

# Sophisticated Software Analysis of Magnetic Quantities Obtained by Magnetic Adaptive Testing Method

Lenka Hašková<sup>1, a)</sup>, Elemír Ušák<sup>1</sup> and Mariana Ušáková<sup>1</sup>

<sup>1</sup>*Institute of Electrical Engineering, Department of Electromagnetic Theory  
Slovak University of Technology, Faculty of Electrical Engineering and Information Technology  
Bratislava, Slovakia*

<sup>a)</sup> *Corresponding author: lenka.haskova@stuba.sk*

**Abstract.** A new software tool for analysis of data obtained by Magnetic Adaptive Testing method for non-destructive testing of materials is described. Theoretical background of mentioned method based on the measurement of magnetization curves at specific magnetization conditions is also explained. Principle of created algorithm for data analysis is described. Further, chosen evaluation magnetic parameter differential permeability is compared with standard magnetic parameters. On the contrary to several classical testing methods, established in defectoscopy for a long time, this approach allows to find the correlation between properly chosen experimental magnetic parameters with microstructural changes in materials, reflecting, e.g., the fatigue associated with long-term impact of industrial load, etc.