



Tutorial Session Detail  
October 15, 2008

**Tutorial I**

<b>Tutorial Title</b>	<b>Introduction to in situ AFM probing of biological samples</b>
<b>Instrument</b>	Innova
<b>Sample</b>	DNA
<b>Brief Description of what will be demonstrated</b>	The focus will be on imaging in aqueous solution, addressing the nondestructive, in situ interrogation of biological samples in a hands-on session. Requirements for sample preparation, instrument setup, as well as optimizing imaging parameters for operating in fluid environments will be addressed.

**Tutorial II**

<b>Tutorial Title</b>	<b>High Resolution Force Spectroscopy</b>
<b>Instrument</b>	MultiMode V PicoForce
<b>Sample</b>	Titin on gold
<b>Brief Description of what will be demonstrated</b>	This tutorial will focus on AFM force spectroscopy applied to the unfolding of individual titin molecules. Titin samples will be prepared by adsorbing the protein from solution onto bare gold substrates. Subsequently the sample will be rinsed and kept under buffer and mounted to the AFM instrument. For the measurements a Multimode PicoForce in combination with a Nanoscope V controller will be used. The Multimode PicoForce has been especially designed for advanced force spectroscopy measurements both, in open and closed loop performance. Data will be recorded and analyzed using the Nanoscope v 7.30 software.



### **Tutorial III**

<b>Tutorial Title</b>	<b>AFM + Optical Microscopy: Multi-Modal Imaging</b>
<b>Instrument</b>	BioScope II + Leica DMI + SP5 Confocal MIRO Software
<b>Sample</b>	Fixed cells (fluorescently labeled and unlabeled) in glass bottom Petri dishes
<b>Brief Description of what will be demonstrated</b>	This tutorial will focus on using combined AFM and optical techniques (transmitted light and fluorescence) to obtain correlated data sets. In addition to demonstrating the new combined Veeco BioScope II – Leica SP5 Confocal multi-modal imaging platform, we will also explore the new BioScope II MIRO software functionality. MIRO allows researchers to register and directly overlay an optical field of view onto the AFM scan area. This enables the examination of select regions of interest of registered optical images with high resolution three-dimensional AFM imaging or highly sensitive force measurements – all within the NanoScope AFM software environment.