

SPECIAL ISSUE ON HIGH-VOLTAGE CURRENT AND VOLTAGE SENSORS, MEASUREMENT TECHNIQUES, AND APPLICATIONS

PREFACE



From the current technological perspectives, high-voltage current and voltage measurement techniques require advanced smart sensing technology and materials. Various high-voltage current and voltage sensors including optical sensors, air-core coil-based sensors, resistive-capacitive dividers, and hybrid solutions have gained increasing interest for use in digital electrical power systems. In addition, digital signal processing and artificial intelligence techniques have been developed for measuring voltage and current signals in power systems including partial discharge signals. There are many promising methods of denoising signals to obtain real signals from noise, including wavelet transforms, time-frequency transforms, and neural network algorithms. Although some of them have already been commercialized, much effort is still required to achieve safer designs, higher accuracy and linearity, a wider bandwidth, a smaller size, and a lower cost. Hence, this special issue focuses on the introduction of advanced measurement techniques and device and material technologies in smart high-voltage power systems.

The papers are selected on the basis of the major categories announced in the call for papers. The applications presented are wide ranging, including electronic sensors and materials, noise reduction techniques for the evaluation of insulation materials, and an assessment technique for insulation materials.

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