Chapter-6

Conclusion and Future Scope
In summary, this thesis focuses on the problems encountered by the conventional PD measurement during testing on solid insulating material, specifically focusing on problem of noise and temperature included during PD acquisition and off line PD measurement respectively. The work is carried on temperature and voltage stress parameters on insulation which are affecting its life operation. The present work introduces an experimental approach to obtain phenomenological and statistical life models based on the inverse power law, which has been defined and discussed in this work. The main goal is to describe the life of epoxy resin systems subjected to PD activity under thermal conditions, which are higher and lower than the ambient temperature as well as above the glass transition temperature (Tg). After modeling the interaction between the temperature and PD activity, the main conclusions show that stress increases and life decreases with respect to ratio of T/Tg equal to 0.8 to 1.25. Also, average life increases when ratio of T/Tg is 0.25 to 0.6

During second phase, it is felt that noise has a prime concern in case of PD measurement and therefore a technique has been developed to reduce noise interference through WT de-noising method. WT is applied for suitability check for simulated data and real time data. Subsequently, WT is further considered for different threshold function and threshold value selection. It is concluded that WT can extract the PD signals effectively. During analysis, two factors are noticed; one is WT threshold function has great importance for small amplitude PD detection and another is by analyzing original signal, there is possibility of predicting which threshold function will give optimum WT result. Finally, by analyzing mathematically two conclusions are drawn: (1) if the acquired signal has low PD pulse intensity, there is great advantage of hard threshold function and (2) if noise contribution is low compared to PD pulses, then there is marginal advantage of hard threshold function over soft threshold function selection. In this work, a method is envisaged for optimum WT threshold function selection from real-time acquired data of Transformer. Finally, it is concluded that WT technique can be utilized to de-noise the PD signals and thus enhance the PD detection sensitivity.
Further research can be done on different parameters and a complete model can be developed which can estimates the life of any specimen.

Also, WT method can be used for anticipating appropriate WT threshold function selection for present data from previous one. Further research is possible on to define all WT parameters like, mother wavelet selection, different level selection etc. These WT parameters can be used for hardware realization for PD detection.
Publications
PUBLICATIONS


