DETERMINATION OF HEAT GENERATION IN POWER TRANSFORMERS BY ELECTROMAGNETIC HARMONIC FEM ANALYSIS

Paweł Lasek[a]**, Krzysztof Kubiczek**[b]**, Luciano Garelli**[c]**, Gustavo Rios Rodriguez**[c]**, Mariusz Stępień**[a] **and Mario A. Storti**[c]

[a]*Department of Power Electronics, Electrical Drives and Robotics, Faculty of Electrical Engineering, Silesian University of Technology, Gliwice, Poland*

[b]*Department of Measurement Science, Electronics and Control, Faculty of Electrical Engineering, Silesian University of Technology, Gliwice, Poland*

[c]*Centro de Investigación de Métodos Computacionales, (CIMEC), (CONICET-UNL) Colectora Ruta 168 s/n, Predio Conicet "Dr. Alberto Cassano", 3000 Santa Fe, Argentina, http://www.cimec.org.ar*

Keywords: Power transformer, Power losses, Electromagnetic analysis, FEM

Abstract. The paper is focused on numerical analysis of power transformer in respect of power losses and heat generation. Such an analysis is required to determine temperature and heat flux distribution in the transformer. The analysis is based on ANSYS Maxwell software and is carried out as linear harmonic 3D analysis. Results are magnetic flux distributions and Joule heat distribution in the transformer's windings and magnetic core.