

Group for Nondestructive Methods of Material Assessment

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The main activity of our group deals with research on magnetomechanical properties of ferrous materials. We develop and design new methods of nondestructive evaluation of ferrite steel state. The main current applications of these methods are: residual stress, microstructure state evaluation, crack detection and evaluation.

The three following groups of issues are addressed:

1. the research of magneto-mechanical properties related effects:
 - a) classical Barkhausen effect (HBE)
 - b) mechanical Barkhausen effect (MBE)
 - c) magneto-acoustic emission (MAE)
 - d) magnetic field leakage (MFL)
 - e) magneto-strictive acoustic wave generation and detection (MSAW)
2. the progress in nondestructive methods of :
 - a) residual stress evaluation using HBE
 - b) cracks detection using LMF and MSAW
 - c) creep damage stage assessment using HBE and MAE.
3. the laboratory tests of rheological properties of solid state using internal friction phenomenon

Our methods were applied at many Polish industry companies .

We cooperate with the following scientific organizations:

1. Energy Institute of Warsaw
2. Fundamental Research Institute of Polish Academy of Science in Warsaw
3. South-west Research Institute in San Antonio
4. Technical University of Wiena
5. INSA de Lyon

We are open to any kind of technical and scientific cooperation