

PHYSICAL CHEMISTRY

SEMINAR

PROFESSOR KEVIN WELSHER
DUKE UNIVERSITY



Date: Tuesday, October 5, 2021

Time: 11:00am (CT) - Virtual

Host: Prof. Randall Goldsmith

UNTETHERING SINGLE-MOLECULE SPECTROSCOPY AND CAPTURING THE DYNAMICS OF EXTRACELLULAR VIRUSES

Our group's research focuses on capturing dynamic processes occurring at high speeds in living systems. In the first part of the talk, I will discuss an active-feedback 3D microscopy technique we have developed to capture the dynamics of rapidly diffusing single molecules in solution (3D Single-Molecule Active Real-time Tracking or 3D-SMART). This method "locks" target fluorophores in the focal volume of an optical microscope using real-time feedback to move the sample and compensate for molecular diffusion. 3D-SMART has been successfully applied to capture a wide range of targets, from single virus-like particles down to single proteins and nucleic acids at diffusive speeds up to $10 \mu\text{m}^2/\text{s}$. In the second half of the talk, I will discuss our efforts to combine these fast-tracking techniques with rapid volumetric imaging to capture the early events in the interactions between single viral particles and live cells.

FOR MORE INFORMATION, CONTACT:

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