

**THE LABORATORY MODELLING OF EFFECTS  
OF ELECTRIC AND ACOUSTIC FIELDS INTERACTION  
IN POROUS MEDIA SATURATED WITH WATER  
OR HYDROCARBONS**

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**A b s t r a c t**

The results of experimental studies of electric resistivity of free electrolytes, oils, and models of saturated rocks in an ultrasonic field are presented. It is shown that the resistivity of electrolytes varies rather insignificantly comparing to that of oil subject to elastic energy. A theoretical model to explain the obtained experimental results is proposed. The formulae derived offer a possibility to calculate changes of electric resistivity of oil in a wide spectrum of ultrasonic vibration intensities, and to make quantitative evaluation of the mechano-electric effect, very useful in laboratory and borehole investigations of properties of rocks saturated with hydrocarbons or water. The obtained results suggest possibilities of inventing new methods in geophysical prospecting.

**Key words:** electric resistivity, ultrasonic field, electron paramagnetic resonance, mechano-electric effect, pore liquid.