



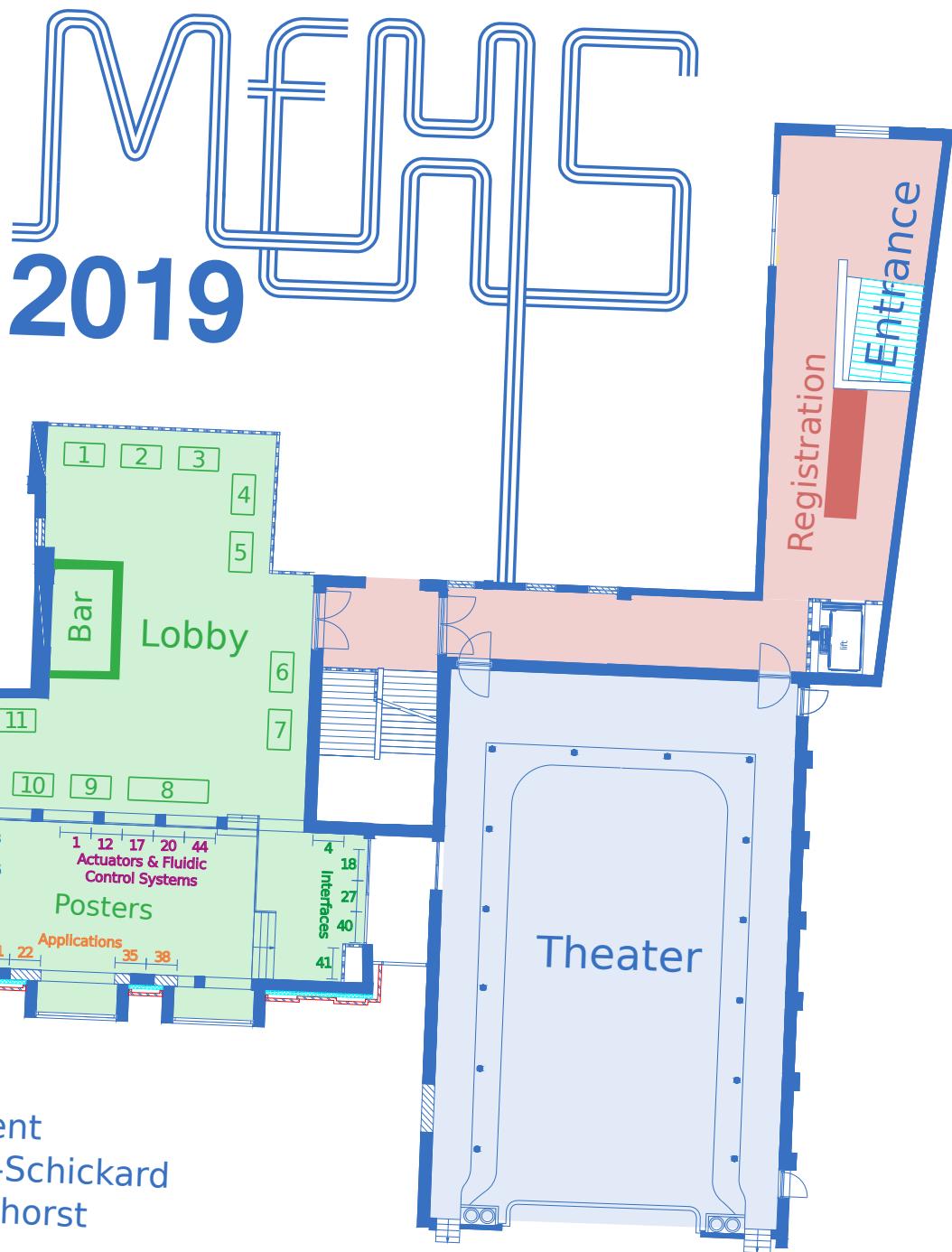
Conference Guide

The 4th Conference on MicroFluidic Handling Systems

2-4 October 2019

Enschede
The Netherlands





- 1** Fluigent
- 2** Hahn-Schickard
- 3** Bronkhorst
- 4** IST
- 5** Kloé
- 6** Salland Engineering
- 7** Shaw Mountain Technology
- 8** Burkert
- 9** BioFluidix
- 10** TrueDyne
- 11** Convergence
- 12** HNP Mikrosysteme

Program

Wednesday, 2nd of October

17:00 – 19:00	Registration & welcome reception	Lobby
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Thursday, 3rd of October

8:00 – 8:45	Registration	Lobby
8:45 – 9:00	Opening & announcements	Theater
9:00 – 9:30	Invited talk 1: "Flow chemistry & chemical sensors"	Theater
9:30 – 10:50	Session 1: Sensors	Theater
10:50 – 11:20	Coffee break & exhibition	Lobby
11:20 – 12:40	Session 2: Actuators & Fluidic Control Systems	Theater
12:40 – 13:40	Lunch & exhibition	Lobby
13:40 – 14:10	Invited talk 2: "Energy transition"	Theater
14:10 – 15:30	Session 3: Industrial Sensors & Fluidic Control Systems	Theater
15:30 – 16:00	Coffee break & exhibition	Lobby
16:00 – 17:45	Poster session & exhibition	Lobby
18:00 – 20:00	Conference dinner	Wilmink
20:00 – 22:00	Evening show	Theater

Friday, 4th of October

8:00 – 8:45	Registration	Lobby
8:45 – 9:00	Opening & announcements	Theater
9:00 – 9:30	Invited talk 3: "Biopharmaceuticals"	Theater
9:30 – 10:00	Invited talk 4: "Flow control for organ on a chip"	Theater
10:00 – 10:40	Session 4: Applications	Theater
10:40 – 11:10	Coffee break & exhibition	Lobby
11:10 – 12:30	Session 5: Industrial Applications	Theater
12:30 – 13:00	Closing session & awards ceremony	Theater
13:00 – 14:00	Lunch & exhibition	Lobby
14:30 – 16:00	Optional lab tour	University

Invited talks

Thursday, 3rd of October

- 9:00 – 9:30 **Flow chemistry & chemical sensors**
Maarten Honing
13:40 – 14:10 **Energy transition**
René Peters

Friday, 4th of October

- 9:00 – 9:30 **Biopharmaceuticals**
Michel Eppink
9:30 – 10:00 **Flow control for organ on a chip**
Pim de Haan

Session 1: Sensors

Thursday, 3rd of October, 9:30 – 10:50

Chairs: Loes Segerink & Joost Lötters

- 9:30 – 9:50 **A universal flowmeter for microfluidics**
C. Cavaniol, W. Cesar, S. Descroix, J-L. Viovy
9:50 – 10:10 **Micro-Coriolis mass flow sensor with resistive readout**
T.V.P. Schut, R.J. Wiegerink, J.C. Lötters
10:10 – 10:30 **Dual beam optical coherence tomography for spatially-resolved depth-section microfluidic flow velocimetry**
J.M. Hallam, E. Rigas, T.O.H. Charrett, R.P. Tatam
10:30 – 10:50 **Design of a slot photonic crystal waveguide for highly sensitive evanescent field absorption sensing in fluids**
R. Jannesari, G. Pühringer, T. Grille, B. Jakoby

Session 2: Actuators & Fluidic Control Systems

Thursday, 3rd of October, 11:20 – 12:40

Chairs: Peter Koltay & Niels Tas

- 11:20 – 11:40 **Highly parallel microbioreactor for cell line development based on a microtiter plate with functional microfluidic lid**
A. Itani, C-H. Tsai, DH. Kuan, S. Zimmermann, R. Zengerle, P. Koltay
11:40 – 12:00 **Printing with satellite droplets in liquid and gaseous environment**
D. Li, Y. Liu, Y. Zhang
12:00 – 12:20 **A contact-free micropump for fluid transport against high backpressure**
A.R. Smith, D. Oudejans, J.C. Lötters, P. Müllner
12:20 – 12:40 **Proportional microvalve using a PZT plate microactuator**
A. Gunda, G. Özkaray, M. Tichem, M.K. Ghatkesar

Session 3: Industrial Sensors

Thursday, 3rd of October, 14:10 – 15:30

Chairs: Jankees Hogendoorn & Florian Krogmann

14:10 – 14:30	Characterization of a gas density sensor based on surface channel technology J. Groenesteijn, N. de Jonge, E.J. van der Wouden, W. Sparreboom, T.S.J. Lammerink, J.C. Lötters
14:30 – 14:50	Robust thermal mass flow meter comparison between anemometric principle and 3 omega method to measure flow R.E. Bernhardsgürtter, C.J. Hepp, K. Schmitt, M. Jägle, H.-F. Pernau, J. Wöllenstein
14:50 – 15:10	A multiparameter capacitive sensing platform for the assessment of the composition of gas mixtures A. Boersma, J. Sweijsen, H. Blokland
15:10 – 15:30	Multiparameter gas monitoring system combining a functionalised and a non functionalised microcantilever C. Huber, A. Mehdaoui, M.P. Pina, J.J. Morales

Session 4: Applications

Friday, 4th of October, 9:30 – 10:40

Chairs: Peter Mullner & Remco Wiegerink

10:00 – 10:20	Construction of a well-operable crystallization method for chemical analysis applying microdroplet device S. Hattori, D. Tanka, D.H. Yoon, T. Sekiguchi, Y. Nozaki, T. Akitsu, S. Shoji
10:20 – 10:40	On the feasibility of using a multi-parameter sensor for the inline characterisation of medicine mixtures R.J. Dijkink, J.C. Lötters, B. van den Berg, C.A.J. Damen

Session 5: Industrial Applications

Friday, 4th of October, 11:10 – 12:30

Chairs: Stefan Schork & Florian Krogmann

11:10 – 11:30	Flow measurement and control in the microfluidic flow range : liquid microfluidic applications and market requirements D.A.P. Oudejans, H.F. Luimes, J.C. Lötters
11:30 – 11:50	Coriolis mass flow metering tracking rapid fuel injection pulses trains in internal combustion engines M.P. Henry, F. Leach
11:50 – 12:10	Low capacitance measurement system for industrial-scale multichannel testing A. Bonilla Fernandez, D. Alveringh, E. van Dam, S. Schepers, P. Senff, E. Kloekke
12:10 – 12:30	Challenges in achieving optimum performance in microfluidic handling systems M. Katerberg, G.H.J.M. Ratering

Poster session

Thursday, 3rd of October, 16:00 – 17:45

Sensors

- Poster 9 **Additive manufactured pure PMMA microfluidic channels featuring screen printed diaphragm flow velocity sensor**
M. Knoll, M.A. Hintermüller, C. Offensteller, B. Jakoby, W. Hilber
- Poster 13 **Fabrication of free-hanging tubes for a high flow micro Coriolis mass flow meter**
J. Groenesteijn, M.J. de Boer, J. van Putten, W. Sparreboom, J.C. Lötters, R.J. Wiegerink
- Poster 19 **Embedding of screen printed sensors and actuators into bulk polymer for sensing in microfluidic devices**
C. Offensteller, M.A. Hintermüller, M. Knoll, B. Jakoby, W. Hilber
- Poster 26 **Piezoelectric thin film on silicon RF-MEMS lamb wave resonantors for fluid parameters sensing**
Y.L. Janssens, J.W. Berenschot, M.J de Boer, C.J. Hogendoorn, N.R. Tas
- Poster 28 **Fabrication method of microfluidic channels with circular cross section for micro Coriolis mass flow sensor**
Q. Yu, R.J. Wiegerink, J.C. Lötters
- Poster 31 **Piezoelectric thin film for electroacoustic devices**
S. Ni, et al.
- Poster 36 **Towards integrated circular flow tubes with large diameter**
M. Yariesbouei, M.A. Rodriguez Olguin, R.J. Wiegerink, J.C. Lötters
- Poster 43 **Microwave-based temperature monitoring of nanoliter water samples using a water-only temperature calibration technique**
G. Maenhout, T. Markovic, J. Bao, G. Stefanidis, I. Ocket, B. Nauwelaers

Applications

- Poster 21 **Highly-doped bulk silicon microheaters and electrodes embedded between free-hanging microfluidic channels by surface channel technology**
Y. Zhao, H.-W. Veltkamp, T.V.P. Schut, J. Groenesteijn, M.J. de Boer, R.J. Wiegerink, J.C. Lötters
- Poster 22 **Label-free detection of minuscule objects via dark-field microscopy for single-cell printing**
R. Dammann, B. Gerdes, J. Riba, S. Zimmermann, P. Koltay, R. Zengerle
- Poster 35 **Measurement of viscosity for medicine mixture**
S. Mejri, M. Yariesbouei, R.J. Wiegerink, J. Groenesteijn, J. Lötters
- Poster 38 **Towards a fully integrated and disposable DNA amplification chip**
F. Akegawe Monteiro, H.-W. Veltkamp, R.G.P. Sanders, R.J. Wiegerink, J.C. Lötters

Actuators & Fluidic Control Systems

- Poster 1 **Dispensing of attolitre droplets with inkjet technique**
Y. Zhang, D. Li, Y. Liu
- Poster 12 **Comparison of planar and halbach permanent magnet systems for mobile microfluidic NMR applications**
Y. Klein, L. Abelmann, J. Hogendoorn, H. Gardeniers
- Poster 17 **Atomization of fluids with ultrasound**
P. Dunst, P. Bornmann, T. Hemsel, W. Littmann, W. Sextro
- Poster 20 **No heated wall evaporator: an innovative way to reduce fouling in a miniature evaporator system**
C.M. Rops, M. Del Hoyo Arroyo, J.W. van de Geest, R.M.C. Mestrom
- Poster 44 **Topological optimization of heating resistors for controlling temperature in a microfluidic cavity**
T. Mabit, M.-C. Jullien, H. Ben Ahmed

Interfaces

- Poster 4 **Using gallium as a protective layer during a solvent bonding process for lab-scale polymer based microfluidic device fabrication**
M.A. Hintermüller, B. Jakoby
- Poster 18 **Towards 3D printed microfluidic devices in alfa-alumina**
H.-W. Veltkamp, Y. Zhao, R.G.P. Sanders, R.J. Wiegerink, J.C. Lötters
- Poster 27 **Towards design automation for microfluidic devices**
G. Fink, M. Hamidovic, W. Haselmayr, R. Wille
- Poster 40 **Development of front-end electronics for low-field NMR applications**
E. Aydin, K.A.A. Makinwa
- Poster 41 **Design considerations for a MEMS Coriolis mass flow sensing system**
A.C. de Oliveira, T.V.P. Schut, J. Groenesteijn, Q. Fan, R.J. Wiegerink, K.A.A. Makinwa

Notes