

Abstract Submitted
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Particle distribution and dynamics in a complex fluid suspension studied by an image-analysis light-scattering technique SAAD ALGARNI, H. KASHURI, GERMANO IANNACCHIONE, WPI — A relatively unique approach is described to analyze the scattered laser light from a complex fluid suspension for both static and dynamic behavior. Recent development of speckle analysis using CCD recorded direct imaging of the scattered coherent light has opened many new avenues for the application of static and dynamic light scattering experiments. The straightforward nature of this approach is somewhat offset by the constraints of the CCD chip size and placement to probe wide (or narrow) ranges of the wave vector. An alternative, and greatly simplified variation of this technique, is to convert the scattered light into diffuse scattering using a translucent screen placed at a desired location down beam then imaging the resulting pattern on the screen. A thru-beam stop and axis scales can be easily placed on the screen and recorded to improve the image quality and later analysis. One of many possible applications is the study of the particle (7nm diam aerosil SiO₂ spheres) distribution and dynamics due to Brownian motion as well as sedimentation in a complex fluid (glycerol).

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