



Differential Acoustic Resonance Spectroscopy Analysis of Fluids in Porous Media

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Abstract

The Acoustic Resonance Spectroscopy is a well established method and is used by the National Bureau of Standards for measuring the velocity and quality factor of the fluids. It was proposed to adapt the method to measure the velocity and quality factor of sound in rocks in the sonic frequency range by Harris (1996). The Differential Acoustic Resonance Spectroscopy (DARS) is an experimental method based on the change in the acoustic resonance frequency of a fluid-filled tube due to the involvement of an external object in a tube. The resonance frequency of the fluid-filled tube depends on the ratio of the sound velocity in the surrounding medium and the length of the cylinder. In the present paper there are analysis and comparative study with the help of tables and graphs about variations of frequencies by Aluminum and Lucite samples. The compressibility is also analyzed and compared by ultrasonic method and DARS methods for taking five different samples.

Keywords: DARS Theory, Fluids, Porous media.

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