



Co-sponsored with Department of Mechanical & Materials Engineering

Dr. Chanmin Su

AFM Business Unit, Bruker-Nano Inc.

Engineering Physics of PeakForce Tapping, a method to quantitatively characterize material properties at nanometer scale

Since its release in 2010, PeakForce Tapping has led to over 1,000 peer-reviewed publications, and generated over 3,000 citations. Dozens of these papers appear in high-impact journals such as Nature and Science. PeakForce Tapping provides unprecedented high-resolution imaging, extends AFM measurements into a range of samples not previously accessed and uniquely enables simultaneous nanoscale property mapping. In this seminar, Dr. Chanmin Su, who led development of PeakForce Tapping will share the fundamental physics and engineering approaches behind the piconewton control and quantitative mechanical measurements of PeakForce Tapping and its many enabled AFM modes, such as PeakForce QNM, PeakForce TUNA, and PeakForce KPFM.

In addition, the seminar will dissect several successful use cases of PeakForce Tapping technology, ranging from high-resolution imaging with great precision of force control in material sciences to quantitative property mapping in molecular and cell biology. Finally, the latest and near-future potential of the technology will be discussed, addressing a broad range of quantitative measurements in chemical ID and nanoelectrics.



Chanmin Su received PhD degree from Chinese Academy of Science, joined Veeco in 2000 as a senior staff scientist to develop AFM systems and served as Director of Research during 2005-2008. He is currently Senior Director of Technology at Bruker Nano AFM Business.

Chanmin Su is inventor/co-inventor of 29 issued US patents on AFM technologies and material characterization at nanometer scales, including Peak Force Tapping, Fastscan AFM, nanoscale mechanical, electric and chemical mappings. Many of these inventions led to break through products, such as PeakForce tapping and PeakForce QNM. He was co-organizer of several international conferences on scanning probe microscopy and chaired sessions in scanning probe-related international conferences. Chanmin Su has served as a panelist for a few national and international reviews on future technologies and has given many invited speeches to various international scientific events. Chanmin Su has received service awards from NASA administrator in 2000, R&D 100 award in 2002, 2012 Innovation award by Microscopy Today.

Host:
Professor Li Tan
Department of
Mechanical &
Materials Engineering

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Tuesday, March 1, 3:30 pm | 110 Jorgensen Hall