

Abstract Submitted
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Nano-scale measurements of dense particle-laden interface dynamics CRAIG SNOEYINK, GORDON CHRISTOPHER, SOURAV BARMAN, Texas Tech University — We discuss an image analysis algorithm that allows one to accurately locate in three dimensions individual fluorescent particles even when closely spaced. Traditionally, locating multiple closely spaced particles has been difficult as the overlapping particle images obscures relevant data. Current state-of-the-art algorithms have difficulty with more than 2-3 particles per micron square box when viewed with a 100x objective. We show that this algorithm, when implemented with the Bessel Beam Microscopy system, is capable of locating particles at an order of magnitude greater particle density and with nano-scale resolution in depth. The utility of this technique is demonstrated by measuring the dynamics of fluorescent particles on a particle laden oil-water interface with nano-scale resolution. The relative position and motion of these particles has a direct effect on the fluidic behavior of these interfaces.

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