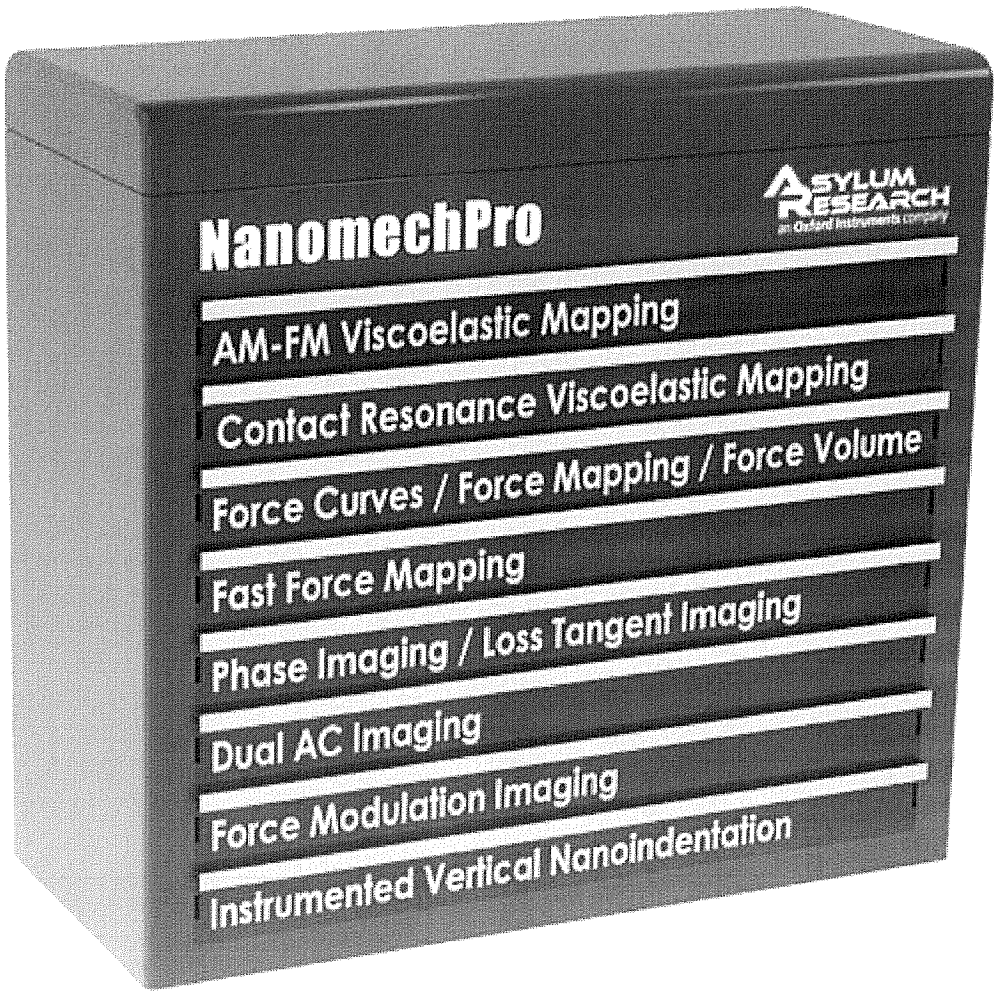
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Application Note Describes Nanomechanical Measurements on Diverse Materials Using the Asylum Research NanomechPro Toolkit

(*Nanowerk News*) Oxford Instruments Asylum Research has released a new application note, "The NanomechPro™ Toolkit: Nanomechanical AFM Techniques for Diverse Materials," written Dr. Donna Hurley, founder of Lark Scientific and former NIST project leader. The last several years have seen a surge in the development and use of techniques that enable the measurement of mechanical properties at the nanoscale. Asylum Research has been at the forefront of this activity, collaborating with outside researchers to improve existing techniques and develop new ones. The NanomechPro Toolkit is a collection of unique techniques that spans the largest modulus range, and includes techniques that measure both the elastic and viscous response, and leverages the high speed advantage of the Asylum Research Cypher AFM to make these quantitative measurements much faster than ever before possible. The application note describes the science behind each technique, advantages and disadvantages, and gives real-world examples.



"AFM nanomechanical characterization unfortunately does not have a 'one-size-fits-all' solution," said Dr. Hurley. "The various techniques each offer unique advantages and cover some portion of the total range of properties that researchers need to explore. The tools that comprise the NanomechPro Toolkit both span this range and together provide complementary information."

Dr. Marta Kocun, Asylum Research post-doctoral researcher, added, "I've enjoyed a unique opportunity to push these nanomechanical techniques to their limits and help improve them. I find myself always reaching for different tools in the NanomechPro toolkit depending on the specifics of my sample and what I'm trying to learn about it. I could never go back to when I was restricted to just phase imaging and force mapping."

As described in the application note, the NanomechPro Toolkit consists of both standard imaging modes that are included with every Asylum Research AFM as well as several optional techniques. The standard modes include force curves and force volume mapping, phase imaging, Bimodal Dual AC Imaging, and Loss Tangent Imaging. The optional modes include Fast Force Mapping Mode, instrumented vertical nanoindentation, force modulation imaging, AM-FM Viscoelastic Mapping Mode, and Contact Resonance Viscoelastic Mapping Mode.

The new application note can be found at: http://www.oxford-instruments.com/nanomechanics

About Oxford Instruments Asylum Research

Oxford Instruments Asylum Research is the technology leader in AFM for both materials and bioscience research. Asylum Research AFMs are used for a wide variety of nanoscience applications in material science, physics, polymers, chemistry, tribology, biomaterials, and bioscience, including emerging applications in energy storage and generation, low-dimensional materials, and biophysics.

Asylum's MFP-3D family of AFMs includes four different models that span a wide range of performance, applications, and budgets. The new MFP-3D Infinity is the flagship of the family, offering the highest performance, simplest operation, and widest range of capabilities. The MFP-3D Classic, the original MFP-3D offered for mid-range budgets, provides high performance and versatility that exceeds most AFMs. The MFP-3D Origin is the most affordable model, offering the same performance as the MFP-3D Classic with many accessories and an easy upgrade path to advanced capabilities. Finally, the MFP-3D-BIO integrates with an inverted light microscope to support biological and photonic applications.

Cypher is the highest resolution fast scanning AFM and is available in two configurations, the Cypher S and the Cypher ES Environmental AFM. They provide low-drift closed loop imaging for the most accurate images and measurements possible today, >20X faster imaging with small cantilevers, exceptional ease of use, and integrated thermal, acoustic and vibration control – all

in a small footprint. Cypher AFMs routinely achieve higher resolution than other AFMs, as demonstrated by single point atomic defects in crystal lattices and imaging of the DNA double helix. The Cypher ES adds gas and liquid perfusion, temperature control, and enhanced chemical compatibility to the extraordinary performance of the Cypher S.

In addition to the best AFMs, Asylum Research also offers unmatched customer support that is free for the lifetime of the AFM and industry-leading warranties for the lowest cost of ownership of any AFM. Asylum has sales, applications and service staff in offices in the United States, Germany, United Kingdom, Japan, France, China and Taiwan and global distribution.

Source: *Asylum Research (press release)*

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