Seminar

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Institute for Plasma Research

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Title: Condition Evaluation of Transformer Insulation Using Polarisation Based Method

Speaker: Dr. Raj Jadav
University of Queensland, Australia

Date: 28th November 2022 (Monday)

Time: 03:00 PM

Venue: Join the online meeting:
https://meet.ipr.res.in/viewer/6898738841?be_auth=NTk3NDc4
(Conference ID: 6898738841; Password: 597478)

Abstract

Transformer is considered as a slumbering giant whose unexpected failure can have severe consequences on power system operation. A major challenge power utilities facing today is to use power transformer in a way that meets system requirements yet also maximizes its useful life. The life of transformer mostly relies upon the condition of its oil-paper insulation system. Therefore an accurate information about the condition of oil and paper insulation is of paramount importance to the transformer owner. The oil-paper insulation system in transformers degrades under a combination of thermal, electrical, chemical, mechanical and environmental stresses during its operation. The paper insulation within transformer is not easily available for inspection and hence several indirect methods are used for the determination of its ageing status. The dielectric response methods, namely Polarisation and Depolarisation Current (PDC) and Frequency Domain Spectroscopy (FDS), are widely accepted methods for estimation of condition of transformer insulation. Dielectric response methods are sensitive to the parameters (such as moisture in oil and paper, acidity of oil, ageing status of oil and paper) responsible for the insulation degradation. However, a major challenge is to separate the impact of moisture against other parameters responsible for the ageing. Several experimental investigations were conducted to understand the impact of various parameters on dielectric measurement.