

## Scientific Program

The detailed Scientific Program will be available in the second announcement. Further information and updates will be made available at the website [www.biosupramol.de](http://www.biosupramol.de).

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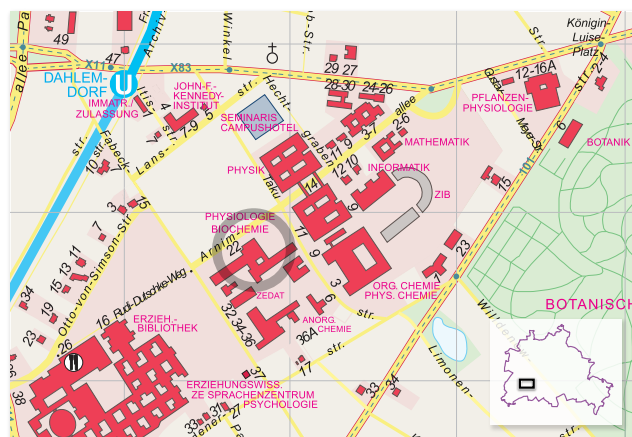
## Registration

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## Information and Registration at [www.biosupramol.de](http://www.biosupramol.de)

Registration deadline August 31, 2020

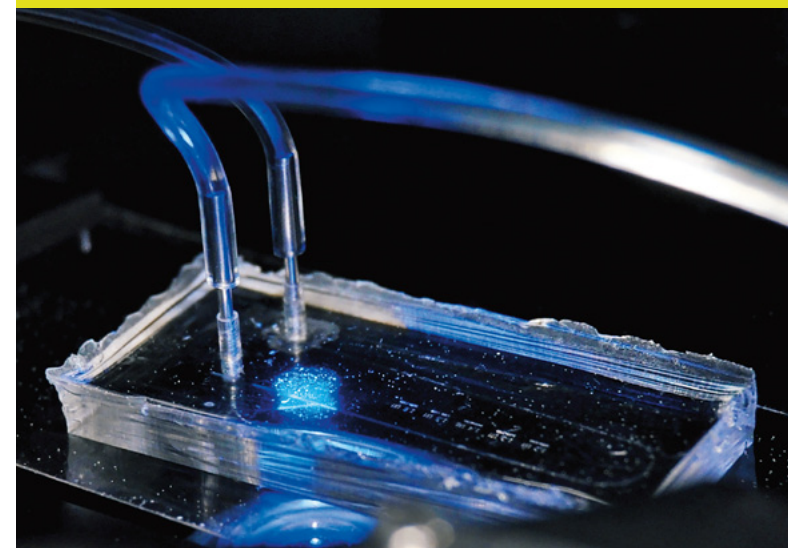


Flyer: Achim Wiedekind

# Core Facility BioSupraMol

Microfluidics, DLS/ELS, ITC

Summer School | October 05-06, 2020



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### Venue:

Freie Universität Berlin  
Institute of Chemistry and Biochemistry  
Animallee 22, 14195 Berlin, Germany



## Summer School 2020

Microfluidics, DLS/ELS, ITC

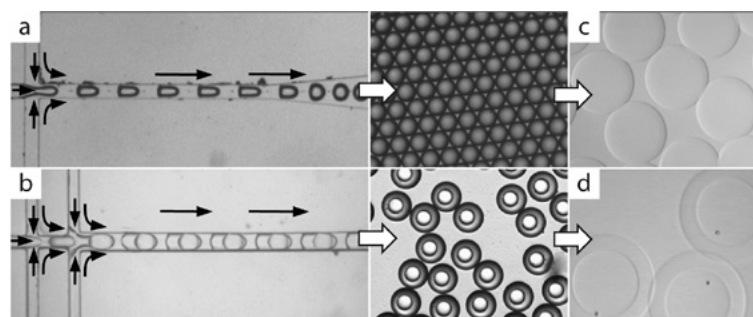
Summer School with Method Workshops on “Microfluidics, DLS/ELS, ITC” of the Core Facility BioSupraMol at Freie Universität Berlin, October 05-06, 2020

Microfluidics is a multidisciplinary field at the intersection of engineering sciences, physics, chemistry, biochemistry, nanotechnology and biotechnology, and deals with the behavior, the precise control and manipulation of liquids and gases in a narrow space, typically in the submillimeter range.

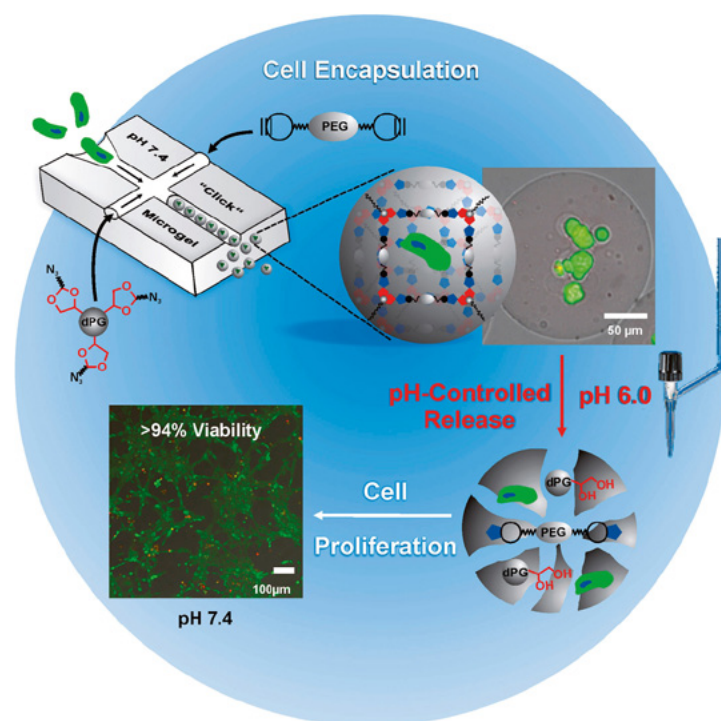
The methodical focus of the Microfluidics Unit, a new facility within the BioSupraMol, is to provide the infrastructure and expertise to design and produce tailor-made microfluidic chips for a variety of research questions. Currently these include chips for droplet-based approaches that provide picoliter-volume compartments in high-throughput analytics, and applications in biology such as single-cell observations.

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 zeta potential) and **Isothermal titration calorimetry** (ITC, thermodynamic parameters of interactions in solution, e.g. for protein characterization).



**Droplet-based microfluidics for microgel particle synthesis.**  
a) Single cross-junction channels produce monodisperse single-emulsion droplets. b) Double cross-junction channels produce monodisperse double-emulsion drops with droplet-in-droplet core-shell morphologies. c/d) Subsequent droplet gelation can serve to emplate monodisperse microgels (c) or microgel shells (d). Scale bars: 50  $\mu\text{m}$ . [S. Seiffert, *Macromol. Rapid Commun.* 2011, 32, 1600-9]



Microfluidics | October 05, 2020, 13 - 18 h

**Esther Amstad** | EPFL, Lausanne  
*High throughput production of drops and their use to build granular materials*

**Stephan Block** | Freie Universität Berlin  
*Probing single molecule interactions with high throughput using microfluidics*

**Alexander Grünberger** | Universität Bielefeld  
*Microfluidic single-cell cultivation: From concept to application*

**Fredrik Höök** | Chalmers University, Gothenburg  
*Single nanoparticle analytics: from viruses via exosomes to drug carriers*

**Alexander Mosig** | Universitätsklinikum Jena  
*Dissection of microbiota-host interaction in microphysiological systems*

**Alexandro Rodriguez-Rojas** | Freie Universität Berlin  
*Confining bacteria in a piece of silicon: What microfluidics can teach us about microbes*

**Julian Thiele** | Leibniz Institute of Polymer Research, Dresden  
*Droplet microfluidics - a tool for polymer microgel design with tailored physicochemical and mechanical properties*

DLS/ELS, ITC | October 06, 2020, 09 - 15 h

**Matthias Ballauff** | Freie Universität Berlin  
*DLS and ITC: Theory and case samples*

**Agnieszka Moś-Hummel** | Malvern Panalytical, Herrenberg (MA)  
*DLS and ELS: Basics and new developments*

**Agatha Rosenthal** | Malvern Panalytical, Herrenberg  
*ITC and DSC: Basics and method development*



Core Facility  
**BioSupraMol**