

## **Special Session 19: Artificial Intelligence in High Voltage: Research and Applications**

### **Session Organizer:**

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### **Brief Description of the Session Thematic:**

Intelligent and digitalization is a major trend in the development of the power grid, with the development of computer technology, artificial intelligence has an increasing application in the power grid. Conventional research methods related to high voltage are mainly based on experiments, however, with the accumulation of a growing amount of data in the field of high voltage, which includes the operation and experimental data of high voltage equipment, the high voltage test data under various conditions and structures, the physicochemical data of dielectric materials, the data of discharges, etc., which makes it possible to combine artificial intelligence with high voltage technology. Moreover, with the application of algorithms such as artificial neural networks, deep learning, machine learning, and Bayesian networks in image processing, feature recognition, fault diagnosis, and life prediction of high-voltage engineering, the concept of computational high-voltage discipline has been proposed. Consequently, this special session aims to provide a platform for exchange and sharing among scholars conducting related research. We sincerely welcome you to pay attention to and participate in this special session and contribute to the deep integration of AI and high voltage, and the digitalization and intelligent advancement of high voltage technology. We are accepting contributions on the following topics but not limited to them.

### **Topics and Keywords:**

1. Automatic recognition and detection of fault characteristics in high voltage equipment
2. Application of machine learning to the design and evaluation of dielectric materials
3. Intelligent detection and diagnosis of discharges
4. Digital twins in high voltage engineering
5. Artificial intelligence in computational high voltage
6. Computer vision and image processing in high voltage engineering