

## The NINT-CeNS Winter School on Nanotechnology Convergence

### Program

<i>date/time</i>		<i>presenter</i>
<b>March 14</b>		
8.00-8.30	Registration (Taylor Seminar room)	
8.30-9.00	Opening remarks	Nils Petersen
9.00-10.00	Lecture 1. NanoScience in the Munich area	Jochen Feldmann
10.00-10.30	coffee break	
10.30-12.00	Lecture 2. Integration of molecular electronics with the silicon world: a case study in molecular memory	Richard McCreery
12.00-13.30	lunch break	
13.30-15.00	Lecture 3. Nanostructuring of materials	Michael Brett
15.00-15.30	coffee break	
15.30-17.00	Lecture 4. Integration: From molecules, to nanoparticles, to surfaces, to the outside world	Jillian Buriak
<b>March 15</b>		
8.30-10.00	Lecture 5. Colloidal semiconductor nanocrystals: solution-based syntheses, optical properties and assembly techniques	Andrey Rogach
10.00-10.30	Coffee break	
10.30-12.00	Lecture 6. From molecules to devices via self-assembly	Andrew Myles
12.00-13.00	lunch break	
13.00-13.30	Winter school student survey on intellectual property (Taylor room)	Keith Gilchrist
13.30-14.30	NINT tour, Nanofabrication Facility tour	
14.30-15.30	Poster session	
15.30-16.00	coffee break	
16.00-17.00	Poster session (cont.)	
17.00-18.30	dinner break	
18.30-21.00	NEEELS workshop <b>The workshop will be held in room CW410, Biological Sciences Building. Beer, pizza, and chicken wings will be served.</b>	Rick Brommeland Lori Sheremeta
<b>March 16</b>		
8.30-10.00	Lecture 7. Electron microscopy characterization in nanoscience	Marek Malac
10.00-10.30	coffee break	
10.30-12.00	Lecture 8. Applications of Scanning Force Microscopy	Mark McDermott
12.00-13.30	lunch break	
13.30-15.00	experimental sessions: <ul style="list-style-type: none"> <li>- FTIR and Raman imaging systems</li> <li>- AFM imaging system</li> <li>- Photolithography + surface modification</li> <li>- Electron microscopy</li> <li>- Laser Scanning Microscopy and Fluorescence Correlation Spectroscopy</li> </ul>	Mike Xia Steve Launspach Richard McCreery Daniel Salamon Max Anikovskiy
15.00-15.30	coffee break	
15.30-17.00	experimental sessions (cont.)	
17.30	Reception in honour of young researchers from Germany participating in the winter school <b>The reception will be held at Alumni House: 11515 Saskatchewan Dr.</b>	

<b>March 17</b>		
15.00	tour to Lily Lake Resort <b>The bus will depart from NINT building.</b>	
<b>March 18</b>		
10.30	tour to Elk Island <b>The bus will depart from Lister Centre.</b>	
<b>March 19</b>		
8.30-10.00	Lecture 9. Optical spectroscopy on nanocrystals	Jochen Feldmann
10.00-10.30	coffee break	
10.30-12.00	Lecture 10. Scanning Tunneling Microscopy	Jason Pitters
12.00-13.30	lunch break	
13.30-15.00	Lecture 11. Nanoporous materials: synthesis, characterization and application	Stefan Kaskel
15.00-15.30	coffee break	
15.30-17.00	Lecture 12. Nanofluidics	Jed Harrison
<b>March 20</b>		
8.30-10.00	Lecture 13. The convergence of nanotechnology and biology (medicine)	Nils Petersen
10.00-10.30	coffee break	
10.30-11.15	Research talk 1. Functional and Dysfunctional Lung Surfactants	Nils Petersen
11.15-12.00	Research talk 2. Nanostructured implant biomaterials	Hicham Fenniri
12.00-13.30	lunch break	
13.30-15.00	experimental sessions: <ul style="list-style-type: none"> <li>- FTIR and Raman imaging systems</li> <li>- AFM imaging system</li> <li>- Photolithography + surface modification</li> <li>- Electron microscopy</li> <li>- Laser Scanning Microscopy and Fluorescence Correlation Spectroscopy</li> </ul>	Mike Xia Steve Launspach Richard McCreery Daniel Salamon Max Anikovskiy
15.00-15.30	coffee break	
15.30-17.00	experimental sessions (cont.)	
<b>March 21</b>		
8.30-9.15	Research talk 3. In vivo design of proteins: making novel macromolecules in bacteria	Wayne Materi
9.15-10.00	Research talk 4. Nanopatterning surface chemistry on semiconductor surfaces	Masato Aizawa
10.00-10.30	coffee break	
10.30-11.15	Research talk 5. Hybrid silicon-molecule device concepts	Robert Wolkow
11.15-12.00	Research talk 6. Multiscale modeling in nanotechnology	Sergey Gusarov
12.00-13.30	lunch break	
13.30-15.00	students' presentations (cont.)	
15.00-15.30	coffee break	
15.30-16.00	students' presentations (cont.)	
16.00-16.15	closing remarks	Nils Petersen

Please note that all the lectures, research talks, and students' presentations will be held in the Taylor Seminar room which is located on the first floor of NINT building. Lunches will be served in the lunchroom on the third floor of NINT building.

### Thursday poster session

Posters should be mounted on March 14 and removed by 5.30 pm on the day of the presentation.

Authors with odd-numbered boards will present from 2.30 pm – 3.30 pm, and those with even-numbered boards will present from 4.00 pm – 5 pm.

NINT tours and Nanofabrication facility tours will be organized before the poster session. Authors with odd-numbered boards are invited to join NINT tour from 1.30 pm to 2.00 pm and Nanofabrication facility tour from 2.00 pm to 2.30 pm. Authors with even-numbered boards are invited to join Nanofabrication facility tour from 1.30 pm to 2.00 pm and NINT tour from 2.00 pm to 2.30 pm. The tour guides for the respective tours will meet the students at 1.30 pm and 2.00 pm in the Taylor Seminar room.

board number	poster title	presenting author
1	Measurement of surface stresses in AFM cantilevers with Raman spectroscopy	Michael Bauer
2	Superparamagnetic manganese doped iron oxide nanocrystals as contrast enhancing agents for magnetic resonance imaging	Nadja Bigall
3	Metallic Nanopatterning on Silicone Using Block Copolymer Templates	Steven Chai
4	Combinatorial atomic force microscopy based on cantilevers patterned with functionalized nanorods	Roderick Chisholm
5	New AFM force spectroscopy approach to analyze the static and dynamic properties of adsorbed polymers	Matthias Erdmann
6	Moving and Storing Long-Living Excitons in Coupled Quantum Wells	Andreas Gärtner
7	Observation and Manipulation of Enzyme Kinetics on the Single Molecule Level	Hermann Gump
8	Effect of spin-orbit coupling on emission properties of organometallic complexes	Stephan Haneder
9	Using a Force Balance to detect DNA binding molecules	Dominik Ho
10	Integrated Microfluidic Devices for Viral Detection	Govind Kaigala
11	Spatially graded porous thin film optical filters fabricated using the GLAD process	Katie Krause
12	Nanolithography	Stefan Kufer
13	Selective transmission of linearly polarized light through nanostructured thin films	Viktor Leontyev
14	Covalently Bound Multilayers and Dehydrogenative Silane Coupling on Silicon Surfaces	Yunhui Li
15	Study of molecular electronics based on metal/molecule/metal and metal/molecule/metal oxide/metal molecular junctions	Amr Mahmoud
16	Balancing the White Light Shade of Dual-Color Emitting Nanocrystals	Sergiy Mayilo
17	Integration of Self-Assembled Nanoscale Metallic Interconnects with Semiconductors	Sean McClure
18	The Applications of Ultra-Sharp Field Emission Sources to Electron Interferometry	Josh Mutus
19	Dynamical Properties of Lipid-Membranes measured by Surface Plasmon Resonance	Jürgen Neumann
20	Block Copolymer Templated Etching on Silicon	Yinghong Qiao

21	Fluorescence Energy Transfer in Quantum Well Hybrid Structures	Stefan Rohmoser
22	Metal-organic frameworks – Structure, properties and potential applications	Marcus Rose
23	Direct Observation of Active Protein Folding Using Lock-in Force Spectroscopy	Michael Schlierf
24	Luminescent transparent nanocomposite materials	Christian Schrage
25	Generation of Organic Films on Gold Surfaces via the Electroreduction of Aryl Diazonium Salts and Self Assembly of Alkanethiolate Complexes: Mixed Layer Systems	Dwayne Shewchuk
26	Working with UHV: The Learning Curve	Shoma Sinha
27	Calculations of Electron Transport Through Substituted Benzenes	Manuel Smeu
28	Surface-enhanced Raman scattering (SERS) in single gold nanoparticle dimers	Joachim Stehr
29	Dopant-Mediated Chemistry and Interconnected Molecular Lines Of Trimethylene Sulfide on H-Si	Janik Zikovsky

## Experimental schedule

### **March 16, 2007**

*FTIR and Raman imaging systems (13.30 – 17.00; coffee break from 15.00 to 15.30):*

1. Nadja Bigall
2. Stephan Haneder
3. Jürgen Neumann
4. Michael Schlierf
5. Joachim Stehr
6. Govind Kaigala

Instructor: Mike Xia

*AFM imaging system (13.30 – 15.00)*

1. Andreas Gärtner
2. Katie Krause
3. Josh Mutus
4. Shoma Sinha

Instructor: Steve Launspach

*Photolithography + surface modification (13.30 – 17.00; coffee break from 15.00 to 15.30)*

1. Michael Bauer
2. Matthias Erdmann
3. Hermann Gump
4. Marcus Rose
5. Christian Schrage
6. Manuel Smeu
7. Janik Zikovsky

Instructor: Richard McCreery

*Electron microscopy (13.30 – 17.00; coffee break from 15.00 to 15.30)*

1. Katharina Adamow
2. Stefan Kufer
3. Sergiy Mayilo
4. Roderick Chisholm
5. Viktor Leontyev
6. Dwayne Shewchuk

Instructor: Daniel Salamon

*Laser Scanning Microscopy and Fluorescence Correlation Spectroscopy (13.30 – 15.00)*

1. Dominik Ho
2. Stefan Rohmoser
3. Steven Chai
4. Yunhui Li
5. Amr Mahmoud
6. Sean McClure
7. Yinghong Qiao

Instructor: Max Anikovskiy

**March 20, 2007**

*FTIR and Raman imaging systems (13.30 – 17.00; coffee break from 15.00 to 15.30):*

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2. Matthias Erdmann
3. Hermann Gump
4. Katie Krause
5. Sean McClure
6. Yinghong Qiao
7. Janik Zikovsky

Instructor: Mike Xia

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1. Stephan Haneder
2. Jürgen Neumann
3. Marcus Rose
4. Michael Schlierf
5. Christian Schrage
6. Joachim Stehr

Instructor: Max Anikovskiy

**The instructors will meet the students in the Taylor Seminar room between 13.20 and 13.30 on the days when the experiments are scheduled and accompany them to the laboratories.**