Invited award symposium presentation on molecular orientation of electrospun fibers using nanoscale IR spectroscopy at Pittcon 2012

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For Immediate International Release

Santa Barbara, CA — Anasys Instruments is pleased to announce that Dr. Bruce Chase is presenting an invited talk entitled “Structure and Orientation in Electrospun Nanofibers” at the 2012 Pittsburgh Conference, as part of the Organized Contributed Session on Analytical Applications of Broadly Tunable Lasers. The presentation will include spatially resolved measurements of molecular orientation obtained by a technique combining atomic force microscopy and infrared spectroscopy (AFM-IR). The measurements were performed in collaboration with Anasys Instruments using an AFM-IR instrument incorporating arbitrary polarization angle control. “By measuring the infrared absorption of a sample locally as a function of polarization angle, we can identify regions of a sample that have a high degree of molecular orientation,” says Anasys CTO Craig Prater. “Controlling molecular orientation is a critically important technology for improving the performance of polymers—with the polarization control capability we provide a new ability to observe molecular orientation with high spatial resolution.”

Dr. Chase’s presentation will contain important insights on molecular orientation of electrospun PVDF fibers. This is an important research area because of the vast applications of electrospun fibers ranging from textiles and advanced composites to biomedical applications such as tissue engineering scaffolds and artificial blood vessels. Speaking about the results, Prof. Chase, said that “Our ability to produce enhanced material properties in electrospun fibers is critically dependent on understanding molecular level structure at the nanoscale. The NanoIR results have given us a first look at chain orientation of individual fibers.”

About the speaker
Dr. Bruce Chase is a Research Professor in the Department of Materials Science and Engineering at the University of Delaware and the Chief Technical Officer of Pair Technologies, LLC. He retired from DuPont in 2009 as a DuPont Fellow and Chair of the DuPont Fellows Forum. His co-authors on this paper include Prof. John Rabolt, Karl W. and Renate Boer Professor of Materials Science at the University of Delaware and Xiaoqian Ma, whose doctoral dissertation, this research falls under and Dr. Qichi Hu from Anasys who performed the measurements.

About Anasys Instruments
Anasys Instruments Corporation was founded in 2005 by an experienced team of AFM industry pioneers and scientists with the goal of creating innovative analytical tools that enable a better understanding of structure, property, and function at the nanoscale. The Santa Barbara, California-based company has already pioneered two major award-winning technologies: nanoscale thermal analysis (nano-TA™) and nanoscale IR spectroscopy (AFM-IR).
For further details, please visit www.anasysinstruments.com.

Attachment:

(L) AFM-IR spectra on electrospun PVDF fibers under two different IR polarizations
(R) IR absorption image at 1404cm⁻¹ of crossed PVDF fibers under polarized illumination
(polarization direction shown by arrow)

For a high resolution image, please right click on image for download or contact Jezz Leckenby at NetDyaLog.

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