

Study of Structural Arrangement in Ferrofluid at Various Temperatures by Acoustic Spectroscopy

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Abstract. In the paper is used the acoustic spectroscopy for investigation of a ferrofluid in a magnetic field at various temperatures. The parameters of ferrofluid at temperatures range from 5 °C to 45 °C were measured. The structural changes in ferrofluid upon the effect of a magnetic field by the change of acoustic attenuation were studied. At step change of the magnetic field to 200 mT for parallel and perpendicular orientation to the direction of propagation of the acoustic wave a continuous change of the acoustic attenuation caused by an aggregation of magnetic nanoparticles to new structures were observed. The anisotropy effect was also observed.