.ac.id

Ni Nyoman Kencanawati
Civil Engineering Dept.
Engineering Faculty, Mataram University
Jl. Majapahit 62 Mataram
Mataram Lombok, Indonesia
nkencanawati@ts.ftunram.ac.id

***Abstract*—Acoustic emission (AE) technique is developed to locate damages in concrete interior. However, the AE signal consists of much noise which makes the determination of first time amplitude of AE signal be difficult to be carried out. In fact, the determination of this parameter is a significant part for locating the source of damage in concrete. Therefore, one of the denoising methods called as wavelet based denoising is proposed. In this case, some wavelet bases functions are investigated to find out the proper wavelet bases function to perform the denoising of AE Signal. From the experimental data, the best wavelet bases function for this case is Coiflet, which provide better SNR than others wavelet families. In addition, the result of the denoising has been implemented for determining cracks location, which can be performed easier than that of without denoising methods.**

***Keywords*— damage concrete, acoustic emission signal, denoising, wavelet, and SNR**

.