Coupling of magnetostriction and magnetoresistance in composites containing magnetite nanoparticles in a conductive polyurethane matrix with a porous structure

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Example text of abstract. You can insert mathematical equation like this: $\sum_{i=0}^{n} \frac{1}{i^2}$, or some Greek letters: θ, μ. You can also format text: **bold text**, *italic text* or insert chemical formula: Cu_2Ni_{1-x}.
Abstract should be written using LaTeXsyntax. For your convenience there are some special characters and symbols provided above this text area.

Aaa & Bbb & Ccc_D
1 & 2 & 3^4
ϕ & θ & γ

This is example table

The presentation will concerning the simultaneous occurrence of magnetostriction and magnetoresistance in composites containing magnetite and silver nanoparticles dispersed in a porous polyurethane matrix. The results of measurements of changes in the length and resistivity of samples of these composites as a function of magnetic field induction and their material parameters, in particular the modulus of elasticity and the filling factors of magnetite and silver particles, will be presented. The composites under study exhibit high magnetostriction, comparable to the giant magnetostriction in iron, dysprosium and terbium alloys [1, 2]. Magnetoresistance occurs simultaneously with this magnetostriction. However, the physical basis of these phenomena is different from that in the case of the aforementioned alloys and consists in the deformation of the walls between the pores. Therefore, a model describing the effects in these composites will be presented. Such composites have not been studied before. Thanks to the combined occurrence of magnetostriction and magnetoresistance in a single material, the studied composites can find numerous applications in modern technologies, including as components of sensors and transducers.

References:

[1] [1] Na S., Flatau, A., Texture evolution and probability distribution of Goss orientation in magnetostrictive Fe-Ga alloy sheets, Journal of Materials Science (2014) 49 7697-7706.
[2] [2] Olabi, A., Grunwald A., Design and application of magnetostrictive materiale, Materials and Design (2008) 29 469-483.