



Contribution ID: 291

Type: **Poster Presentation**

Spectral mapping of the corona discharge

Friday, 8 July 2016 14:40 (20 minutes)

High voltage equipment like transformers, circuit breakers, etc. are vital for reliable power supply. Condition monitoring of these equipment is essential to avoid loss of revenue and unscheduled outages that happen because of catastrophic failures. Usually, these failures are a result of sustained corona or partial discharges and may also be due to system conditions that stress the equipment insulation. Generally, corona discharges occur at the asperities of the metal conductors and are a precursor for flashovers. The corona and its characteristics are well studied and reported in the literature. The objective of this work is to report investigations in the pre-corona region processes that are precursor to a corona discharge. The paper presents experimental results along with corresponding mapping with the VI characteristics of corona discharge. The pre-corona and corona are generated in the laboratory with point-plane geometry of the electrodes. The instrumentation designed for measurement consists of collecting ultra-violet optical signatures and transferring them to a spectrometer for further analysis. Corona discharge in the air produces optical signals in the ultra violet region and electromagnetic waves in the ultra high frequency range. Thus, opening the possibility of mapping these on the electromagnetic spectrum. The corona discharges are also associated with audio signals that can be mapped on the longitudinal spectrum. These pre-corona processes with its corresponding signal can provide valuable insights for development of instruments that can detect and forewarn about impending failures.

Primary author: Mr AVHAD, Ganesh (IIT Bombay)

Co-authors: Prof. BAHIRAT, Himanshu (IIT Bombay); Prof. KULKARNI, Shrikrishna (IIT Bombay)

Presenter: Mr AVHAD, Ganesh (IIT Bombay)

Session Classification: Poster 3-A

Track Classification: Plasmas, Discharges, and Electromagnetic Phenomena