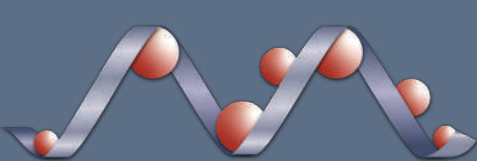


SMART Center

High Resolution Imaging and Characterization

M | LSA BIOPHYSICS
UNIVERSITY OF MICHIGAN

M | CENTER FOR RNA BIOMEDICINE
UNIVERSITY OF MICHIGAN

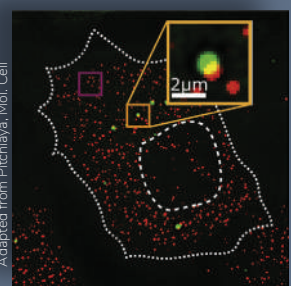


SINGLE MOLECULE

singlemolecule.lsa.umich.edu

Single Particle Imaging

- smFISH
- smFRET
- PALM/STORM/DNA-PAINT
- Particle tracking
- Colocalization
- Multiplexed sequential imaging, e.g., MERFISH



Adapted from Plichaya, Mol. Cell

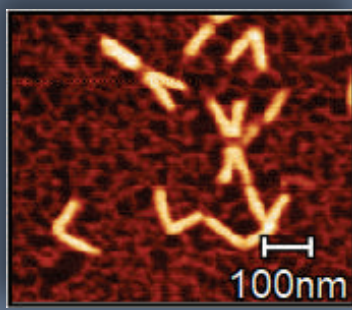
Single molecule imaging and colocalization of μ RNA and processing bodies

Fluorescence Lifetime

- Lifetime imaging
- Time-resolved FRET
- Fluorescence anisotropy

Atomic Force Microscopy

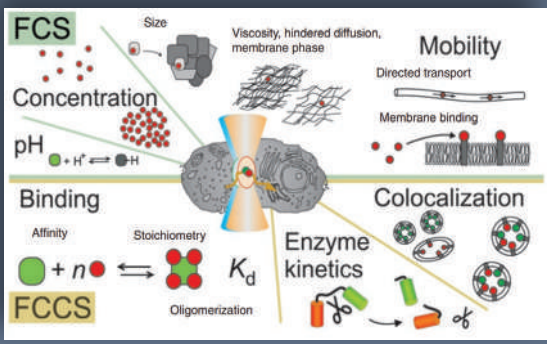
- Nanoscale topography imaging
- Mechanical measurements



AFM topograph of DNA origami "tweezers," with individual DNA strands in background. Courtesy of Walter lab.

Experimental Planning and Analysis Support

Fluorescence Fluctuation Spectroscopy



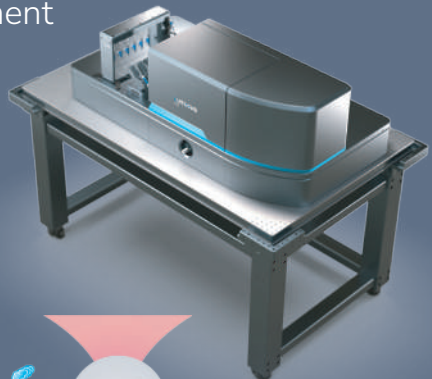
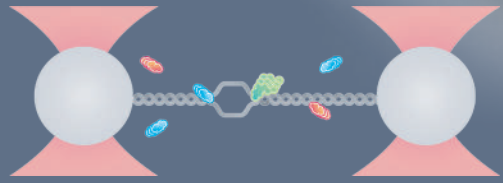
Diverse measurands accessible via fluorescence fluctuation spectroscopy. Bacia et al., Nature Methods (2006)

- Binding stoichiometry and kinetics
- Diffusion and mobility
- Homogeneous measurement in complex fluids or in cells

Cell and Molecular Force Measurements

NEW! Lumicks C-Trap® Optical Tweezers!

- Protein force and displacement
- DNA winding mechanics
- Cell stiffness
- Binding energy
- Condensate mechanics


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