MAE Seminar SERIES

Over Under Around and Through: Particle Localization and Velocimetry Below the Diffraction Limit

Thursday,
April 28
3:30 PM
112 O'Brian

ABSTRACT

The diffraction limit obscures our view of objects and features below about 200 nm. This limits our ability to study relevant particle and fluidic phenomena at the nanoscale which may have velocity gradients or densities which vary strongly over 100 nm. Particle tracking/localization techniques have by passed the diffraction limit, giving resolutions as low as 10 nm, but have difficulty localizing particles in densely seeded systems. This presentation describes Bessel Beam Microscopy, an optical technique that uses Bessel Beams in the imaging path to create an afocal imaging system. This system can be used to produce high resolution (<5nm) localization in dense system as well as the unique capability of actually changing the diffraction limit to approximately 120 nm.

Dr. Craig Snoeyink
Assistant Professor
Mechanical and Aerospace Engineering
University at Buffalo

BIO SKETCH

Craig Snoeyink, PhD, is an Assistant Professor in the Department of Mechanical and Aerospace Engineering at the University at Buffalo. He is an experimentalist developing novel optical microscopy techniques to study nanoscale fluidic and particle phenomena with a particular interest in applying these measurement techniques to study nanofluid detergents and the effects of high electric fields on liquids. His research has been funded by the NSF and NIH and published in a range of journals, including Optics Letters and Langmuir.

University at Buffalo
Department of Mechanical and Aerospace Engineering
School of Engineering and Applied Sciences