

# "Building and Probing Small"

## Programme

### Monday March 25, 2019

09:00 Registration

10:30 Welcome Address

#### Session Chair

Prof. Anne-Sophie DUWEZ  
(ULIÈGE, Liege, Belgium)

10:35 **PL01 - Building Small: Making the Tiniest Machines**

Prof. David LEIGH  
(UNIVERSITY OF MANCHESTER, Manchester, United Kingdom)

11:30 **KL01 - Artificial Molecular Machines that Work at all Scales**

Prof. Nicolas GIUSEPPONE  
(UNIVERSITY OF STRASBOURG, Strasbourg, France)

12:00 **OC01 - Multicomponent Catalytic Machinery: How the Machine Speed Impacts Catalytic Activity**

Prof. Michael SCHMITTEL  
(UNIVERSITY OF SIEGEN, Siegen, Germany)

12:20 **OC02 - Self-Assembly of Palladium(Ii)-Templated Covalent Macrocycles, Cages and Larger Structures**

Dr Roy LAVENDOMME  
(UNIVERSITY OF CAMBRIDGE, Cambridge, United Kingdom)

12:40 Lunch

#### Session Chair

Dr Guillaume DE BO  
(UNIVERSITY OF MANCHESTER, Manchester, United Kingdom)

14:00 **KL02 - The Challenges and Opportunities of Polymer Mechanochemistry**

Prof. Roman BOULATOV  
(UNIVERSITY OF LIVERPOOL, Liverpool, United Kingdom)

14:30 **OC03 - Dynamics of Individual Molecular Shuttles Under Mechanical Force**

Dr Borja IBARRA  
(IMDEA NANOCIENCIA, Madrid, Spain)

14:50 **OC04 - Probing the Implications of Knot Tightness on Molecular Level**

Dr Liang ZHANG  
(UNIVERSITY OF MANCHESTER, Manchester, United Kingdom)

15:10 **KL03 - Molecular Motors Steering Macroscopic Motion**

Prof. Nathalie KATSONIS  
(UNIVERSITY OF TWENTE, Enschede, The Netherlands)

15:40 Coffee break

#### Session Chair

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Prof. Nicolas GIUSEPPONE  
(UNIVERSITY OF STRASBOURG, Strasbourg, France)

**16:10 PL02 - Radical Chemistry**

Prof. J. Fraser STODDART  
(NORTHWESTERN UNIVERSITY, Evanston, United States)

**17:05 OC05 - Prototypes of Molecular Motors Based on Ruthenium(II) and Europium(III) Complexes**

Prof. Gwenaël RAPENNE  
(NANOSCIENCES GROUP CEMES, TOULOUSE CEDEX 4, France)

**17:25 OC06 - Design and Synthesis of Rotary Molecular Machines for On-Surface Mechanical Studies**

Dr Claire KAMMERER  
(CEMES-CNRS, UNIVERSITÉ DE TOULOUSE, TOULOUSE cedex 4, France)

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Tuesday March 26, 2019

### Session Chair

Prof. David ALSTEENS  
(UCLOUVAIN, Louvain-La-Neuve, Belgium)

**09:00 PL03 - Single Molecule Mechanics of Proteins**

Prof. Matthias RIEF  
(TECHNISCHE UNIVERSITÄT MÜNCHEN, München, Germany)

**09:55 KL04 - Deconstructing the Molecular Mechanism of Extreme Mechanostability in Pathogen Adhesins**

Mr Lukas MILLES  
(LUDWIG-MAXIMILIANS-UNIVERSITÄT, München, Germany)

**10:25 Presentation of the NanoWizard ULTRA Speed 2 by Bruker**

**10:35 Coffee break**

### Session Chair

Prof. Nathalie KATSONIS  
(UNIVERSITY OF TWENTE, Enschede, The Netherlands)

**11:05 KL05 - Light-Driven Nanomachinery**

Prof. Stefan HECHT  
(HUMBOLDT-UNIVERSITÄT ZU BERLIN, Berlin, Germany)

**11:35 OC07 - Photoswitching DNA-Templated Supramolecular Assemblies**

Prof. Mathieu SURIN  
(UNIVERSITY OF MONS - UMONS, Mons, Belgium)

**11:55 OC08 - Probing PH-Switchable Enzymatic Nanoreactors by Light-Driven Proton Transfer**

Dr Dietmar APPELHANS (LEIBNIZ-INSTITUT FÜR POLYMERFORSCHUNG DRESDEN E.V., Dresden, Germany)  
(BIOIB,RICA)

**12:15 KL06 - Manipulation of Single Molecules: Wires, Switches and Motors**

Prof. Leonhard GRILL  
(UNIVERSITY OF GRAZ, Graz, Austria)

**12:45 Lunch**

### Session Chair

Prof. Charles-André FUSTIN  
(UCLOUVAIN, Louvain-la-Neuve, Belgium)

**14:00 PL04 - Quantitative Studies of Single Molecule Mechanochemistry**

Prof. Stephen CRAIG  
(DUKE UNIVERSITY, Durham, United States)

**14:55 KL07 - Mechanochemistry of the Mechanical Bond**

Dr Guillaume DE BO  
(UNIVERSITY OF MANCHESTER, Manchester, United Kingdom)

**15:25 OC09 - Oscillating Emission of [2]Rotaxane Driven by Chemical Fuel**

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Mr Amit GHOSH  
(UNIVERSITY OF SIEGEN, Siegen, Germany)

**15:45 Coffee break**

**16:15 Poster session**

### **Session Chair**

Prof. Stefan HECHT  
(HUMBOLDT-UNIVERSITÄT ZU BERLIN, Berlin, Germany)

**17:15 KL08 - Chemistry Inside the Cavities of Flexible Metal-Organic Cages**

Prof. Rafal KLAJN  
(WEIZMANN INSTITUTE OF SCIENCE, Rehovot, Israel)

**17:45 KL09 - Functionalization of 2D Materials: A Molecular Approach**

Prof. Steven DE FEYTER  
(KU LEUVEN, Leuven, Belgium)

# "Building and Probing Small"

## Programme

**Wednesday March 27, 2019**

**Session Chair**

Dr Xavier BOUJU  
(CEMES-CNRS, Toulouse, France)

**09:00 PL05 - Mechanical Engineering of Protein-Based Biomaterials: from Single Molecule to Biomaterials**

Prof. Hongbin LI  
(UNIVERSITY OF BRITISH COLUMBIA, Vancouver, Canada)

**09:55 KL10 - Force Spectroscopy and High-Speed Bio-AFM Reveal Dynamic and Nano-Mechanical Properties of Antibodies**

Prof. Peter HINTERDORFER  
(JOHANNES KEPLER UNIVERSITY LINZ, Linz, Austria)

**10:25 OC10 - Versatile Tools Towards Real-Time, Single-Molecule Biology**

Dr Aida LLAURO PORTELL  
(LUMICKS, Amsterdam, The Netherlands)

**10:45 Coffee break**

**Session Chair**

Dr Damien SLUYSMANS  
(ULIÈGE, Liege, Belgium)

**11:15 KL11 - Nanomechanical Mapping of Virus Binding Sites to Animal Cells**

Prof. David ALSTEENS  
(UCLOUVAIN, Louvain-La-Neuve, Belgium)

**11:45 OC11 - Probing the Viscoelastic Properties of Polymeric Materials at the Nanoscale**

Prof. Philippe LECLERE  
(UMONS, Mons, Belgium)

**12:05 OC12 - Self-Assembly and Reactivity in Nanoscale Corrals on Graphite**

Mr Lander VERSTRAETE  
(KU LEUVEN, Leuven, Belgium)

**12:25 Closing address**