Dielectric Tutorial

Sustainable Energy System In Collaboration With High Voltage And High Power System

Speaker : Professor Satoshi MATSUMOTO
Shibaura Institute of Technology, Japan

Date : 13 August 2018 (Monday)

Time : 10.00 am – 11.30 am (Tutorial)
11.30 am – 12.30 pm (Laboratory Visit)

Venue : Seminar Room, School of Electrical and Electronic Engineering, Engineering Campus, Universiti Sains Malaysia, 14300 Nibong Tebal, Penang.

Fee : RM 100 (IEEE DEIS Member), RM 150 (IEEE Member), RM 200 (Others) payable to account no. 106680001433, IEEE DEIS Malaysia Chapter, Affin Bank

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Biodata

Satoshi MATSUMOTO
was born in Tochigi, Japan in 1955. He received his Ph.D. degree in electrical engineering from The University of Tokyo in 1984, and worked in the high voltage engineering group of Toshiba Corporation for 23 years. He has been a visiting Professor to Kyushu Institute of Technology from 2003 to 2007. He is presently Professor at Shibaura Institute of Technology. His research interests are focused on electric nano-materials, condition monitoring, insulation diagnosis and electromagnetic analysis. He is Fellow of IEEJ and Senior Member of IEEE.

Abstract

Electric power demand is increasing year by year as the world population increases. High power electric energy is mainly generated by hydropower, thermal power, and nuclear power. On the other hand, renewable energy is generated by wind power, sunlight, geothermal power, tidal power, wood, waste materials, etc. In order to maintain the electric power quality and to reduce the greenhouse effect, which caused by the greenhouse gases including carbon dioxide, it is important to harmonize the high voltage high power transmission grid with renewable energy system.
In the lecture, I will introduce the current situation on development of high efficiency power plant, low transmission loss wire, energy saving equipment, power storage system together with control system. To maintain reliability, surge protection equipment, insulation diagnosis, high sensitivity detection of partial discharge signal, elucidation of discharge phenomenon, high voltage test method, signal processing are important. Recent research activities related on impulse test for UHV equipment, partial discharge pulse propagation characteristics using Hertz vector for magnet wire insulation, transformer tank vibration measurement, Dissolved Gas Analysis (DGA) for power transformer diagnosis and Electric Double Layer Capacitor (EDLC) having high capacitance using the graphene for energy recycle system are introduced. In addition to those, human resource development is more important in the field of high voltage and high power system. Those are main topics for my presentation.