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Confined nanoparticle measurement using Bessel Beam Microscopy CHUMKI CHAKRABORTY, CRAIG SNOEYINK, Department of Mechanical Engineering, Texas Tech University — With the advent of Lab-on-chip technologies, study of near surface phenomenon has gained a lot of importance due to their huge impact on bulk fluid properties. Such studies demand imaging techniques with utmost precision to capture the intricate details of the interface. But, resolution for most of the optical imaging systems is limited due to the light spreading effects of diffraction. This diffraction limited resolution, can be improved by the use of Bessel Beam microscopy. Bessel beam imaging technique when combined with a TIRF (Total Internal Reflection Fluorescence) system can be used for high resolution particle tracking experiments, to reveal detailed information about near surface particle positions and motions with their velocity profile and distribution. With the experimental set up combining these two powerful tools, we plan to present our particle tracking velocimetry results in the interface regime of confined nanoparticles in a binary fluid mixture. Such a study can contribute towards a better understanding of near surface fluid-particle interfaces.

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