

Microfluidic Horizons 2026

Poster contributions

Padova

18 May 2026 - 22 May 2026

Poster contributions - Tuesday 19/05

Poster 19/05

An Automated and parallelized microfluidic cell culture device using three-layer Ostemer-322 devices with an integrated NOA-84 membrane

Author: Saima Hamid¹; Naveen Kumar KR¹; Pragati Sharma¹; Shishir Kumar¹; Subha Narayan Rath¹

¹ *Indian Institute of Technology, Hyderabad, India*

Poster 19/05

Affinity Characterization of the GreenB1 Aptamer in Pancreatic Ductal Adenocarcinoma Using 2D, Organoid, and Organ-on-Chip Models

Authors: Laura Sproge¹; Kristaps Sunteiks¹; Karina Goluba¹; Vadims Parfejevs¹; Una Riekstina¹; Līga Kunrade¹

¹ *University of Latvia*

Poster 19/05

Cubosome penetration in pancreatic tumor spheroids using a microfluidic chip

Authors: Pierre Lapèze¹; Barbara Lonetti²; Clément Roux; David Bourrier¹; Pierre Joseph¹; Zhe Li²

¹ *LAAS CNRS*

² *Softmat*

Poster 19/05

Fickian Non-Gaussian Diffusion Induced by Structural Heterogeneity

Authors: Simone Buoso¹; Davide Ferraro¹; Giacomo Guastella¹; Gianluca Facca¹; Matteo Pierno¹; Giampaolo Mistura¹

¹ *DFA - Department of Physics and Astronomy - University of Padua (Italy)*

Poster 19/05

Anomalous diffusion in 2D interconnected microstructures

Author: Gianluca Facca¹; Davide Ferraro¹; Giacomo Guastella¹; Matteo Pierno¹; Simone Buoso¹; Giampaolo Mistura¹

¹ *DFA - Department of Physics and Astronomy - University of Padua (Italy)*

Poster 19/05

Transport of microalgae in curved channels at finite flow inertia

Authors: Ezzahrae Jaafari¹; Micheline Abbas¹; Pascale Magaud¹

¹ *Université de Toulouse*

Poster 19/05

An Integrated Wideband Electrorotation Platform for Automated Single-Cell Dielectric Characterization

Authors: Samuele Moscato¹; Giulia Valenti¹; Francesca Guarino¹; Maide Bucolo¹; Massimo Camarda²

¹ *University of Catania*

² *STLAB, Catania*

Poster 19/05

Friction Force Measurements on Molecularly Mixed Hydrophilic-Hydrophobic Slippery Covalently-attached Liquid-like Surfaces

Authors: Hui Ling Ong¹; Nurul A. Mazlan²; Glen McHale¹; Nan Gao²

¹ *University of Edinburgh*

² *Department of Mechanical Engineering, The University of Birmingham, UK*

Poster 19/05

Spontaneous Coulomb fissions of drops on lubricated surfaces

Author: Aaron Ratschow¹; Marcus Lin²; Peng Zhang³; Oscar Li³; Sankara Arunachalam³; Dan Daniel²

¹ *Max Planck Institute for Polymer Research*

² *Okinawa Institute of Science and Technology*

³ *King Abdullah University of Science and Technology*

Poster 19/05

Contact Line Instabilities in Sliding Viscoelastic Drops

Authors: Léa Delance¹; Diego Diaz²; Kaloian Koynov³; Hans-Jürgen Butt¹

¹ *Max Planck Institute for Polymer Research –Germany, Institut de Physique de Rennes - France*

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³ *Max Planck Institute for Polymer Research –Germany*

Poster 19/05

Engineering of a device for the measurement of the optical out-of-plane surface conductivity in two-dimensional materials

Authors: Leonardo Cobelli¹; Davide Ferraro¹; Michele Merano¹

¹ *DFA - Department of Physics and Astronomy - University of Padua (Italy)*

Poster 19/05**Formulation of hydrocolloids and rheometry on-chip****Authors:** Adrien Izzet¹; Kaixin Xu¹; Marco Ramaioli¹; Florent Malloggi²¹ *Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement, UMR 0782 SayFood*² *Commissariat à l'énergie atomique et aux énergies alternatives, UMR 3685 NIMBE/LIONS***Poster 19/05****Microfluidic Fabrication of Biopolymer Microdroplets for Photodynamic Antimicrobial Therapy****Authors:** Laura Milaknyte¹; Adei Abouhagger²; Wanessa Melo³¹ *Center for Physical Sciences and Technology, Vilnius University*² *State Research Institute Center for Physical Sciences and Technology (FTMC)*³ *Center for physical sciences and technology***Poster 19/05****Microfluidic GUV Sizing and Sorting for Synthetic Cells Sabine****Authors:** A.P. Straathof¹; Kareem Al Nahas²; Bert van Herck³; Michiel Punter¹; Petra Schwille²; Bert Poolman¹¹ *University of Groningen*² *Max-Planck-Institute of Biochemistry*³ *Delft University of Technology***Poster 19/05****Dynamics of Perception-induced Heat Shock responses in *Caenorhabditis elegans*****Authors:** Miguel Sambrano-Lopez¹; Eliot Schlang¹; Tanguy Roche¹; Marie-Caroline Jullien²; Wolfgang Keil¹¹ *Institut Curie, Université PSL, CNRS UMR 168, Physics of Cells and Cancer*² *Institut de Physique de Rennes, CNRS UMR 6251, Institut de Physique de Rennes***Poster 19/05****Investigating the antimicrobial activity of free and encapsulated Green Tea in microfluidic environments****Authors:** Rossella Mauro; Luca Pellegrino; Sara Alfano; Alessio Di Cristofaro; Francesca Cecilia Lauta; Andrea Martinelli; Roberto Rusconi**Poster 19/05****Microfluidic Single-Cell Analysis of CAR-Induced Modulation of NK Cell Cytotoxicity****Author:** Juliane Bernhard¹; Kamala Bharathi Ramalingam²; Dominik Schmiedel²; Ilia Platzman¹; Joachim P. Spatz¹¹ *Department of Cellular Biophysics, Max Planck Institute for Medical Research – Bildungscampus Heilbronn, Germany*² *Department for Cell and Gene Therapy Development, Fraunhofer Institute for Cell Therapy and Immunology, Leipzig, Germany*

Poster 19/05

Microscale impact of bacterial activity on evaporating interfaces

Authors: Alice Lemoine¹; Nathan Chapelle¹; Isabelle Cantat¹; François Peaudecerf¹

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Poster 19/05

Microfluidic studies in hemorrhagic shock of varying degrees

Authors: Maka Mantskava¹; Giorgi Kuchava²; Nana Momtselidze¹

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² *Ivane Beritashvili Center of Biomedicine*

Poster 19/05

Microfluidic focusing, rolling and sorting of pollen grains

Authors: Enrico Corato¹; Siddharood Appasaheb Biradar¹; Jörg König¹; Christian Cierpka¹

¹ *TU Ilmenau*

Poster 19/05

Effect of different phospholipids on biopharmaceutical profile of peptide-loaded LNPs for oral administration

Authors: Agnese Fragassi; Busra Arpac; Mariangela Garofalo; Paolo Caliceti; Stefano Salmaso; Valeria Nardis; Francesco Tognetti¹; Cristiano Pesce; Lisa Casagrande

¹ *Università degli studi di Padova*

Poster 19/05

Nanoformulations of Cu complexes for medical use: a preliminary study

Authors: Maddalena Sguizzato¹; Alessandra Boschi¹; Camilla Fiorilli¹; Catia Contado¹; Francesca Ferrara¹; Lorenza Marvelli¹; Rita Cortesi¹; Sara Vita Asmundo¹; Solange Privat¹

¹ *Università degli Studi di Ferrara*

Poster 19/05

Modular Comb-Shaped Fluorosurfactants for Functional Droplet-Based Microfluidics

Authors: Ariadna Benimeli Borrás¹; Ilia Platzman¹; Joachim P. Spatz¹; Pascal M. Jeschenko¹

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Poster 19/05

Numerical Investigation of a Cristae-Inspired Passive Micromixer for Microfluidic Applications

Author: Muhammad Ali Hashmi¹; Arvydas Palevičius¹

¹ *Kaunas University of Technology (KTU), Lithuania*

Poster 19/05

Modelling red blood cell flow through geometric disturbances to alter their cross-sectional distribution

Authors: Romain Enjalbert¹; Miguel O. Bernabeu¹

¹ *University of Edinburgh*

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Zero-leakage sealing systems for storable propellants

Authors: Daniel Castroviejo; Patrick Hendrick¹

¹ *ULB*

Poster 19/05

Step emulsification device for high-throughput droplet generation for biomedical applications

Authors: Rebecca Legnaro¹; Beatrice Crestani¹; Sebastian Cremaschini¹; Davide Ferraro¹

¹ *DFA - Department of Physics and Astronomy - University of Padua (Italy)*

Poster 19/05

Study of the transmembrane transport of ions into lipid vesicles prepared using different methods

Authors: Hasna Sherin Ummat¹; Benoit Scheid¹; Hennie Valkenier¹; Karolis Norvaisa¹; Lau Halgreen¹; Majid Layachi¹

¹ *Université libre de Bruxelles*

Poster 19/05

Deciphering and controlling biofilm formation in functionalized porous matrices

Authors: Simone Tamantini¹; Emiliano Fratini¹; Gavino Bassu¹; Marco Laurati¹

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Poster 19/05

Simple tunable ionic memristor based on access resistance to a cation-selective membrane

Authors: Alexandre Chhu¹; Annie Colin²; Corentin Trégouët¹

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Poster 19/05

In-Vitro Microfluidic Platform for Localized Controlled Brain Drug Delivery

Authors: Latifah Almulla¹; Christopher M Proctor¹; Ismail Es¹; Joe G. Troughton¹

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Poster 19/05

Deep learning based segmentation of microfluidic impedance cytometry signals: the first demonstration of cross-setup generalizability

Authors: Federica Caselli¹; Marta Righetto²; Riccardo Reale²; Adele De Ninno³; Cristian Brandi²; Paolo Bisegna²

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Poster 19/05

High-Resolution Dielectric Spectroscopy of Single Flowing Cells

Authors: Marta Righetto¹; Riccardo Reale¹; Federico Carneri²; Alessandra Mistretta²; Marta De Zotti³; Daniela Roversi²; Paolo Bisegna¹; Adele De Ninno⁴; Federica Caselli⁵

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Poster 19/05

Slippery Liquid-Like Surfaces with Tunable Wettability

Authors: Jae Hyung Cho¹; Isaac Gresham¹; Anthony Katselas¹; Glen McHale²; Chiara Neto¹

¹ *University of Sydney*

² *University of Edinburgh*

Poster 19/05

Sustainable Amidation of Polyhydroxyalkanoates: From Green Synthesis to Dynamic Antimicrobial Testing in Microfluidic Platforms

Author: Sara Alfano¹; Andrea Martinelli¹; Francesca Cecilia Laut²; Luca Pellegrino²; Roberto Rusconi³

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Poster contributions - Thursday 21/05

Poster 21/05

Pulmonary surfactant propagation in biomimetic airways : Relevance for adult acute respiratory distress syndrome (ARDS).

Authors: Franco Alvarez¹; Jean-François Berret²

¹ *Université Paris Cité*

² *MSC Université Paris Cité*

Poster 21/05

Microfluidics devices for precise patterning of organ-on-chips

Authors: Benoit Sorre; Julie Stoufflet; Lucie Hartmann

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Axial patterning control in neural organoids via microfluidic platforms through morphogen gradients and ECM modulation

Authors: Giulia Turlon¹; Francesca Tomatis¹; Daniela Salas²; Pietro Bellet²; Alessandra Sonda¹; Eleonora Pero³; Nicola Elvassore²; Stefano Guido³; Onelia Gagliano¹

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² *Venetian Institute of Molecular Medicine, Padova, Italy*

³ *Dep. of Chemical, Materials and Industrial Production Engineering, University of Napoli Federico II, Napoli, Italy*

Poster 21/05

Evaluation of Additive Manufacturing techniques' impacts on generation of microfluidics utilized in bio-applications

Authors: Milad Mansouri Boroujeni¹

¹ *Computing and engineering school, University of Huddersfield, Huddersfield, UK*

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Dynamics of 2D microfluidics crystals in patterned Hele-Shaw cells

Author: Kaigang Yang¹; Sebastian Cremaschini¹; Matteo Pierno¹; Giovanni Pellegrini²; Davide Ferraro¹; Giampaolo Mistura¹

¹ *DFA - Department of Physics and Astronomy - University of Padua (Italy)*

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Kinetic barriers in oil de-wetting from thin-shell double emulsions towards biomimetic synthetic cells

Authors: Adriano Caliarì¹; Alexandre Baccouche²; Emma Brix²; Giuseppe Battaglia¹

¹ *Institute for Bioengineering of Catalunya, Barcelona (ES)*

² *Institute of Electronics, Microelectronics and Nanotechnology, Lille (FR)*

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Capillary Transport with Rough Walls and Imposed Flux: A Microfluidic Model of Plant Xylem Flow

Author: Riddhika Mahalanabis¹; Balakrishnan Ashok¹

¹ *International Institute of Information Technology Bangalore*

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A Microfluidic Platform for Biofilm Cultivation with Integrated Electrochemical Sensing

Authors: Adei Abouhaggar¹; Arunas Stirke; Samanta Gelumbickytė¹; Wanessa de Melo¹

¹ *State Research Institute Center for Physical Sciences and Technology (FTMC)*

Poster 21/05

A CMOS-Integrated Lab-on-a-Chip System for Continuous Cellular Imaging and Thermal Control

Authors: Phil Henrich¹; Adam A. Stokes²; Jonah Mack²

¹ *Edinburgh University*

² *The University of Edinburgh*

Poster 21/05

Integrated microfluidic platforms with low process volumes for the efficient formulation of lipid nanoparticles and scalable production

Author: Linus Aulich¹; Gregor Dürre²; Rodrigo Fortique²; Jonas Klinger¹; Lucas Flechsig¹; Niklas Hubert¹; Annika Brehmer¹; Julian Polte¹

¹ *Fraunhofer IPK*

² *InnoRa GmbH*

Poster 21/05

Magnetically Driven Ferrofluid Transport for Pump-less Cooling in 3D-Printed Channels

Author: Bingchao Wang¹; Adam Stokes; Jonah Mack; Yaojue Xiong

¹ *The University of Edinburgh*

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Stability Analysis of a Capillary Rise Model with the Slip Boundary Condition

Author: Isidora Rapajić¹; Srbojjub Simić²; Endre Süli³

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³ *Mathematical Institute, University of Oxford*

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Simulation of water transport in porous media with variable wettability, such as the catalytic layer of a hydrogen fuel cell

Authors: Eric Pinton; Guillaume Serre; Robin Maubert; Yann Bultel

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The interaction between a microfluidic jet and a water-oil interface

Author: Lewis Phillips

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Microfluidic Fuses: Flow-Induced Choking in Channels

Author: Lewis Melvin¹; Draga Pihler-Puzovic; Finn Box

¹ *University of Manchester*

Poster 21/05

Robust fabrication of ultra-soft PDMS microcapsules as a biomimetic model for red blood cells

Authors: Mathilde Hanoune¹; Qi Chen; Valeria Ciccone; Finn Box; Anne Juel

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Microfluidic investigation of cancer cell migration under confinement and interstitial flow

Author: Ankur Deep Bordoloi¹; Jisca Barbian²; Pouyan Boukany²

¹ *CNRS, Aix Marseille University, Marseille, France*

² *Chemical Engineering, Delft University of Technology, Netherlands*

Poster 21/05**Liposomes for Ophthalmic Administration of Nutlin-3a prepared by Microfluidic Approach**

Authors: Elisabetta Melloni¹; Nicholas Castaldini²; Catia Contado²; Daniele Ragno²; Elisabetta Esposito²; Enrico Zauli³; Federico Santamaria²; Francesca Bompan⁴

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Poster 21/05**Diffusion-Driven Microfluidics for Bias-Free Measurements of Flagellar Motor Dynamics in Magnetotactic Bacteria**

Authors: Diego Roesch¹; Emilie Gachon²; Mathilde Nonon¹; Mila Sirinelli³

¹ *Aix Marseille Universite*

² *CEA*

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Poster 21/05**Role of cholesterol and microparticles on the structural and mechanical properties of lipid monolayers**

Authors: Benjamin Oliva; Hyunyou Kim; Ivo Buttinoni; Jean-Paul Chapel; Laura Alvarez

Poster 21/05**Exploring light-driven bacterial behavior in microfluidic chambers**

Authors: Ludivine Sanchez Arias¹; Idan Tuval¹

¹ *IMEDEA*

Poster 21/05**On-Chip and Off-Chip Ion Concentration Polarization Strategies for Enhanced Biosensing**

Authors: Sinwook Park¹; Barak Sabbagh¹; Gilad Yossifon¹

¹ *Tel Aviv University*

Poster 21/05**Why Heat Gets Stuck at Graphene–Water Interfaces**

Authors: Subradip Debnath¹; BoHung Kim²; Chirodeep Bakli³; Suman Chakraborty³; Vinay Arya¹

¹ *Research Scholar*

² *Professor*

³ *Indian Institute of Technology Kharagpur*

Poster 21/05

Microfluidic Synthesis of Cu Nitroprusside Nanoparticles for Cancer Therapy

Authors: Caroline Lisevski¹; Alessandro Bregalda²; Pietro Riello¹; Flavio Rizzolio¹

¹ *Università Ca' Foscari*

² *CRO Aviano*

Poster 21/05

Predictive 3D Multiphysics Modeling and Experimental Validation of Particle Trajectories in SSAW Microfluidic Devices

Authors: Felice Alberto Sfregola¹; Massimiliano Benetti²; Domenico Cannata²; Cinzia Caliendo³; Vincenzo Luigi Spagnolo⁴; Pietro Patimisco⁴; Antonio Ancona⁴; Annalisa Volpe⁴

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Poster 21/05

Numerical Analysis of Compound Droplet Formation and Dynamics Using Complex Fluids in a Co-Flow Microchannel

Authors: Manohar Jammula¹; Somasekhara Goud Sontti¹

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Pressure-Encoded Control in Fully 3D Printed Microfluidics: An FDM and FEA Approach

Authors: Jonah Mack¹; Hyeon Lee¹; Parvez Alam¹; Adam Stokes¹

¹ *University of Edinburgh*

Poster 21/05

Contactless Droplet Manipulation Using Lithium Niobate-Based Liquid Marbles

Authors: Alina Peethan¹; Clarissa Schönecker¹

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Poster 21/05

Hydrodynamic dispersion in flowing networks induces bacterial (mis)communication

Author: Despoina Anastasopoulou¹; Gabriel Ramos²; Julien Lefort³; Peter Redder⁴; Tanguy Le Borgne⁵; Yohan Davit³

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Poster 21/05

Soft objects in textured microchannels: a friction-based sorting mechanism

Author: Karen Trevia¹; Ludovic Keiser¹; Christophe Rafauste¹; Médéric Argentina¹

¹ *Université Côte d'Azur, CNRS, INPHYNI, Nice, France*

Poster 21/05

Controlling and optimising deformation modes of a pneumatically actuated single-layer PDMS device

Authors: Leon Valentin Gebhard¹; Alexandre Avaro²; Charles Baroud¹; Gabriel Amselem³

¹ *École Polytechnique de Paris*

² *École Polytechnique/Institut Pasteur*

³ *École Polytechnique*

Poster 21/05

Automated Characterization of Jet Breakup Dynamics in Newtonian and Viscoelastic Fluids using Deep Learning and Computer Vision

Authors: Eugen Chiriac¹; Marioara Avram¹

¹ *National Institute for R&D in Microtechnologies - IMT Bucharest*

Poster 21/05**Opto-microfluidics as a promising solution for an effective and fast detection of solid contaminants in liquids**

Authors: Sofia Marchetto¹; Annamaria Zaltron¹; Cinzia Sada¹; Giovanni Bragato¹; Giovanni Piccolo¹; Riccardo Zamboni²

¹ *University of Padova*

² *University of Bolzen*

Poster 21/05**Study of the hydrodynamics of micrometric particles within droplets confined in microchannels for biochemical applications**

Author: Beatrice Crestani¹; Andrea de Marco¹; Chiara Maceri¹; Davide Ferraro¹; Giampaolo Mistura¹; Maede Pajouhande²; Matteo Pierno¹; Noemi Torriero¹; Rebecca Legnaro¹

¹ *DFA - Department of Physics and Astronomy - University of Padova (Italy)*

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Poster 21/05**Low-Cost Paper-Based Lab-on-Chip: Creating Hydrophobic Barriers using Common Materials for Microfluidic uses**

Authors: Shantanu Banerjee¹; Mansi Chandra²; Arnab Sarkar³; Vijay Shinde⁴

¹ *Research Scholar (M. Tech.), Mechanical Engineering, Indian Institute of Technology (BHU) Varanasi, Varanasi, India*

² *Research Scholar (PhD.), Mechanical Engineering, Indian Institute of Technology (BHU) Varanasi, Varanasi, India*

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⁴ *Assistant Professor, Mechanical Engineering, Indian Institute of Technology (BHU) Varanasi, Varanasi, India*

Poster 21/05**AC-enhanced chiral drift of helical microswimmers in viscous pipe flow**

Authors: Oles Dubrovski¹; Regine von Klitzing¹

¹ *Technical University Darmstadt*

Poster 21/05**When Shape Matters: Surface Chemistry and Anisotropic Particle Retention in Depth Filtration**

Authors: Ann-Kathrin Mertens¹; Janine Weide¹; Johann Savinsky¹; Simon Wennemaring¹; Matthias Wessling¹

¹ *RWTH Aachen University*