

Nanoscale Surface Characterization of Polymeric Materials and Products

Wednesday, October 6, 2021 | 13:00 BST | 14:00 CEST



Bruker is dedicated to providing a complete range of high-performance metrology techniques for the nanometer-scale surface characterization of polymeric materials and products. Join us for this virtual Surface Lab session where we will present several different characterization techniques, their features and capabilities, and perform demos live from our laboratories across Europe.

The following techniques will be covered:

Atomic Force Microscopy

When studying polymeric materials, AFM has many benefits over alternative techniques.

- The sharp apex and precise force control provided by AFM enables researchers to probe heterogeneous sample surfaces with a resolution down to the nanometer level.
- AFM enables the characterization of various material properties including but not limited to elastic and viscoelastic properties as well as electrical and thermal properties
- AFM can be performed over a wide range of temperatures in both air and liquid, enabling the in-situ investigation of varying environmental conditions on sample properties. In addition, the fast scanning capabilities of AFM enable the detailed investigation of dynamic processes like crystallization and melting of polymers.

Several different AFM methods for measuring the properties of polymers will be covered, from high resolution elastic & viscoelastic mechanical property mapping to nano-electrical and temperature dependent measurements.

NanoIR Spectroscopy

Combining IR spectroscopy with the high-resolution imaging capabilities of AFM enables the chemical characterization of polymeric materials. We will provide insights into new and existing photothermal AFM-IR techniques and demonstrate how to achieve high performance results.

Nano-Indentation

Nano-mechanical characterization can also be achieved using nano-indentation methods. We will

- Introduce the technique
- Present case studies examining viscoelastic properties using the nanoDMA method
- Outline the influence of environmental conditions

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14:00 Welcome & Introduction

Dr Peter De Wolf

14:10 Nanoscale Topography and Advanced Physical Property Characterization Using AFM

Talk and live demos

Dr Mickael Febvre, Dr Thomas Henze and Dr Heiko Haschke

15:00 Break

15:05 Nanoscale Spectroscopy and Imaging Using NanoIR – Photothermal AFM-IR

Talk and live demo

Dr Miriam Unger and Dr Hartmut Stadler

15:30 Investigating the Influence of Environmental Conditions with Nano-Indentation

Talk and live demo

Dr Ude Hangen and Dr Jaroslav Lukes

15:55 Q&A Closing

Dr Peter De Wolf

Meet the Bruker Team



Dr Peter De Wolf
Worldwide Application
Director



Dr Mickael Febvre
Application Manager



Dr Miriam Unger
NanoIR Application
Scientist



Dr Hartmut Stadler
Application Scientist



Dr Heiko Haschke
Head of BioAFM
Applications



Dr Thomas Henze
BioAFM Application
Scientist



Dr Ude Hangen
Nanoindentation
Application Manager



Dr Jaroslav Lukes
Application Scientist

Please don't hesitate to contact us at productinfo.emea@bruker.com if you have any questions.