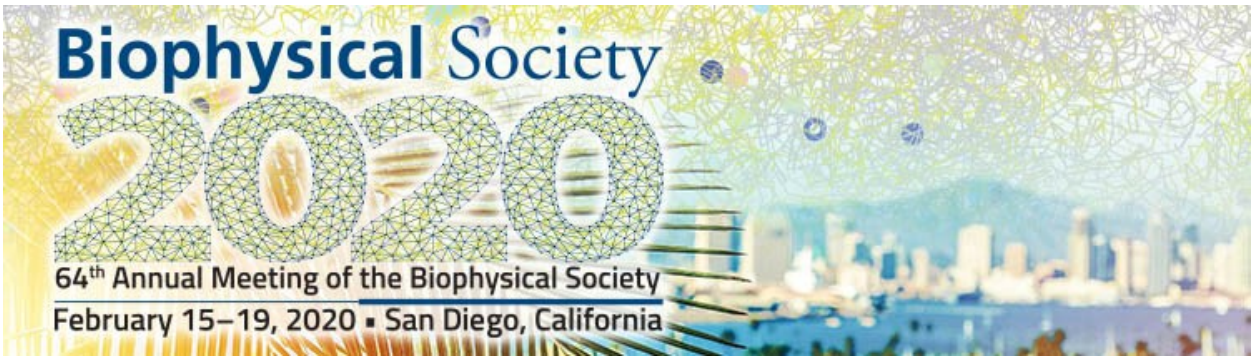

Monday, February 17
9:30 AM – 11:00 AM
Room 33A
Bruker Corporation

From Single Molecules to Tissues – A New AFM Toolkit for Nanoscopic Investigation of Mechanics, Structures, and Dynamic Processes in Life Science

The ability of atomic force microscopy (AFM) to obtain three-dimensional topography images of biological molecules and complexes with nanometer resolution and under near-physiological conditions remains unmatched by other imaging techniques. JPK BioAFM has developed a new NanoWizard® 4 XP AFM which not only enables the high-speed study of the time-resolved dynamics associated with cellular processes, it's latest scanner technologies and compact design also allow full integration of AFM into advanced commercially available light microscopy techniques. This seminar will focus on how the advances in Bruker's latest BioAFM can be applied to study a wide-range of biological samples, from individual biomolecules to mammalian cells and tissues in real-time, in-situ experiments. We will present examples of how we are able to resolve the nanoscale structure of individual biomolecules at high-speed scan rates (150 Hz), follow the dynamic reorganization of the membrane-associated cytoskeleton of living cells at high-temporal and high-spatial resolution, and automatically map the topography of cell cultures across the entire area of the microscope stage. We will also discuss the full suite of BioAFM modes and accessories for studying the nanomechanical properties of cells and tissues, including direct correlation of multiparametric, quantitative AFM and super-resolution (STED) datasets.

Speaker

Andrea Slade, BioAFM Product Manager, Bruker Corporation