Summer School

Microfluidics, DLS/ELS, ITC

Berlin | October 5-6, 2020

Workshop and Live Technology Presentations

Summer School 2020
Microfluidics, DLS/ELS, ITC

On day one of the two-day summer school, experts from academia and industry will present an overview of research and recent technical developments in the field of **microfluidics**, as well as provide the opportunity to discuss future trends in this field.

On day two, researchers and application specialists from academia and industry will give an introduction into **Dynamic Light Scattering** (DLS; particle size measurements), **Electrophoretic Light Scattering** (ELS; electrophoretic mobility and zetapotential) and **Isothermal Titration Calorimetry** (ITC; thermodynamic parameters of interactions in solution, e.g. for protein characterization).

Summer School | October 05-06, 2020

Venue:
Freie Universität Berlin
Institute of Chemistry and Biochemistry
Arnimallee 22, 14195 Berlin, Germany

www.biosupramol.de

Organization:
Katharina Achazi (k.achazi@fu-berlin.de)
Wenzhong Li (fuli@zedat.fu-berlin.de)
Stephan Block (stephan.block@fu-berlin.de)

Registration:
Katharina Tebel (k.tebel@fu-berlin.de)

Monday October 05, 2020

12:30 – 13:00 *Registration (Foyer, Arnimallee 22, Freie Universität Berlin)*

13:00 – 13:05 Welcome address and opening remarks (Rainer Haag)

13:05 – 13:20 Wenzhong Li and Katharina Achazi | Freie Universität Berlin
Overview about microfluidics in the Core Facility BioSupraMol

Microfluidics I (chair: Stephan Block)

13:20 – 13:55 **Julian Thiele** | Leibniz Institute of Polymer Research, Dresden
Droplet Microfluidics - a tool for polymer microgel design with tailored physicochemical and mechanical properties

13:55 – 14:30 **Esther Amstad** | EPFL, Lausanne
High throughput production of drops and their use to build granular materials

14:30 – 15:05 **Fredrik Höök** | Chalmers University, Gothenburg
Single nanoparticle analytics: from viruses via exosomes to drug carriers

15:05 – 15:35 *Coffee break*

Microfluidics II (chair: Rainer Haag)

15:35 – 16:10 **Stephan Block** | Freie Universität Berlin
Probing single-molecule interactions with high throughput using microfluidics

16:10 – 16:45 **Alexandro Rodriguez-Rojas** | Freie Universität Berlin
Confining bacteria in a piece of silicon: what microfluidics can teach us about microbes

16:45 – 17:20 **Alexander Grünberger** | Universität Bielefeld
Microfluidic single-cell cultivation: From concept to application

17:20 – 17:55 **Alexander Mosig** | Universitätsklinikum Jena
Dissection of microbiota-host interaction in microphysiologica systems

Tuesday October 06, 2020

Bioanalytics: DLS/ELS and ITC (chair: Matthias Ballauff)

09:15 – 10:30 **Agnieszka Moś-Hummel** | Malvern Panalytical GmbH, Kassel
DLS and ELS: The basics repeated

10:30 – 11:00 **Matthias Ballauff** | Freie Universität Berlin
Theoretical background and case studies DLS

11:00 - 11:15 *Coffee break*

11:15 – 11:45 **Agnieszka Moś-Hummel** | Malvern Panalytical GmbH, Kassel
Adaptive correlation and MADLS:
New developments explained (ZS Ultra)

11:45 - 12:15 **Agnieszka Moś-Hummel** | Malvern Panalytical GmbH, Kassel
DLS and ELS: Basic method development and dos and dont's

12:15 – 13:00 *Lunch break*

13:00 – 13:45 **Agatha Rosenthal** | Malvern Panalytical GmbH, Kassel
The basics of Microcalorimetry (ITC+DSC)

13:45 – 14:30 **Matthias Ballauff** | Freie Universität Berlin
Theoretical background and case studies ITC

14:30 – 14:45 **Agatha Rosenthal** | Malvern Panalytical GmbH, Kassel
Dos and dont's in ITC method development