

Imaging with the Ultrasonic Vibration Potential

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A voltage, known as the ultrasonic vibration potential, is generated when ultrasound propagates through a colloidal suspension, or an ionic solution. The effect takes place as a result of dissimilar motions that a colloidal particle and its surrounding double layer undergo in the presence of sound. The distortion of the normally spherical charge distribution by the ultrasound causes dipoles to be generated at the sites of the particles, which, when integrated over the particles in one half cycle of the sound, gives a macroscopic voltage. Preliminary experiments are reported showing how the vibration potential can be used for imaging.