

## **Power quality diagnosis in distribution network using wavelet transform**

### **Abstract**

Power quality is one of the most concerns to the electric power suppliers, equipment manufacturers and the users of various electrical and electronic equipments. This paper presents the use of a continuous wavelet transform to detect and analyse voltage sags and swells. Characteristics which include duration and magnitude of the investigated signals are measured. Unlike other approaches where the detection is performed directly in the time domain, while the detection by using wavelet transform analysis approach is carried out in the time-scale domain. The wavelet function Daubechies4 is used as the base function in detection and identification because of its frequency response and information time localization properties. The measured parameters and characteristics are being compared by implementing the SPSS software. The whole method is contrived and tested over a sample representing recorded disturbances. The results showed that Daubechie4 is best suited for detect and localize voltage sags and swells for 50Hz system, while Daubechie10 is suited to determine smooth disturbances. The success percentage obtained for the entire tested disturbance's signal was more than 90%.