

244th ACS Meeting, Philadelphia PA, Aug. 19 – Aug. 23, 2012

Division of Polymer Chemistry and Division of Colloid and Surface Chemistry Symposium on

Advances in Methods and Applications of Scanning Probe Microscopy to Polymer Materials

Organizers:

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This symposium will focus on recent research progress in both developing new SPM based methods for and novel applications of SPM methods to polymer materials. The focus of developing these new methods and utilizing these applications should be to understand mechanical, rheological, thermal, electrical, and self-assembly behavior of polymers on the nanoscale and to establish composition-processing-morphology-performance relationships of polymers, polymer blends, and composites. All SPM based methods will be considered, including traditional mechanical (phase, nanoindentation), thermal, and electrical based methods as well as more recently developed methods from single to multifrequency measurements and high speed AFM. All experimental and theoretical aspects of SPM methods developed with specific relevance to polymer materials or application of such methods to polymer materials will be discussed by a forum of researchers with various backgrounds ranging from mechanical engineering to physics, chemistry, chemical engineering, materials science, polymer physics and rheology.

Application of SPM to a wide variety of polymer materials is to be covered including amorphous and semicrystalline polymers, polymer nanocomposites, block copolymers, polymer compounds, elastomers and rubbers, impact copolymers or toughened polymers, conductive polymers, single polymer chains, etc. Of particular interest is interpretation of AFM measurements that can be related to meaningful and relevant polymer material properties.

A **tutorial** on "Basics of Theory and Instrumentation of AFM" will precede the symposium.

Session Topics include:

Nanomechanical characterization; Nano-rheological measurements with SPM; High resolution imaging; Kinetics measurements with high speed AFM; Application of Multifrequency Methods; Localized thermal analysis

Confirmed Invited Speakers Include:

Robert Carpick, University of Pennsylvania
Yifu Ding, University of Colorado
Liang Fang, Arkema
Greg Haugstad, University of Minnesota
Jamie Hobbs, University of Sheffield
Donna Hurley, NIST
Kevin Kjoller, Anasys
Mark Van Landingham, Army Research Lab
Robert Magerle, Technical University of Chemnitz

Steve Minne, Bruker Nano Systems
Sergei Magonov, NT-MDT
Ken Nakajima, Tohoku University
Rene Overney, University of Washington
Roger Proksch, Asylum Research
Arvind Raman, Purdue University
Vladimir Tsukruk, Georgia Inst. of Tech
Gil Walker, University of Toronto

Abstracts should be submitted on-line on the PACS abstract submission site:

<http://abstracts.acs.org>. Click on POLY, select this symposium topic and follow instructions to submit an abstract with 150 or less words.

Deadline for on-line abstract (with preprint) submission is March 19, 2012

We thank the sponsors of this symposium: ExxonMobil, Asylum Research, Bruker, Anasys