

## FAULT DETECTION OF POWER TRANSFORMER BY USING WAVELET TRANSFORMS

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### ABSTRACT

A new approach for protection of power transformer is presented using a time-frequency transform known as Wavelet transform. Different operating conditions such as inrush, Normal, load, External fault and internal fault current are sampled and processed to obtain wavelet coefficients. Different Operating conditions provide variation in wavelet coefficients. Features like energy and Standard deviation are calculated using Parsevals theorem. The fault detection algorithm is constructed on the basis of coefficient comparison from signals decomposed from Discrete Wavelet Transform. Computer simulations are performed using ATP/EMTP as well as MATLAB/Simulink. Various cases and fault types are studied to verify the validity of the algorithm. It is found that the proposed method gives a satisfactory accuracy, and will be particularly useful in a development of a modern differential relay for a transformer protection scheme.

**KEYWORDS:** Power Transformer, Wavelet Transform, Transactions on Power Systems