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## IMPROVING PRINCIPLES OF ELECTRIC ENERGY PULSE TRANSFORMATION INTO HIGH-FREQUENCY MECHANICAL ENERGY USING CAPACITIVE METHOD

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### Abstract

*Closed solutions of electrostatic and electrodynamics problems are formed in metals for a piecewise-homogeneous medium, where half-space is filled with metal of finite values having electrical conductivity and magnetic permeability being implemented within the framework of a mathematical model for capacitive type sensor when converting electrical energy into*

*high-frequency mechanical (ultrasonic). It is shown that a disk transducer of a capacitive type excites forces acting normally on the surface of an electrically conductive product. A quantitative assessment of Coulomb forces for the surface density is carried out. The main factors determining a disk converter sensitivity of capacitive type are stated. Capacitive transducers should be used for measuring, control and diagnostic equipment. References 10, figures 3.*

**Key words:** mathematical modeling, ultrasonic sensor model, capacitive transducers, electric field, charge density, electrode, impulses, measurements, diagnostics.

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