

Development of Partial Discharge Defect Recognition and Status Diagnosis System with Adaptive Deep Learning

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Abstract : This paper proposes a power equipment diagnosis system based on partial discharge (PD), which is characterized by increasing the readability of experimental data and the convenience of operation. This system integrates a variety of analysis programs of different data formats and different programming languages and then establishes a set of interfaces that can follow and expand the structure, which is also helpful for subsequent maintenance and innovation. This study shows a case of using the developed Convolutional Neural Networks (CNN) to integrate with this system, using the designed model architecture to simplify the complex training process. It is expected that the simplified training process can be used to establish an adaptive deep learning experimental structure. By selecting different test data for repeated training, the accuracy of the identification system can be enhanced. On this platform, the measurement status and partial discharge pattern of each equipment can be checked in real time, and the function of real-time identification can be set, and various training models can be used to carry out real-time partial discharge insulation defect identification and insulation state diagnosis. When the electric power equipment entering the dangerous period, replace equipment early to avoid unexpected electrical accidents.

Keywords : partial discharge, convolutional neural network, partial discharge analysis platform, adaptive deep learning

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