

Abstract Submitted
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Imaging density fluctuations in liquids using Schlieren photographic technique ANA OPRISAN, SORINEL OPRISAN, ALEM ABRAHA TEKLU, College of Charleston — Schlieren imaging method was used to visualize variations in the index of refraction or density of transparent liquid media. In one set of experiments, a colloidal suspension of silica and water was placed in a sample cell of 20 mm height. Schlieren method was used to visualize non equilibrium fluctuations caused by a concentration gradient. Using image processing techniques, the characteristic length of the fluctuations and the static structure factor were estimated. The temporal evolutions of concentration fluctuations were also analyzed and the correlation time was determined. The Schlieren technique was also used to image ultrasound beam incident on a corrugated water-brass interface and showed a backward displacement of the reflected beam at an angle of 22.5° , confirming the observations of Breazeale and Torbett [Appl. Phys. Lett. **29**, 456 (1976)]. However, a new theory hypothesizes that this beam displacement results from excitation of a new type of leaky surface wave.

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