

SEMINAR IN PHYSICS

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3:30-4:25 – Ross 0220

~ Refreshments! ~

Physics and Applications of Optical Tweezers

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Arthur Ashkin started a path leading to brand new techniques and discoveries with his innovative work on optical tweezers. The physics involved in optical tweezers is relatively simple; however, its usefulness is endless.

The applications stretch across many of the hard sciences. Although there are physical application in things like nonequilibrium thermodynamics or colloidal hydrodynamics, the fields that seem to use optical tweezers the most are biology, biomechanics, and biophysics. Because a microorganism or other objects on that scale of size can be manipulated with light, these objects can be moved in three-dimensional space without worry of corrupting the sample through physical interaction.

This report will go over the main mechanisms, physics, and applications of optical tweezers.