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## LORENTZ FORCE EDDY CURRENT TESTING: TWO-DIMENSIONAL NUMERICAL STUDY<sup>\*)</sup>

**ABSTRACT** *The main aim of this work is to provide 2D numerical data for the motion of a permanent magnet in the vicinity of a solid state body. The goals of this work include the evaluation of induced eddy current, total and current Lorentz Force (LF) distribution inside a solid body accounting for pre-defined defects. The approach of logical expressions and of a moving mesh were used successfully to solve the presented linear eddy current testing problem (LET). The logical expression approach, for the similar number of degrees of freedom, was able to solve the given problem approximately 8 times faster than the moving mesh approach.*

**Keywords:** *permanent magnet, eddy currents, Lorentz force, defects, defect detection, contactless testing, non-destructive testing*