

# Magnetoelastic Villari Effect in Structural Steel Magnetized in the Rayleigh Region

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Studies on the magnetomechanical effects are important aspects of modern physical science connected with magnetism. For the structural steel, it is possible to utilize the magnetoelastic Villari effect for stress assessment. However, previous studies in this area were performed for high magnetizing fields from the saturation region. The following paper is focused on the magnetoelastic effect in low magnetizing fields corresponding to the so-called Rayleigh region. Special experimental setup allowing to apply mechanical stress and measure magnetic characteristics of the investigated structural steels was utilized during the experiment. Obtained results indicate significant correlation between applied mechanical stress and magnetic properties of the investigated materials.

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