

The NMI is an application-oriented research institute that makes scientific knowledge available to the business world

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Natural and Medical Sciences Institute
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Registration

www.nmi.de/afm-raman

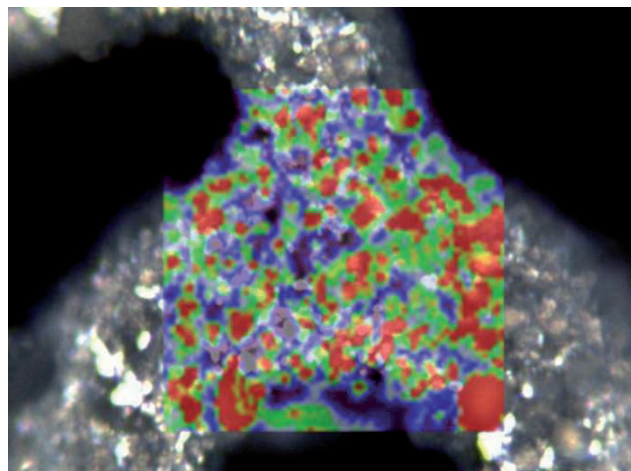
Registration fee:

Industry	140 Euro
Academics	110 Euro
Students	50 Euro

(Fee include lunches and coffee/tea/refreshments.
Social event are included, please register online for
this meeting highlight.)

The venue of the Workshop:

Natural and Medical Sciences Institute
at the University of Tübingen, NMI
Markwiesenstrasse 55
72770 Reutlingen
Germany



Workshop: Correlative AFM & Raman Imaging

for advanced characterisation of
polymer, carbon and graphene
nano-materials >>

28th and 29th July 2015
NMI Innovationsforum, Reutlingen



Natural and Medical Sciences Institute (NMI) at the University of Tübingen

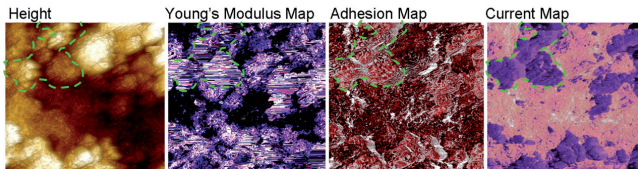
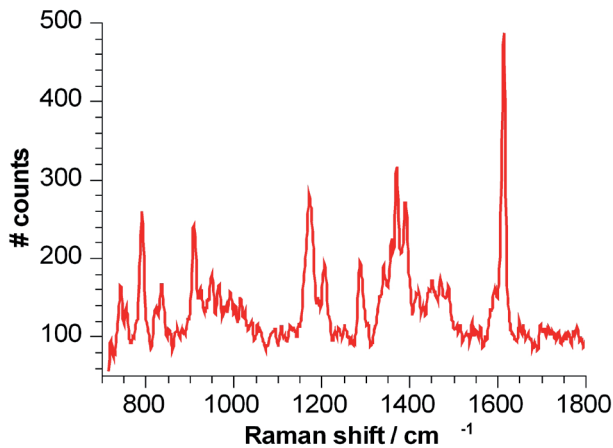
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Workshop: Correlative AFM & Raman Imaging

for advanced characterisation of polymer, carbon and graphene nano-materials >>

This two day workshop will give an overview to state of the art AFM, Raman and TERS imaging systems and applications. Examples for advanced material characterisation beyond morphology (nano-chemical, nano-electrical and nano-mechanical properties) will be presented and demonstrated.



Sample courtesy of Dr. Battaglia, LBL; lithium battery cathode material

Programme

28th July 2015

Method overview AFM, Raman and TERS

- 09:00 Welcome and Registration
09:15 Opening remarks NMI short introduction
09:30 Colocal Raman-AFM-TERS Scientific talk (Renishaw & Bruker)
Introduction AFM & Raman Motivation for combination
Solution + application examples
10:40 Coffee break
11:00 **Dr. Claus J. Burkhardt, Manuel Martina** (NMI)
Correlative analytic of biomedical devices
Introduction of new NMI TERS probes
11:50 **Prof. Dr. Marika Schlehberger** (University Duisburg-Essen)
Raman spectroscopy of defective 2D materials

12:40 lunch

- 13:45 Live Demonstration
1. AFM; PeakForce KPFM and TUNA
2. Raman
3. TERS
Demo samples and first user samples

17:30 End

18:30 Punt riding on the River Neckar, Tübingen

29th July 2015

Advanced Material Sciences Beyond Morphology (nano-chemical, nano-electrical, nano-mechanical properties)

- 09:30 Renishaw
D. Micha Kölbach (Renishaw GmbH)
10:00 **Prof. Dr. Jana Zaumseil**, (Physikalisch-Chemisches Institut Angewandte Physikalische Chemie, University Heidelberg)
In-Situ Raman Mapping of Carrier Density in Electrolyte-Gated Carbon Nanotube and Polymer Transistors
10:45 coffee and discussion
11:20 **Dr. Hartmut Stadler** (Bruker Corporation)
Today's AFM as an analytical tool beyond morphology. Methods for nano-electro-mechanical characterisation of complex materials.
12:10 **Tobias Morawietz** (University Esslingen)
Nanolectrical Measurements on Fuel Cell Components
12:30 lunch
14:00 „Hands on“-Session
You want to bring your sample
Please register up front: NMI'
First come, first served basis
16:30 Discussion
17:00 Estimated closing time
Optional: Additional day, 30th
TERS measurements of user samples