

# **Abstract**

**Hamdy A. Ashour**

## **Modeling and implementing of a proposed electronic differential relay for transformer protection**

Abstract: \_\_\_ This paper presents the design, modeling and implementing of an electronic percentage differential relay that can be used in the protection of different power system components, such as transformers, bus bars, generators and motors. The design of the electronic circuits, providing the characteristic of the percentage differential relay and signal conditioning to reduce possible errors and increase relay margin, has been carried out using the Electronics Workbench program. A 3-ph static switch is designed and implemented to provide simple and effective tripping out instead of the conventional mechanical contractor. Simulink program has been used to simulate and analyze the overall system for the protection of a 3-ph transformer, validating the proposed system for real implementation. The experimental set-up has been implemented and tested, showing the effectiveness of the proposed relay.