



Microfluidics: Designing the Next Wave of Biological Inquiry - Virtual

EMBL CONFERENCE

EMBL Courses and Conferences during the Coronavirus pandemic

With the onsite programme paused, many of our events are now being offered in virtual formats.

Registration is open as usual for many events, with back-up plans in place to move further courses and conferences online as necessary. Registration fees for any events affected by the COVID-19 disruption are fully refundable.

More information for participants of events at EMBL Heidelberg can be found [here](#).

Programme

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All talks will be live-streamed with Q&A sessions after each talk unless otherwise indicated. Many talks will be available as videos on demand (VOD) until 22 July 2020.

The following times are used in the programme below:

- Central European Summer Time (CEST): e.g. Berlin, Amsterdam, Paris
- Eastern Daylight Time (EDT): e.g. New York, Quebec

To find out the equivalent time zone in your location, enter Berlin, the CEST programme time and your city into the [Time Zone Converter](#).

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Day 1 - Monday 13 July 2020

Time	Speaker
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09:00 - 09:10 (CEST)	Opening remarks
03:00 - 03:10 (EDT)	Amy E. Herr, Angela R. Wu, Christoph Merten
09:10 - 10:55 (CEST)	Virtual Session 1 - Probing biology
03:10 - 04:55 (EDT)	Chair: Petra Dittrich
	Keynote lecture:
09:10 - 09:55 (CEST)	Mechanobiology of tissues: <i>De novo grown microtissues as disease models</i>
03:10 - 03:55 (EDT)	Viola Vogel - ETH Zürich, Switzerland
	The versatility of modular biohybrid microgels towards high-throughput biomaterial design, tissue engineering and therapeutic applications
09:55 - 10:10 (CEST)	Sebastian Kühn - Leibniz Institute of Polymer Research
03:55 - 04:10 (EDT)	Dresden, Germany
	High-throughput double-emulsion flow cytometry for single-cell screening, enrichment and recovery of phototrophic microorganisms
10:10 - 10:25 (CEST)	Akhila Denduluri - University of Cambridge, UK
04:10 - 04:25 (EDT)	
10:25-10:55 (CEST)	Emulsions and double emulsions for screening applications
04:25 -04:55 (EDT)	Petra Dittrich - ETH Zürich, Switzerland
10:55 - 11:15 (CEST)	Break
04:55 - 05:15 (EDT)	
11:15 - 12:15 (CEST)	Optional networking opportunity: Virtual pub quiz
05:15 - 06:15 (EDT)	
12:15 - 12:25 (CEST)	Break
06:15 - 06:25 (EDT)	
12:25 - 14:25 (CEST)	Virtual Poster Session with discussion channel on slack
06:25 - 08:25 (EDT)	
14:25 - 16:10 (CEST)	Virtual Session 1 (cont.) - Probing biology
08:25 - 10:10 (EDT)	Chair: Angela R. Wu
14:25 - 14:55 (CEST)	Towards 3D printing of functional cellular modules
08:25 - 08:55 (EDT)	Petra Schwillle - Max Planck Institute of Biochemistry, Germany
14:55 - 15:10 (CEST)	Collective behavior of immune cells on 3D model tumors in microfluidic droplets
08:55 - 09:10 (EDT)	Gustave Ronteix - Institut Pasteur, France
15:10 - 15:25 (CEST)	Targeted droplet-microfluidic enrichment and sequencing of uncultivated gut microbiome strains
09:10 - 09:25 (EDT)	Tobias Wenzel - EMBL Heidelberg, Germany

15:25 - 15:55 (CEST) 09:25 - 09:55 (EDT)	Rapid diagnostics at the point-of-need by centrifugal microfluidics Roland Zengerle - Hahn-Schickard and University of Freiburg, Germany
15:55 - 16:10 (CEST) 09:55 - 10:10 (EDT)	Summary day 1 and introduction to networking activity: Meet the speakers
16:10 - 16:25 (CEST) 10:10 - 10:25 (EDT)	Break
16:25 - 16:55 (CEST) 10:25 - 10:55 (EDT)	Meet the speaker - Roland Zengerle
16:55 - 17:25 (CEST) 10:55 - 11:25 (EDT)	Meet the speaker - Viola Vogel
17:25 - 17:55 (CEST) 11:25 - 11:55 (EDT)	Meet the speaker - Petra Schwillle
17:55 - 18:25 (CEST) 11:55 - 12:25 (EDT)	Meet the speaker - Petra Dittrich
18:25 (CEST) 12:25 (EDT)	End of Day 1
	Continued access to networking and discussion platforms as well as poster gallery

Day 2 - Tuesday 14 July 2020

Time	Speaker
09:15 - 10:15 (CEST) 03:15 - 04:15 (EDT)	Optional networking opportunity: Virtual pub quiz (rescheduled!)
10:15 - 11:45 (CEST) 04:15 - 05:45 (EDT)	Virtual Session 2: Next-generation device design and emerging applications Chair: Carlotta Guiducci
10:15 - 10:45 (CEST) 04:15 - 04:45 (EDT)	Enhancing microfluidics for single-particle manipulation through localised electric fields Carlotta Guiducci - EPFL, Switzerland
10:45 - 11:00 (CEST) 04:45 - 05:00 (EDT)	Development of a microfluidic device for studying bilateral chemosensory neurons in <i>Caenorhabditis elegans</i> Jung-uk Shim - University of Leeds, United Kingdom

11:00 - 11:15 (CEST) 05:00 - 05:15 (EDT)	Design of an automated reagent-dispensing system for reaction screening and validation with DNA-tagged substrates Jens Bobers - TU Dortmund University, Germany
11:15 - 11:45 (CEST) 05:15 - 05:45 (EDT)	Droplet microfluidics for phenotypic antibody screening and personalized medicine Christoph Merten - EMBL Heidelberg, Germany and EPFL, Switzerland
11:45 - 12:15 (CEST) 05:45 - 06:15 (EDT)	Break
12:15 - 14:15 (CEST) 06:15 - 08:15 (EDT)	Virtual Poster Session 2 with discussion channel on slack
14:15 - 17:30 (CEST) 08:15 - 11:30 (EDT)	Virtual Session 3: Disease diagnostics, analytical chemistry and chemical synthesis Chair: Greg Nordin
14:15 - 15:00 (CEST) 08:15 - 09:00 (EDT)	Keynote lecture Designing life chips for biomedical research and clinical applications Nancy Allbritton - University of Washington, USA
15:00 - 15:15 (CEST) 09:00 - 09:15 (EDT)	Electric-field-driven microfluidics for rapid CRISPR-based diagnostics and its application to detection of SARS-CoV-2 Ashwin Ramachandran - Stanford University, United States of America
15:15 - 15:30 (CEST) 09:15 - 09:30 (EDT)	ATTRACT project SMILE: SAW-MIP Integrated device for oral cancer Early detection Maria Serena Chiriaco - Consiglio Nazionale delle Ricerche (CNR), Italy
15:30 - 15:45 (CEST) 09:30 - 09:45 (EDT)	Break
15:45 - 16:15 (CEST) 09:45 - 10:15 (EDT)	Advanced 3D printing for microfluidics Greg Nordin - Brigham Young University, USA
16:15 - 16:30 (CEST) 10:15 - 10:30 (EDT)	Actuation principles for bioanalytical platforms to combat infectious diseases Susanna Früh - Hahn-Schickard & University of Freiburg, Germany
16:30 - 17:00 (CEST) 10:30 - 11:00 (EDT)	Double emulsion picoreactors for high-throughput single-cell encapsulation and phenotyping via FACS Polly Fordyce - Stanford University, USA
17:00 - 17:15 (CEST) 11:00 - 11:15 (EDT)	Summary day 2 and introduction to networking activity: Meet the speakers

17:15 - 17:30 (CEST)	Break
11:15 - 11:30 (EDT)	
17:30 - 18:00 (CEST)	Meet the speaker - Carlotta Guiducci
11:30 - 12:00 (EDT)	
17:30 - 18:00 (CEST)	Meet the speaker - Greg Nordin
11:30 - 12:00 (EDT)	
18:00 - 18:30 (CEST)	Meet the speaker - Nancy Allbritton
12:00 - 12:20 (EDT)	
18:30 - 19:00 (CEST)	Meet the speaker - Christoph Merten
12:30 - 01:00 (EDT)	
18:30 - 19:00 (CEST)	Meet the speaker - Polly Fordyce
12:30 - 01:00 (EDT)	
19:00 (CEST)	End of Day 2
13:00 (EDT)	
Continued access to networking and discussion platforms as well as poster gallery	

Day 3 - Wednesday 15 July 2020

Time Speaker

10:00 - 12:00 (CEST)	Virtual Session 4: Single-cell and single-molecule analyses
04:00 - 06:00 (EDT)	
	Chair: Angela R. Wu
10:00 - 10:30 (CEST)	Electrophoretic fractionation of subcellular components of single cells for multi-omics analyses
04:00 - 04:30 (EDT)	
	Hirofumi Shintaku -RIKEN, Japan
10:30 - 10:45 (CEST)	Flow radiocytometry using droplet optofluidics
04:30 - 04:45 (EDT)	
	Byunghang Ha - Stanford University, United States of America
10:45 - 11:15 (CEST)	Transcriptomic profiling reveals molecular signatures that promote on-chip vascular growth and maturation
04:45 - 05:15 (EDT)	
	Angela R. Wu - The Hong Kong University of Science and Technology, Hong Kong
11:15 - 11:30 (CEST)	Impedance cytometry and machine learning for fast label-free characterization of blood cell phenotypes
05:15 - 05:30 (EDT)	
	Federica Caselli - University of Rome Tor Vergata, Italy
11:30 - 11:45 (CEST)	Microfluidic single-cell analysis revealed that cell size sets the diameter of the budding yeast contractile ring
05:30 - 05:45 (EDT)	
	Igor Kukhtevich - Helmholtz Centre Munich, Germany

11:45 - 12:15 (CEST)	Break
05:45 - 06:15 (EDT)	
12:15 - 12:45 (CEST)	Meet the speaker - Hirofumi Shintaku
06:15 - 06:45 (EDT)	
12:45 - 13:15 (CEST)	Meet the speaker - Angela Wu
06:45 - 07:15 (EDT)	
13:15 - 13:30 (CEST)	Break
07:15 - 07:30 (EDT)	
13:30 - 14:30 (CEST)	Virtual Poster Session 3 with discussion channel on slack
07:30 - 08:30 (EDT)	
14:30 - 15:00 (CEST)	Break
08:30 - 09:00 (EDT)	
15:00 - 17:00 (CEST)	Cont. Virtual Session 4: Single-cell and single-molecule analyses
09:00 - 11:00 (EDT)	Chair: Amy E. Herr
15:00 - 15:45 (CEST)	Keynote lecture:
09:00 - 09:45 (EDT)	Microfluidic cell atlases
	Stephen Quake - Stanford University, USA
15:45 - 16:00 (CEST)	A DNA polymerase elongation-based fluorescence readout in polyacrylamide hydrogels
09:45 - 10:00 (EDT)	Alden Moss - University of California, United States of America
16:00 - 16:15 (CEST)	Migration of THP-1 cells on immobilized CXCL8 gradients in microfluidic devices
10:00 - 10:15 (EDT)	Victoria Engemann - TU Darmstadt, Germany
16:15 - 16:45 (CEST)	Precision medicine is advanced by precision microsystems
10:15 - 10:45 (EDT)	Amy E. Herr - University of California, Berkeley, USA
16:45 - 17:00 (CEST)	Break
10:45 - 11:00 (EDT)	
	Editor panel discussion
17:00 - 18:00 (CEST)	Chair: Christoph Merten
11:00 - 12:00 (EDT)	Editors: Philippa Ross - Lab on a Chip, Ruben Ragg - ChemBioChem, Eric Castro - Angewandte Chemie, Dominique Morneau - Nature Reviews
18:00 - 18:15 (CEST)	Break
12:00 - 12:15 (EDT)	
18:15 - 18:45 (CEST)	Meet the speaker - Amy Herr
12:15 - 12:45 (EDT)	

18:45 - 19:00 (CEST)

12:45 - 13:00 (EDT)

Closing remarks, end of conference

Continued access to networking and discussion platforms as well as poster gallery