



Preliminary Technical Program

The Executive Committee reserves the right to amend the program if necessary.

All indicated times in the program are US Eastern times (New York).

Workshops - Saturday, October 3

Workshop 1 09:00 - 10:00

PLUG AND PLAY: FLUIDS DELIVERY AND SYSTEM INTEGRATION

Nicolas Verplanck¹, Leanna Levine², Masumi Yamada³, and Edmond Young⁴,
¹Atomic Energy and Alternative Energies Commission - CEA, FRANCE, ²ALine, Inc, USA,
³Chiba University, JAPAN, and ⁴University of Toronto, CANADA

Workshop 4 10:00 - 11:00

ADVANCED MICROSCOPY TECHNIQUES FOR CELL IMAGING IN 3D

Petra Paiè¹, Billy Huang², and Vincent Haguët³
¹Istituto di Fotonica e Nanotecnologie, CNR, ITALY, ²Nebulum Technologies, TAIWAN and
³CEA, Grenoble, FRANCE

Workshop 6 08:00 - 09:00

SURFACE FUNCTIONALIZATION IN MICROFLUIDICS

Sung Gap Im¹ and Ying-Chih Chang^{2,3}
¹Korea Advanced Institute of Science and Technology (KAIST), KOREA, ²Academia Sinica, TAIWAN, and
³Stanford University, USA

Workshop 7 08:00 - 09:00

SMALL-SCALE BIOREACTORS

Krist V. Gernaey¹, Wim De Malsche², Pei-Chen Chiang³, and Katrin Rosenthal⁴
¹Technical University of Denmark, DENMARK, ²Vrije Universiteit Brussel, BELGIUM,
³Corning Research Center, TAIWAN, and ⁴Technical University Dortmund, GERMANY

Workshop 8 09:00 - 10:00

BIO/3D-PRINTING

Shrike Zhang¹, Mei He², Oni Basu³, and Hongkai Wu⁴
¹Harvard Medical School, USA, ²University of Florida, USA, ³University of Chicago, USA, and
⁴Hong Kong University of Science and Technology, HONG KONG

Workshop 9 10:00 - 11:00

LIQUID BIOPSY - LATEST DEVELOPMENT IN THE CTC, EXOSOME AND FREE-FLOATING DNA FOR DIAGNOSIS

Sunitha Nagraath¹, Valérie Taly², Chih-Chen Chen³, Leon Terstappen⁴, Fikri Abali⁴, and Afroditi Nanou⁴
¹University of Michigan, USA, ²Université de Paris, FRANCE, ³National Tsing Hua University, TAIWAN, and
⁴University of Twente, THE NETHERLANDS

Workshop 12 11:00 - 12:00

POINT OF CARE FOR GLOBAL HEALTH

Fernando Benito Lopez¹, Yuksel Temiz², Jacqueline Linnes³, and Konstantinos Mitsakakis⁴
¹Universidad del País Vasco, SPAIN, ²IBM, SWITZERLAND, ³Purdue University, USA,
⁴University of Freiburg - IMTEK, GERMANY

Workshops - Sunday, October 4

Workshop 2 08:00 – 09:00

SENSOR INTEGRATION IN MICROFLUIDICS

Federico Paratore¹, Federica Caselli², and Chii-Wann Lin³

¹IBM, SWITZERLAND, ²University of Rome Tor Vergata, ITALY, and ³National Taiwan University, TAIWAN

Workshop 3 09:00 – 10:00

OPEN SPACE MICROFLUIDIC

Jean Berthier¹, Thomas Gervais², and Mohammad Qasaimeh³

¹University of Washington, USA, ²Polytechnique Montréal, Canada, and

³New York University Abu Dhabi, UAE

Workshop 5 11:00 – 12:00

FLOW MODELING AND VISUALIZATION IN MICROFLUIDICS

Henrik Bruus¹, Wei-Hsin Tien², Rune Barnkob³, and Yuki Minamoto⁴

¹Technical University of Denmark, DENMARK,

²National Taiwan University of Science and Technology, TAIWAN,

³Technical University of Munich, GERMANY, and ⁴Flowsquare+/Tokyo Institute of Technology, JAPAN

Workshop 10 10:30 – 11:30

ORGAN ON CHIP AND MICROFLUIDIC-BASED TISSUE ENGINEERING

Stephanie Descroix¹, Deok-Ho Kim², Rebecca Rose Pompano³, and Anna Herland⁴

¹Institut Curie - CNRS, FRANCE, ²Johns Hopkins University School of Medicine, USA,

³University of Virginia, USA, and ⁴KTH Royal Institute of Technology, SWEDEN

Workshop 11 10:00 – 11:00

DROPLET MICROFLUIDICS

Yegan Erdem¹, Håkan Jönsson², and Charles Baroud³

¹Bilkent University, TURKEY, ²KTH Royal Institute of Technology, SWEDEN, and

³Institut Pasteur, FRANCE

Day 1 - Monday, October 5

Opening Remarks – Welcome Address

08:00 CBMS President

Nicole Pamme, *University of Hull, UK*

College of Engineering - Georgia Institute of Technology, USA

Steve McLaughlin, Provost and Executive Vice President for Academic Affairs

University of Twente, THE NETHERLANDS

Victor van der Chijs, President Executive Board (CVB)

MicroTAS 2020 Conference Chairs

Séverine Le Gac, *University of Twente, THE NETHERLANDS*

Hang Lu, *Georgia Institute of Technology, USA*

Plenary Speaker Presentation I

Session Chairs

Je-Kyun Park, *Korea Advanced Institute of Science and Technology (KAIST), KOREA*

Manabu Tokeshi, *Hokkaido University, JAPAN*

08:25 - 09:25

MP-01 ON-CHIP ROBOTICS: EMERGING FUNCTIONS IN MICROFLUIDIC ENVIRONMENT WITH INTEGRATION OF SENSORS & ACTUATORS

Fumihito Arai

University of Tokyo, JAPAN

09:25 - 09:30 Transition Break

Poster Session M1

09:30 - 10:30 Presentations are listed by topic category with their assigned number starting on page 16.

Coffee Break (offline) or join the Daily Quiz Featuring Fluigent

10:30 - 10:45 Join us for a quick quiz hosted by [Fluigent](https://www.fluigent.com). We will use Kahoot! for this quiz, so please install Kahoot! on your smartphone or head over to www.kahoot.it in your web browser. Further instructions available upon joining. Winner will be selected to participate in “Who Wants to be a Millionaire?” on Friday.

Panel Discussion I

Moderators:

Audrey Bowden, *Vanderbilt University, USA*

Wouter van der Wijngaart, *KTH Royal Institute of Technology, SWEDEN*

10:45 - 11:35 **WOMEN IN ACADEMIA**

Sabeth Verpoorte¹, Karen Cheung², and Lingling Shui³

¹*University of Groningen, THE NETHERLANDS*, ²*University of British Columbia, CANADA*, and

³*South China Normal University, CHINA*

Panel Discussion II

Moderators:

Abraham P. Lee, *University of California, Irvine, USA*
Bastien Venzac, *University of Twente, THE NETHERLANDS*

- 10:45 - 11:35 **ETHICS IN SCIENCE**
Claire Ribault¹, Adam Marcus², Philippa Ross³, and Jun Fudano⁴
¹*Ateliers des Jours à Venir, FRANCE*, ²*Retraction Watch, USA*, ³*Royal Society of Chemistry, UK*, and
⁴*Waseda University, JAPAN*

Industrial Stage 1

Session Chairs

Sally Peyman, *University of Leeds, UK*
Shoji Takeuchi, *University of Tokyo, JAPAN*

- 10:45 - 11:10 1a - Zurich Instruments AG
FAST IMPEDANCE SPECTROSCOPY FOR CHARACTERIZATION AND COUNTING
- 11:10 - 11:35 1b - microfluidic ChipShop GmbH
WHY ISN'T ELON MUSK DOING MICROFLUIDICS?

Industrial Stage 2

Session Chairs

Daniel Citterio, *Keio University, JAPAN*
Mei He, *University of Florida, USA*

- 10:45 - 11:10 2a – Newormics LLC
VIVOCHIP: HIGH-CONTENT ANALYSIS OF DISEASE MODELS AND TOXICOLOGY STUDIES USING C. ELEGANS
- 11:10 - 11:35 2b – Biond Solutions B.V.
NOURISHING, STIMULATING AND MONITORING CELLS WITH MICROELECTRONICS
- 11:35 - 11:40 Transition Break

Poster Session M2

- 11:40 - 12:40 Presentations are listed by topic category with their assigned number starting on page 16.

- 12:40 **Adjourn for the Day**

Day 2 - Tuesday, October 6

Plenary Speaker Presentation II

Session Chairs

Nicole Pamme, *University of Hull, UK*

Wouter van der Wijngaart, *KTH Royal Institute of Technology, SWEDEN*

08:00 - 09:00

TP-02 COVID-19: CHANGING DIRECTIONS OF A PERFECT STORM

Herman Goossens

University of Antwerp, BELGIUM

09:00 - 09:05 Transition Break

09:05 - 09:35 **Speaker Corner with Herman Goossens**

Poster Session T3

09:05 - 10:05 Presentations are listed by topic category with their assigned number starting on page 16.

Coffee Break (offline) or join one of the Daily Quizzes featuring RAN Biotechnologies and Zurich Instruments

10:05 - 10:20 Join us for a quick quiz hosted by [RAN Biotechnologies](#) and [Zurich Instruments](#). We will use Kahoot! for this quiz, so please install Kahoot! on your smartphone or head over to www.kahoot.it in your web browser. Further instructions available upon joining. Winner will be selected to participate in “Who Wants to be a Millionaire?” on Friday.

Plenary Speaker Presentation III

Session Chairs

Don DeVoe, *University of Maryland, College Park, USA*

Joel Voldman, *Massachusetts Institute of Technology (MIT), USA*

10:20 - 11:20

TP-03 CHEMICAL SYNTHESIS ENABLED BY MICROFLUIDICS, AUTOMATION, AND MACHINE LEARNING

Klavs F. Jensen

Massachusetts Institute of Technology, USA

11:20 - 11:25 Transition Break

11:25 - 11:55 **Speaker Corner with Klavs F. Jensen**

Poster Session T4

11:25 - 12:25 Presentations are listed by topic category with their assigned number starting on page 16.

12:25 - 12:30 Transition Break

Shark Tank

Moderators

Luc Bousse, *Kryptos Biotechnologies, USA*

Michelle Khine, *University of California, Irvine, USA*

Sumita Pennathur, *University of California, Santa Barbara, USA*

12:30 - 13:30

Panel of Judges

Don Arnold, *Veristad, USA*

Holger Becker, *microfluidic ChipShop, GERMANY*

David Cohen, *Marker AG, USA*

Yolanda Fintschenko, *FounderTraction, USA*

JD Harriman, *Foundation Law Group, USA*

Dirk Heckel, *DH Diagnostics LLC, a Danaher Company, USA*

Carl Meinhart, *University of California, Santa Barbara, USA*

Tomoko Minagawa, *Global Brain Corporation, JAPAN*

Josh Molho, *Milo at ProteinSample, USA*

Akhil Saklecha, *Cleveland Clinic Ventures, USA*

Erez Podoly, *MightyGate, USA*

13:30

Adjourn for the Day

Day 3 - Wednesday, October 7

Keynote Presentation I

Session Chairs

Kazuma Mawatari, *University of Tokyo, JAPAN*
Fan-Gang Tseng, *National Tsing Hua University, TAIWAN*

08:00 - 08:30

WK-01 LIQUID MARBLE BASED DIGITAL MICROFLUIDICS: FUNDAMENTAL PHYSICS AND APPLICATIONS

Nam-Trung Nguyen, Chin Hong Ooi, Raja Vadivelu, Kamalalayam Rajan Sreejith, Jing Jin, Nhat-Khuong Nguyen, and Pradip Singha
Griffith University, AUSTRALIA

Keynote Presentation II

Session Chairs

Stephanie Descroix, *Institut Curie CNRS, FRANCE*
Jacqueline Linnes, *Purdue University, USA*

08:00 - 08:30

WK-02 ENGINEERING AND MEASURING SYSTEMIC MULTI-ORGAN INTERACTIONS FOR TRANSLATIONAL APPLICATIONS

Lor Huai Chong², Hsih Yin Tan², Louis Ong^{1,2}, Christopher Tostado², and Yi-Chin Toh¹
¹*Queensland University of Technology, AUSTRALIA* and ²*National University of Singapore, SINGAPORE*

Keynote Presentation III

Session Chairs

Ian Papautsky, *University of Illinois, Chicago, USA*
Hongkai Wu, *Hong Kong University of Science and Technology, HONG KONG*

08:00 - 08:30

WK-03 INKJET-BASED HIGH THROUGHPUT SINGLE CELL DISPENSING

Karen C. Cheung
University of British Columbia, CANADA

Keynote Presentation IV

Session Chairs

Hugh Fan, *University of Florida, USA*
Chang-Soo Lee, *Chungnam National University, KOREA*

08:00 - 08:30

WK-04 MICROFLUIDICS FOR LIQUID BIOPSY

Chao Liu, Fei Tian, and Jiashu Sun
National Center for Nanoscience and Technology, CHINA

08:30 - 08:35 Transition Break

08:35 - 09:05

Speaker Corners

Nam-Trung Nguyen, Yi-Chin Toh, Karen C. Cheung, and Jiashu Sun

Poster Session W5

08:35 - 09:35 Presentations are listed by topic category with their assigned number starting on page 16.

09:35 - 09:40 Transition Break

Panel Discussion III

Moderators:

Yi Chin Toh, *Queensland University of Technology, AUSTRALIA*
Wouter van der Wijngaart, *KTH Royal Institute of Technology, SWEDEN*

09:40 - 10:30 **ADVICE FOR EARLY CAREERS IN ACADEMIA**

Albert van den Berg¹, Maria Tenje², Joel Voldman³, Jacqueline Linnes⁴, Yoon-Kyoung Cho⁵,
and Ya-Yu Chiang⁶

¹*University of Twente, THE NETHERLANDS*, ²*Uppsala University, SWEDEN*, ³*Massachusetts Institute of Technology, USA*, ⁴*Purdue University, USA*, ⁵*Ulsan National Institute of Science and Technology (UNIST), KOREA*, and ⁶*National Chung-Hsing University, TAIWAN*

Panel Discussion IV

Moderators:

Aaron Wheeler, *University of Toronto, CANADA*
Monica Brivio, *Micronit Microtechnologies, THE NETHERLANDS*

09:40 - 10:30 **WOMEN IN INDUSTRY**

Leanna Levine¹, Alissa Fitzgerald², Claudia Gaertner³, France Hamber⁴, Mika Mizunuma⁵,
and Hong Ya Ying⁶

¹*A-Line, USA*, ²*A.M. Fitzgerald & Associates, USA*, ³*microfluidic ChipShop, GERMANY*,
⁴*Fluigent, FRANCE*, ⁵*CRAIF, JAPAN*, and ⁶*Shenzhen Shineway Technology Corp., HONG KONG*

Industrial Stage 3

Session Chairs

Joan Bienvenue, *University of Virginia, USA*
Kevin Nichols, *Global Health Labs, USA*

09:40 - 10:05 3a – Springer Nature
BOOK PUBLISHING @ SPRINGER NATURE

10:05 - 10:30 3b – Fluigent in Partnership with BEOncip
Fluigent/ BEOncip: A STRATEGIC PARTNERSHIP TO BETTER ADDRESS THE NEEDS OF THE MULTIDISCIPLINARY FIELD OF ORGAN ON CHIP

Industrial Stage 4

Session Chairs

Cullen Buie, *Massachusetts Institute of Technology, USA*
Rebecca Pompano, *University of Virginia, USA*

09:40 - 10:05 4a – HiComp Microtech (Suzhou) Co., Ltd.
CHALLENGES AND SOLUTIONS FOR NEW DIAGNOSTIC CONSUMABLE MANUFACTURING

10:05 - 10:30 4b – Heidelberg Instruments
CHALLENGES AND SOLUTIONS FOR NEW DIAGNOSTIC CONSUMABLE MANUFACTURING

Coffee Break (offline) or join the Daily Quiz featuring Emulseo

10:30 - 10:45 Join us for a quick quiz hosted by [Emulseo](#). We will use Kahoot! for this quiz, so please install Kahoot! on your smartphone or head over to www.kahoot.it in your web browser. Further instructions available upon joining. Winner will be selected to participate in “Who Wants to be a Millionaire?” on Friday.

Poster Session W6

10:45 - 11:45 Presentations are listed by topic category with their assigned number starting on page 16.

11:45 - 11:50 Transition Break

Plenary Speaker Presentation IV

Session Chairs

Hang Lu, *Georgia Institute of Technology, USA*
Jonas Tegenfeldt, *Lund University, SWEDEN*

11:50 - 12:50

WP-04 SKIN-INSPIRED MATERIALS, SENSORS AND APPLICATIONS

Zhenan Bao
Stanford University, USA

12:50 - 12:55 Transition Break

12:55 - 13:25 Speaker Corner with Zhenan Bao

13:25 **Adjourn for the Day**

Day 4 - Thursday, October 8

Plenary Speaker Presentation V

Session Chairs

Yoon-Kyoung Cho, *Ulsan National Institute of Science and Technology (UNIST), KOREA*

Amy Herr, *University of California, Berkeley, USA*

08:00 - 09:00

ThP-05 BIOCOMPATIBLE INTERFACES OF NANOSTRUCTURED POLYMER FOR ADVANCED MEDICAL AND HEALTHCARE DEVICES

Madoka Takai

University of Tokyo, JAPAN

09:00 - 09:05 Transition Break

09:05 – 09:35 Speaker Corner with Madoka Takai

Poster Session Th7

09:05 - 10:05 Presentations are listed by topic category with their assigned number starting on page 16.

Coffee Break (offline) or join the Daily Quiz featuring Nanoscribe GmbH

10:05 - 10:20 Join us for a quick quiz hosted by Nanoscribe GmbH. We will use Kahoot! for this quiz, so please install Kahoot! on your smartphone or head over to www.kahoot.it in your web browser. Further instructions available upon joining. Winner will be selected to participate in “Who Wants to be a Millionaire?” on Friday.

Panel Discussion V

Moderators:

Michinao Hashimoto, *Singapore University of Technology and Design, SINGAPORE*

Agnieszka Zuchowska, *University of Twente, THE NETHERLANDS*

10:20 - 11:10 **PARENTING IN SCIENCE AND WORK-LIFE BALANCE**

Agnes Tixier-Mita¹, Yoshio Mita¹, Yong Zeng², Mei He², Jonas Tegenfeldt³, and Christelle Prinz³

¹*University of Tokyo, JAPAN*, ²*University of Florida, USA*, and ³*Lund University, SWEDEN*

Panel Discussion VI

Moderators:

Yi Chin Toh, *Queensland University of Technology, AUSTRALIA*

Daniel Citterio, *Keio University, JAPAN*

10:20 - 11:10 **STUDENTS AND POSTDOCS STUDYING ABROAD**

Petra Dittrich¹, Gaspard Pardon², Dino Di Carlo³, Darius Rackus¹ Anderson Shum⁴, and Christopher Tostado⁵

¹*ETH Zürich, Basel, SWITZERLAND*, ²*Stanford University, USA*, ³*University of California, Los Angeles, USA*, ⁴*Hong Kong University, HONG KONG*, and ⁵*Genome Institute of Singapore, SINGAPORE*

Industrial Stage 5

Session Chairs

Ya-Yu Chiang, *National Chung Hsing University, TAIWAN*

John Oakey, *University of Wyoming, USA*

- 10:20 - 10:45 5a – Jobst Technologies GmbH
NANO/ MICRO FLOW SYSTEMS, AND BIOSENSORS
- 10:45 – 11:10 5b – PreciGenome LLC
A TOOL BOX FOR MICROFLUIDIC SYSTEM INTEGRATION AND ITS APPLICATIONS

Industrial Stage 6

Session Chairs

Axel Guenther, *University of Toronto, CANADA*

Tiina Sikanen, *University of Helsinki, FINLAND*

- 10:20 - 10:45 6a – Vision Research, AMETEK
HIGH-SPEED IMAGING SOLUTIONS FOR IMAGE CYTOMETRY
- 10:45 - 11:10 6b – STRATEC Consumables GmbH
COLLABORATION BY DESIGN – HOW TO INTEGRATE PARTNERS IN THE DEVELOPMENT AND MANUFACTURING OF NEXT GENERATION DIAGNOSTICS
- 11:10 - 11:15 Transition Break

Poster Session Th8

- 11:15 - 12:15 Presentations are listed by topic category with their assigned number starting on page 16.
- 12:15 - 12:20 Transition Break

Keynote Presentation V

Session Chairs

Stephen Jacobson, *Indiana University, USA*

Marcel Utz, *University of Southampton, UK*

- 12:20 - 12:50
ThK-05 EMERGING WATER TREATMENT TECHNOLOGIES
Matthew E. Suss, Shada Abu Khalla, Imri Atlas, Eric Guyes, and Amit Shocron
Technion - Israel Institute of Technology, ISRAEL

Keynote Presentation VI

Session Chairs

Katherine Elvira, *University of Victoria, CANADA*

Han Wei Hou, *Nanyang Technological University, SINGAPORE*

- 12:20 - 12:50
ThK-06 NANOSTRUCTURES FOR PROBING AND TRANSFECTING LIVING CELLS
Christelle N. Prinz
Lund University, SWEDEN

Keynote Presentation VII

Session Chairs

Lourdes Basabe, *University of the Basque Country and IKERBASQUE, SPAIN*
Charles Henry, *Colorado State University, USA*

12:20 - 12:50

ThK-07 EXPANDING THE (i)SIMPLE MICROFLUIDIC TOOLBOX TOWARDS ADVANCED DIAGNOSTICS AND THERAPEUTICS

Dries Vloemans, Lorenz Van Hileghem, Henry Ordutowski, Dragana Spasic, Francesco Dal Dosso,
and Jeroen Lammertyn
KU Leuven, BELGIUM

Keynote Presentation VIII

Session Chairs

Govind Kaigala, *IBM Research, Zurich, SWITZERLAND*
Darwin Reyes, *National Institute of Standards and Technology (NIST), USA*

12:20 - 12:50

ThK-08 SQUEEZING DNA IN NANOCHANNELS

Kevin D. Dorfman
University of Minnesota, USA

12:50 - 12:55 Transition Break

12:55 – 13:25 **Speaker Corners**
Matthew E. Suss, Christelle N. Prinz, Jeroen Lammertyn, and Kevin D. Dorfman

13:25 **Adjourn for the Day**

Day 5 - Friday, October 9

Plenary Speaker Presentation VI

Session Chairs

Petra Dittrich, *ETH Zürich, Basel, SWITZERLAND*

Séverine Le Gac, *University of Twente, THE NETHERLANDS*

08:00 - 09:00

FP-06 WATER-REPELLENT MATERIALS: A FEW TRICKS WE LEARNT FROM NATURE, AND BEYOND

David Quéré

ESPCI-Paris, PSL Research University, FRANCE

09:00 - 09:05 Transition

09:05 – 09:35 **Speaker Corner with David Quéré**

Analytical Chemistry

Young Innovator Award and Presentation

09:05 - 09:25 BUILDING SYNTHETIC HUMAN EMBRYO-LIKE STRUCTURES

Jianping Fu

University of Michigan, Ann Arbor, USA

Lab on a Chip and Dolomite

Pioneers of Miniaturization Lectureship Award and Presentation

09:25 - 09:45 CLINICAL TRANSLATION OF MICROFLUIDIC SYSTEMS AND LESSONS LEARNED FROM THE COVID-19 PANDEMIC

Wilbur A. Lam^{1,2}

¹Emory University, USA and ²Georgia Technical University, USA

09:45 - 09:50 Transition

Who Wants to be a Millionaire?

Moderator

Darius Rackus, *ETH Zürich, Basel, SWITZERLAND*

09:50 - 10:50

Join us for “Who Wants to be a Millionaire?”, the very first MicroTAS gameshow! Twelve contestants will compete in rounds of trivia, games of skill, and silly activities all for a chance to win one free registration to MicroTAS 2021 in Palm Springs. Contestants will be selected through participation in the daily quizzes. Two lucky attendees will also have the chance to enter. There will be lots of audience participation, so join in for a little bit of fun at the end of this week!

10:50 - 11:05

Coffee Break (offline)

Award Ceremony

Session Chairs

Stephanie Descroix, *Institut Curie CNRS, FRANCE*
Thomas Gervais, *Polytechnique Montréal, CANADA*

- 11:05 – 12:15 **CHEMINAS - Young Researcher Poster Awards**
Lab on a Chip - **Widmer Poster Award**
IMT Masken und Teilungen AG - **Microfluidics on Glass Poster Award**
Sensors (MDPI) - **Outstanding Sensors and Actuators, Detection Technologies Poster Award**
National Institute of Standards and Technology (NIST) and Lab on a Chip - **Art in Science Award**
Micromachines (MDPI) and CBMS - **Flash Poster Presentation Awards**
Biomicrofluidics (AIP) - **Best Paper Awards**
Who Wants to be a Millionaire Winners

Closing Remarks

- 12:15 **MicroTAS 2020 Conference Chairs**
Séverine Le Gac, *University of Twente, THE NETHERLANDS*
Hang Lu, *Georgia Institute of Technology, USA*

- 12:35 **Conference Adjourns**

POSTER PRESENTATIONS

M1 – Monday, October 5	09:30 - 10:30	M2 – Monday, October 5	11:40 - 12:40
T3 – Tuesday, October 6	09:05 - 10:05	T4 – Tuesday, October 6	11:25 - 12:25
W5 – Wednesday, October 7	08:35 - 09:35	W6 – Wednesday, October 7	10:45 - 11:45
Th7 – Thursday, October 8	09:05 - 10:05	Th8 – Thursday, October 8	11:15 - 12:15

Classification Chart

(last character of poster number)

a	Fundamentals in Microfluidics and Nanofluidics
b	Micro- and Nanoengineering
c	Sensors and Detection Technologies
d	Integrated Microfluidic Platforms
e	Cells, Organisms and Organs on a Chip
f	Diagnostics, Drug Testing & Personalized Medicine
g	Other Applications of Microfluidics

a - Fundamentals in Microfluidics and Nanofluidics

Electrokinetic Phenomena

- M2-201.a** **AN ELECTROKINETIC-BASED LARGE VOLUME CONCENTRATOR FOR ULTRA-LOW ABUNDANT TARGET DETECTION**
 Hyukjin J. Kwon, Bryan Lenneman, Timothy Lu, Kyungyong Choi, and Jongyoon Han
Massachusetts Institute of Technology, USA
- T3-301.a** **CHARACTERIZING SINGLE SINONASAL SQUAMOUS CELL CARCINOMA USING DI-ELECTROPHORESIS AND ELECTROROTATION**
 Thao N.P. Mai¹, Sakina Bensalem¹, Bénédicte Thiebot², Philippe Manivet³, Juan Pelta², and Bruno Le Pioufle¹
¹*Ecole Normale Supérieure de Paris-Saclay, FRANCE*, ²*Université Paris-Saclay, Université Evry, FRANCE*, and ³*University of Paris 10, FRANCE*
- T4-401.a** **CONTROLLING AC-ELECTROOSMOTIC VORTEX FLOWS BY SHAPING THE CHANNEL CROSS SECTION**
 Christina Tiflidis^{1,2}, Eiko Westerbeek^{1,2}, Koen F.A. Jorissen², Wouter Olthuis², Jan Eijkel², and Wim De Malsche¹
¹*Vrije Universiteit Brussel, BELGIUM* and ²*University of Twente, THE NETHERLANDS*
- W5-501.a** **DIELECTROPHORETIC EQUILIBRIUM OF COMPLEX PARTICLES**
 Tom Elkeles¹, Pablo Garcia-Sanchez², Wu Yue¹, Antonio Ramos², and Gilad Yossifon¹
¹*Technion – Israel Institute of Technology, ISRAEL* and ²*Universidad de Sevilla, SPAIN*
- W6-601.a** **ELECTROKINETIC WALL EFFECT MECHANISMS AND APPLICATIONS**
 Jason P. Beech, Bao Dang Ho, Oskar Ström, and Jonas O. Tegenfeldt
Lund University, SWEDEN

Th7-701.a N-DEP ENHANCED LATERAL DISPLACEMENT IN DLD DEVICE TO FOR HIGH EFFICIENT CELL SORTING

Chia-Hsin Chang¹ and Fan-Gang Tseng^{1,2}

¹National Tsing Hua University, TAIWAN and ²Academia Sinica, TAIWAN

a - Fundamentals in Microfluidics and Nanofluidics

Droplet Microfluidics

M1-102.a A NOVEL PARTITIONING PLATFORM TOWARDS THE LOW-COST, RAPIDLY DEPLOYABLE, DIGITAL DETECTION OF SARS-COV-2

Maria Alvarez Amador, Yuhe Jiang, Ling Li, and Eric Brouzes

Stony Brook University, USA

M1-103.a DEFORMABILITY-BASED MICROFLUIDIC MICRODROPLET SORTING AS A SCREENING METHOD FOR SINGLE AGAROLYTIC BACTERIAL CELLS

Mikihisa Muta¹, Kai Saito¹, Ryo Iizuka¹, Wataru Kawakubo², Dong Hyun Yoon², Mei Ito³, Yuji Hatada³, Tetsushi Sekiguchi², Shuichi Shoji², and Takashi Funatsu¹

¹University of Tokyo, JAPAN, ²Waseda University, JAPAN, and ³Saitama Institute of Technology, JAPAN

M1-104.a ENDOTHELIAL-CELL SPROUTING ASSAY WITH MULTIPLE INTERACTING SEEDS AS A PLATFORM TO STUDY ANGIOGENESIS

Katarzyna Rojek and Jan Guzowski

Polish Academy of Sciences, POLAND

M1-105.a IMAGE ANALYSIS EXPLORATION: CASE FOR DROPLET MICROFLUIDICS

Immanuel Sanka, Simona Bartkova, Pille Pata, Olli-Pekka Smolander, and Ott Scheler

Tallinn University of Technology, ESTONIA

M1-106.a PARALLEL DROPLET GENERATION OF LINEAR CONCENTRATION GRADIENT FOR ANTIMICROBIAL SUSCEPTIBILITY TESTING OF ESCHERICHIA COLI O157:H7

Jae Seong Kim¹, Byungjin Lee¹, Heon-Ho Jeong², Dong-Ho Kim¹, Kyoung Han Kim¹, and Chang-Soo Lee¹

¹Chungnam National University, KOREA and ²Chonnam National University, KOREA

M1-107.a TOWARDS HIGH-THROUGHPUT SCREENING FOR DRUG DISCOVERY IN MULTI SPLITTING AND MERGING SYSTEM USING MICROVALVES

Sagar N. Agnihotri^{1,2}, Mohammad Reza Raveshi¹, Rajneesh Bhardwaj², and Adrian Neild¹

¹Monash University, AUSTRALIA and ²Indian Institute of Technology, Bombay (IIT), INDIA

M2-202.a A SAMPLE INJECTION INTERFACE OF MASS SPECTROMETRY UTILIZING FEMTOLITER-DROPLET SHOOTER BY MICROFLUIDICS

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M2-203.a DROPLET GENERATOR IN A SINGLE TUBE FOR DNA AMPLIFICATION

Shaw-Hwa Parng, Ping-Jung Wu, Yu-Yin Tsai, Ruey-Shyan Hong, and Su-Jan Lee

Industrial Technology Research Institute, TAIWAN

M2-204.a FACILE EVAPORATION INDUCED ON SURFACE MANIPULATION OF AQUEOUS DROPLETS AND ITS APPLICATION IN BIOLOGICAL CARGO TRANSPORT

Butunath Majhy and Ashis K. Sen

Indian Institute of Technology, Madras, INDIA

M2-205.a MANIPULATION OF DROPLETS IN NON-NEWTONIAN FLUID

Shamik Hazra¹, Sushanta K. Mitra², and Ashis Kumar Sen¹

¹Indian Institute of Technology, Madras, INDIA and ²University of Waterloo, CANADA

- M2-206.a PERIODIC CONCENTRATION-POLARIZATION BASED FORMATION OF BIOMOLECULE PRECONCENTRATION**
Sinwook Park, Ramadan Abu-Rjal, Keren Buchnik, Yechezkel Kashi, and Gilad Yossifon
Technion – Israel Institute of Technology, ISRAEL
- T3-302.a ACTIVE GENERATION OF FEMTOLITER DROPLET IN MICROFLUIDICS USING INKJET NOZZLE**
Dege Li¹, Yi Cao¹, Bingfang Huang¹, Chao Zheng¹, Yonghong Liu¹, and Yanzhen Zhang^{1,2}
¹*China University of Petroleum (East China), CHINA and* ²*Swinburne University of Technology, AUSTRALIA*
- T3-303.a DROPLET GENERATORS COMMUNICATION FOR A HIGH THROUGHPUT PRODUCTION**
Ilyesse Bihi, Pierre Gelin, and Wim De Malsche
Vrije Universiteit Brussel, BELGIUM
- T3-304.a FAST DROPLET ENRICHMENT USING SPONTANEOUS EMULSIFICATION**
Piangrawee Santivongskul¹, Mao Fukuyama^{1,2}, and Akihide Hibara¹
¹*Tohoku University, JAPAN and* ²*Japan Science and Technology Agency (JST), JAPAN*
- T3-305.a MICRO-MAGNETIC-TWEEZERS: A TOOL FOR BIOSEPARATION IN SUB-NANOLITER DROPLETS**
Simon Dumas, Mathilde Richerd, Marco Serra, and Stéphanie Descroix
Institut Curie, FRANCE
- T3-306.a PRODUCTION OF MONODISPERSE CAPSULES FOR CONTROLLED SPORE RELEASE**
Iwona Ziemecka¹, Ilyesse Bihi¹, Pierre Gelin¹, Guy Van Assche², Suzy Vaupre¹, Roberto Teixeira¹, Dominique Maes¹, and Wim De Malsche¹
¹*Vrije Universiteit Brussel, BELGIUM and* ²*Devan Chemicals NV, BELGIUM*
- T4-402.a AUTOMATED MICROFLUIDIC DROPLET GENERATION AND MERGING TO RESOLVE DYNAMICS OF UPTAKE AND SECRETION IN WHITE ADIPOSE TISSUE (WAT)**
Nan Shi, Md Moniruzzaman, Yvette Kayirangwa, and Christopher J. Easley
Auburn University, USA
- T4-403.a DROPLET MICROFLUIDIC BASED METHOD FOR IN-SITU CALIBRATION AND DETERMINATION OF RECOVERY RATE OF MICRODIALYSIS**
Gareth W.H. Evans¹, Jameelah Salahuddin¹, Wahida T. Bhuiyan¹, Brett Warren², and Xize Niu^{1,2}
¹*University of Southampton, UK and* ²*SouthWestSensor Ltd., UK*
- T4-404.a GENERATION OF AQUEOUS-DROPLET-FILLED HYDROGEL FIBERS AS ORGANOID CARRIES USING ALL-IN-WATER MICROFLUIDIC SYSTEM**
Hui Wang, Hai-Tao Liu, Ya-Qing Wang, Meng-Qian Zhao, Wen-Wen Chen, and Jian-Hua Qin
Chinese Academy of Sciences, CHINA
- T4-405.a MICROFLUIDIC GENERATION OF WATER-IN-WATER-IN-WATER(-IN-WATER) DOUBLE AND TRIPLE EMULSIONS**
Morteza Jeyhani^{1,2}, Risavarshni Thevakumaran^{1,2}, Niki Abbasi^{1,2}, Dae Kun Hwang^{1,2}, and Scott S. H. Tsai^{1,2}
¹*Ryerson University, CANADA and* ²*St. Michael's Hospital, CANADA*
- T4-406.a REAL-TIME IMAGE-BASED DROPLET MEASUREMENT**
Sepehr Elahi¹, Ali Kalantarifard¹, Fatemeh Kalantarifard², and Caglar Elbuken^{1,3}
¹*Bilkent University, TURKEY,* ²*Bogazici University, TURKEY, and* ³*University of Oulu, FINLAND*
- W5-502.a BINARY CONSTRICTIONS, TIP ELONGATION AND DUTY CYCLE: SHAPE BASED MECHANISMS FOR LABEL-FREE DETECTION IN DROPLETS**
Afreeen Fatima and Amar S. Basu
Wayne State University, USA

- W5-503.a DROPLET MICROFLUIDIC PLATFORM FOR INTRACELLULAR PHASE SEPARATION EXPERIMENTS**
Katherine Chan^{1,2}, Maryam Navi^{1,2}, Jennifer Kieda^{1,2}, and Scott S.H. Tsai^{1,2}
¹Ryerson University, CANADA and ²St. Michael's Hospital, CANADA
- W5-504.a GENERATION OF COMPLEX EMULSIONS USING MONOLITHIC, DUAL- MATERIAL 3D-PRINTED MICROFLUIDIC DEVICES**
Jin Li, Pantelitsa Dimitriou, Oliver Castell, and David Barrow
Cardiff University, UK
- W5-505.a MOLECULAR REORIENTATION OF CHOLESTERIC DROPLET INDUCED BY STRAIN FOR FLEXIBLE SENSING APPLICATION**
Shuting Xie, Mingliang Jin, Ruizhi Yang, Guofu Zhou, and Lingling Shui
South China Normal University, CHINA
- W5-506.a SELF-EMULSIFICATION IN LIQUID CRYSTAL DROPLETS**
Ruizhi Yang, Yueming Deng, Shuting Xie, Qi An, and Lingling Shui
South China Normal University, CHINA
- W6-602.a COMPUTER VISION APPLIED TO MEMBRANE DISPLACEMENT TRAP ARRAYS FOR AUTOMATED DROPLET CONTROL AND MANIPULATION**
Michael Yeh^{1,2}, Jason Harriot¹, Supriya Padmanabhan¹, and Don L. DeVoe¹
¹University of Maryland, College Park, USA and ²National Cancer Institute, USA
- W6-603.a DROPLET SQUEEZING FOR HIGHLY EFFECTIVE GENE DELIVERY INTO HUMAN T LYMPHOCYTES**
Byeongju Joo, Hasung Lee, Seung Gyu Yun, and Aram Chung
Korea University, KOREA
- W6-604.a GENERATION OF SPHEROIDS USING AN AQUEOUS TWO-PHASE SYSTEM DROPLET MICROFLUIDIC PLATFORM**
Jennifer Kieda^{1,2}, Morteza Jeyhani^{1,2}, Maryam Navi^{1,2}, Katherine Chan^{1,2}, and Scott S.H. Tsai^{1,2}
¹Ryerson University, CANADA and ²St. Michael's Hospital, CANADA
- W6-605.a MONITORING OF AMMONIA IN NATURAL WATERS USING A VERSATILE, PROGRAMMABLE DROPLET MICROFLUIDIC PLATFORM**
Wahida Bhuiyan¹, Evanthia Papadoupoulou², Sharon Coleman², Matthew Pearson², Adrian Nightingale¹, Gareth Evans¹, and Xize Niu^{1,2}
¹University of Southampton, UK and ²SouthWestSensor Ltd., UK
- W6-606.a SIMULTANEOUS DROPLET FORMATION VIA GRAVITY-INDUCED FLOW WITH IN-SERIES DROPLET GENERATING JUNCTIONS**
Khashayar R. Bajgiran, Riad Elkhanoufi, James A. Dorman, and Adam T. Melvin
Louisiana State University, USA
- Th7-702.a CONTINUOUS GENERATION OF CELL-LADEN MICROGELS THROUGH DETERMINISTIC LATERAL DISPLACEMENT ARRAYS**
Naotomo Tottori and Takasi Nisisako
¹Kyushu University, JAPAN and ²Tokyo Institute of Technology, JAPAN
- Th7-703.a DROPLET-ASSISTED PHASE SEPARATION BY INTEGRATED SILICON ELECTROSPRAY NANO-EMITTER FOR NEUROCHEMICAL SENSING**
Yan Zhang, Weihua Shi, Insu Park, Sungho Kim, Christopher Brenden, Hrishikesh Iyer, Praseon Jha, Rashid Bashir, and Yurii Vlasov
University of Illinois, Urbana-Champaign, USA

- Th7-704.a HIGH-THROUGHPUT SORTING OF NANOLITER DROPLETS USING AN ELECTRODE ARRAY WITH A SLANTED MICROCHANNEL**
Mun Hong Loo¹, Yuta Nakagawa¹, Akihiro Isozaki^{1,2}, and Keisuke Goda^{1,3,4}
¹University of Tokyo, JAPAN, ²Kanagawa Institute of Industrial Science and Technology, JAPAN,
³University of California, Los Angeles, USA, and ⁴Wuhan University, China
- Th7-705.a MONITORING OF REACTION KINETICS THROUGH THE SYNCHRONIZED RELEASE OF LIPOSOMAL CARGO IN DOUBLE EMULSIONS**
Ariane Stucki, Petra Jusková, Nicola Nuti, and Petra S. Dittrich
ETH Zürich, Basel, SWITZERLAND
- Th7-706.a SPACE-FILLING OPEN MICROFLUIDICS FOR DROPLET COLLECTION: GENERALIZED DESIGN OF FRACTAL HYPERBRANCHED CHANNELS**
Hiroyuki Kai
Tohoku University, JAPAN
- Th8-801.a A MICROFLUIDIC MAGNETIC EXTRACTOR FOR MAGNETIC BEAD SEPARATION IN DROPLETS**
Junyue Chen^{1,2}, Weiliang Shu¹, Ying Tan², Hongtao Feng¹, Yimo Yan², and Yan Chen¹
¹Chinese Academy of Sciences, CHINA and ²Tsinghua University, CHINA
- Th8-802.a CONTROLLED ACTUATION OF SELF-PROPELLED DROPLETS**
Loïc Coudron, Clément Lemenu, Kevin Lemaine, Daniel McCluskey, Christabel Tan, Ian Munro, Arne Erik Holdo, Mark Tracey, and Ian Johnston
University of Hertfordshire, UK
- Th8-803.a ELECTROCOALESCENCE OF MICRODROPLETS WITH ACTIVE PAIRING**
Kaijian Zhu^{1,2}, Wen Yue¹, and Dahai Ren²
¹China University of Geosciences, CHINA and ²Tsinghua University, CHINA
- Th8-804.a HYBRID MICROGELS PRODUCED VIA DROPLET MICROFLUIDICS FOR NANOPARTICLE ENCAPSULATION AND DRUG DELIVERY**
Bruna G. Carvalho¹, Thiago B. Taketa¹, Bianca B.M. Garcia², Sang W. Han², and Lucimara G. de la Torre¹
¹University of Campinas, BRAZIL and ²São Paulo Federal University, BRAZIL
- Th8-805.a OPTICAL ACCESSIBILITY IMPROVEMENTS FOR THE CHARACTERIZATION OF THE NANOPEDE**
Edo A.G. de Kruiff¹, Chris L. Kennedy², Corentin B.M. Tregouet³, Alfons van Blaaderen², Jan C.T. Eijkel¹, and Mathieu Odijk¹
¹University of Twente, THE NETHERLANDS, ²Utrecht University, THE NETHERLANDS, and
³University of Rennes ¹, FRANCE
- Th8-806.a SPRING-POWERED PORTABLE SYRINGE PUMP THAT PROVIDES CONSTANT FLOW RATE**
Won Han and Joong Ho Shin
Pukyong National University, KOREA

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Digital Microfluidics

- M2-207.a ALL-IN-ONE DIGITAL MICROFLUIDIC SYSTEM FOR MOLECULAR DIAGNOSIS BASED ON THE LOOP-MEDIATED ISOTHERMAL AMPLIFICATION**
Siyi Hu¹, Chao Yang², Yuhan Jie², Haifei Yang², Yang Su^{1,2}, and Hanbin Ma^{1,2}
¹Chinese Academy of Sciences, CHINA and ²ACXEL TECH LTD, UK
- T3-307.a OPEN SURFACE DROPLET MANIPULATION AND MIXING BY FERROFLUID INSTABILITIES**
Vahid Nasirimarekani¹, Fernando Benito-Lopez¹, and Lourdes Basabe-Desmonts^{1,2}
¹University of the Basque Country, SPAIN and ²Basque Foundation of Science, IKERBASQUE, SPAIN

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Centrifugal Microfluidics

- M1-108.a RELIABLE LIQUID REAGENT HANDLING AND ROTATIONAL RELEASE FOR CENTRIFUGAL SAMPLE-TO-ANSWER AUTOMATION**
Yao Lu, Darren McAuley, Rohit Mishra, David Boyle, and Jens Ducreé
Dublin City University, IRELAND
- M2-208.a VISCOSITY INDEPENDENT FLOW FOR PLANAR CHROMATOGRAPHIC IMMUNOASSAYS BY CENTRIFUGAL MICROFLUIDICS**
Daniel M. Kainz^{1,2}, Susanna M. Früh^{1,2}, Tobias Hutzenlaub^{1,2}, Roland Zengerle^{1,2}, and Nils Paust^{1,2}
¹University of Freiburg, GERMANY and ²Hahn-Schickard, GERMANY
- T4-407.a AUTOMATED CELL CULTURE AND ACTIVATION ASSAY USING CENTRIFUGAL MICROFLUIDIC PLATFORM**
Lidija Malic¹, Liviu Clime¹, Jamal Daoud¹, Abdelrahman Elmanzalawy¹, Ljuboje Lukic¹, Huailo Lee², Yuh-Tyng Tsai², Pei-Shin Jiang², and Teodor Veres¹
¹National Research Council, CANADA and ²Industrial Technology Research Institute, TAIWAN
- W5-507.a AUTOMATED LIBRARY PREPARATION FOR NEXT GENERATION SEQUENCING OF IMMUNOGLOBULIN GENE REARRANGEMENTS BY CENTRIFUGAL MICROFLUIDICS**
Jacob F. Hess¹, Michaela Kotrová², Silvia Calabrese¹, Tobias Hutzenlaub^{1,3}, Roland Zengerle^{1,3}, Monika Brüggemann², and Nils Paust^{1,3}
¹Hahn-Schickard, GERMANY, ²University Medical Center Schleswig Holstein, GERMANY, and ³University of Freiburg, GERMANY
- W6-607.a FULLY INTEGRATED LTA ASSAY ON CENTRIFUGAL MICROFLUIDIC DEVICE**
Jungmin Kim^{1,2}, Chi-Ju Kim¹, Jonathan Sabaté del Río¹, and Yoon-Kyoung Cho^{1,2}
¹Ulsan National Institute of Science & Technology (UNIST), KOREA and ²Institute for Basic Science (IBS), KOREA
- Th7-707.a PNEUMATICALLY CONTROLLED DROPLET GENERATION ON A CENTRIFUGAL MICROFLUIDIC PLATFORM**
Liviu Clime, Lidija Malic, Luke Lukic, Matthias Geissler, and Teodor Veres
National Research Council, CANADA
- Th8-807.a PURIFICATION OF DNA FRAGMENTS USING PNEUMATIC CONTROL COUPLED TO CENTRIFUGAL MICROFLUIDICS**
Daniel Brassard, Jimin Guo, Maxence Mounier, Jason Ferreira, Mojra Janta-Polczynski, and Teodor Veres
National Research Council, CANADA

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Acousto- and Magnetofluidics

- M1-109.a RAPID MUTINODAL ACOUSTIC TRAPPING OF EXTRACELLULAR VESICLES FOR DOWNSTREAM MASS SPECTROMETRY ANALYSIS**
Axel Broman, Lotta Happonen, Frida Palm, Oonagh Shannon, Johan Malmström, and Thomas Laurell
Lund University, SWEDEN
- M2-209.a REDUCING TAYLOR DISPERSION WITH ACOUSTIC STREAMING**
Pierre Gelin, Dominique Maes, and Wim De Malsche
Vrije Universiteit Brussel, BELGIUM
- T3-308.a A SINGLE CELL MANIPULATION TOOL BASED ON GIGAHERTZ ACOUSTIC-STREAMING TWEEZERS**
Ke Jin, Yang Yang, Yang Bai, Wei Wei, and Xuexin Duan
State Key Laboratory of Precision Measuring Technology & Instruments, CHINA
- W5-508.a BINARY PARTICLE ACOUSTOPHORESIS SEPARATION BASED ON NODAL POSITION ADJUSTMENT THROUGH PDMS WALL**
Sinan Yigit¹, Song-I Han², Younghak Cho³, and Arum Han²
¹*Necmettin Erbakan University, TURKEY*, ²*Texas A&M University, USA*, and ³*Seoul National University of Science & Technology, KOREA*
- W6-608.a FREQUENCY TUNABLE LABEL-FREE SURFACE ACOUSTIC WAVE-BASED FLOW SENSOR**
Aurore Quelennec, Jason J. Gorman, and Darwin R. Reyes
National Institute of Standards and Technology (NIST), USA
- Th7-708.a MOTILITY-BASED SPERM SELECTION USING ACOUSTOFLUIDICS**
Junyang Gai, Reza Nosrati, and Adrian Neild
Monash University, AUSTRALIA
- Th8-808.a QUANTIFYING THE ACOUSTIC FIELD IN A MICROCHANNEL USING MICROSWIMMERS AS MEASUREMENT PROBES**
Minji Kim¹, Rune Barnkob², and J. Mark Meacham¹
¹*Washington University, St. Louis, USA* and ²*Technical University of Munich, GERMANY*

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Capillary Microfluidics

- M1-110.a MULTILEVEL PASSIVE MICROFLUIDICS FOR ELECTROCHEMICAL BIOSENSORS**
Pooya Azizian^{1,2}, Adrián Ortega¹, Jordi Ricart¹, Jasmina Casals-Terré², and Joan M. Cabot¹
¹*Leitat Technological Center, SPAIN* and ²*Technical University of Catalonia, SPAIN*
- M2-210.a MULTISCALE MODELLING AND COMPUTATIONAL DESIGN OF FLUID FLOW AND MASS TRANSPORT IN 3D PRINTED LAB-ON-CHIPS**
Agnese Piovesan, Bart Dequeker, Ruben Dochy, Cesar Parra Cabrera, Clement Achille, Rob Ameloot, Pieter Verboven, and Bart Nicolai
KU Leuven, BELGIUM
- T3-309.a 3D PRINTED AXISYMMETRIC FLOW-FOCUSING DEVICE USING FUSED SILICA CAPILLARY TUBES**
Keisuke Sugahara and Shoji Takeuchi
University of Tokyo, JAPAN
- T3-310.a OPEN-CHANNEL CAPILLARY TREES AND CAPILLARY PUMPING**
Jing J. Lee, Jean Berthier, Kathleen E. Kearney, Erwin Berthier, and Ashleigh B. Theberge
University of Washington, USA

- T4-409.a 3D-PRINTING AND COMPUTATIONAL FLUID DYNAMICS 'MEET' PAPER-BASED MICROFLUIDICS FOR ENHANCED FLOW CONTROL IN DIFFUSIVE SENSORS**
Joan Antoni López, Pau Fernández, Pouya Mehdrel, and Jasmina Casals-Terré
Technical University of Catalonia, SPAIN
- T4-410.a POLY(N-ISOPROPYL ACRYLAMIDE) COATING OF MICROCHANNELS AND BACTERIAL SAMPLE LOADING VIA CAPILLARY-DRIVEN FLOW**
Sammer-ul Hassan¹, Steve Carter², Sehaj Singh², Edward Dyson², Stephen Rimmer², and Xunli Zhang¹
University of Southampton, UK and ²University of Bradford, UK
- W5-509.a CAPILLARY-DRIVEN LOADING OF H₂O₂ EXPRESSING ESCHERICHIA COLI INTO MICROCHANNELS**
Ahmed Donia¹, Salma Saeed¹, Aamira Tariq¹, Zobia Noreen¹, Habib Bokhari¹, Xunli Zhang², and Sammer-ul Hassan²
¹Comsats University Islamabad, PAKISTAN and ²University of Southampton, UK
- W5-510.a PASSIVE FLOW CONTROL IN A LAMINATION-BASED CAPILLARY-DRIVEN MICROFLUIDIC DEVICE**
Ilhoon Jang^{1,2} and Charles S. Henry²
¹Hanyang University, KOREA and ²Colorado State University, USA
- W6-609.a DIGITAL MANUFACTURING OF FUNCTIONAL AUTONOMOUS CAPILLARY CIRCUITS USING HYDROPHILIC RESINS AND A 3D PRINTER**
Ahmad Sohrabi Kashani, Vahid Karamzadeh, Oriol Ymbern Llorens, Andy Ng, and David Juncker
McGill University, CANADA
- W6-610.a SIGNAL AMPLIFICATION IN A LATERAL FLOW ASSAY ENABLED BY A CAPILLARY VALVE AND SELF-ACTUATING ELEVATOR VALVE**
Caitlin E. Anderson, Joshua D. Bishop, Andrew K. Miller, Benjamin D. Grant, Toan Huynh, David M. Cate, Bernhard H. Weigl, and Kevin P. Nichols
Intellectual Ventures Laboratory, USA
- Th7-709.a INCORPORATING FLOW CONTROL FUNCTIONALITY IN MICROFLUIDIC PAPER-BASED ANALYTICAL DEVICES USING PLASMA PROCESSES**
Nikhil Raj, Victor Breedveld, and Dennis W. Hess
Georgia Institute of Technology, USA
- Th7-710.a THREAD AS A PRECISE SAMPLING AND DELIVERY PLATFORM FOR IMPLANTABLE OR INGESTIBLE APPLICATIONS**
H. Rezaei Nejad, Aydin Sadeqi, and Sameer Sonkusale
Tufts University, USA
- Th8-809.a LIQUID ATOMIZATION IN PERIODIC ELECTRO-PULSATING MODE. INDIRECT MEASUREMENT OF THE ELECTRIC FIELD ON THE OSCILLATING MENISCUS**
Antonio J. Hijano¹, Ignacio G. Loscertales¹, and Francisco J. Higuera²
¹Universidad de Málaga, SPAIN and ²Universidad Politecnica de Madrid, SPAIN

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Nanofluidics/Nanofluidic Phenomena

- M1-111.a** GENERATION OF NANOMETER-SCALE GEOMETRICAL GAS-LIQUID INTERFACES IN HYDROPHILIC/HYDROPHOBIC PATTERNED NANOCHANNELS
Hirotu Kawagishi¹, Shuichi Kawamata¹, and Yan Xu^{1,2}
¹Osaka Prefecture University, JAPAN and ²Japan Science and Technology Agency (JST), JAPAN
- M2-211.a** INTEGRATED IONIC ELECTRONICS BASED ON HORIZONTALLY-ALIGNED CARBON NANOTUBES
Ran Peng¹, Yueyue Pan¹, Zhi Li², Shuailong Zhang¹, Aaron R. Wheeler¹, Shirley Tang², and Xinyu Liu¹
¹University of Toronto, CANADA and ²University of Waterloo, CANADA
- T3-311.a** INTEGRATED MICRO- AND NANOFLUIDIC DEVICES FOR REAL-TIME MONITORING OF HEPATITIS B VIRUS CAPSID ASSEMBLY
Michael P. Kappler, Panagiotis Kondylis, Caleb Starr, Adam Zlotnick, and Stephen C. Jacobson
Indiana University, USA
- T4-411.a** LATERAL MIGRATION OF DOUBLETS IN UNTREATED WHOLE BLOOD
Jian Zhou and Ian Papautsky
University of Illinois, Chicago, USA
- W5-511.a** NANOFLUIDIC DEVICE FOR SURFACE CHARGE MEASUREMENT OF NANOPARTICLES USING TUNABLE ELECTROSTATIC LANDSCAPE
Imman I. Hosseini, Zezhou Liu, Walter Reisner, and Sara Mahshid
McGill University, CANADA
- W6-611.a** TRANSPORT OF VISCOUS FLUID THROUGH MICRO- AND NANO-POROUS MEDIA
Md Minhajul Islam and D. Jed Harrison
University of Alberta, CANADA
- Th8-810.a** A SENSE-REACT-SENSE NANOFLUIDIC SYSTEM FOR PERFORMING REACTIONS ON SINGLE VIRUS CAPSIDS
Mi Zhang, Caleb Starr, Zhongchao Zhao, Adam Zlotnick, and Stephen C. Jacobson
Indiana University, USA

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Modeling/Numerical Simulation

- M1-112.a** COMPUTATIONAL FLUID DYNAMIC SIMULATION FOR THE STENOSIS MICROFLUIDIC THROMBOSIS MODEL CHARACTERIZATION
Yunduo Charles Zhao¹, Parham Vatankhah¹, Tiffany Goh^{1,2}, and Lining Arnold Ju^{1,2}
¹University of Sydney, AUSTRALIA and ²Heart Research Institute, AUSTRALIA
- M1-113.a** SHAPE DEPENDENT MODEL-BASED APPROACH FOR ELASTIC MODULI ESTIMATION OF BIOLOGICAL CELLS IN FLOW
Gangadhar Eluru, Ramya Shekhar, and Sai Siva Gorthi
Indian Institute of Science, INDIA
- M2-212.a** COMPUTATIONAL MODELLING OF FLOW AND DRUG TRANSPORT IN A MICROFLUIDIC DEVICE FOR SPHEROID CULTURES
Sina Kheiri, Eugenia Kumacheva, and Edmond W.K. Young
University of Toronto, CANADA

- M2-213.a SURFACE TEXTURE MODULATES WALL SLIP IN MICROFLUIDIC FLOWS**
Siyu Chen and Joe Fujiou Lo
University of Michigan, Dearborn, USA
- T3-312.a CONCENTRATION GRADIENTS INSIDE MICRODROPLETS**
Christian F. Chamberlayne, Juan Santiago, and Richard N. Zare
Stanford University, USA
- T3-313.a TOWARD THE CHARACTERIZATION OF COMPLEX MICROVESSEL NETWORKS VIA IN-LINE FLOW RATE SENSING**
Michael A. Daniele^{1,2}, Vladimir A. Pozdin³, Patrick Erb^{1,2}, and McKenna Downey¹
¹*North Carolina State University, USA*, ²*University of North Carolina, Chapel Hill, USA*, and ³*Florida International University, USA*
- T4-412.a CREATIVE SHAPING OF 2D FLOW AND CONCENTRATION PROFILES IN MICROFLUIDIC CHAMBERS**
Etienne Boulais and Thomas Gervais
Polytechnique Montréal, CANADA
- W5-512.a ENHANCING MICROMIXING CAPABILITIES OF FLEXIBLE FLUOROPOLYMER MICROCAPILLARY FILMS WITH 3D PRINTED TEMPLATES: A COMPUTATIONAL FLUID DYNAMICS ANALYSIS**
Kirandeep K. Gill¹, Patrick Hester², Pedro Estrela¹, and Nuno M. Reis¹
¹*University of Bath, UK* and ²*Lamina Dielectrics Ltd., UK*
- W6-612.a NUMERICAL SIMULATION AND EXPERIMENTAL ANALYSIS OF INERTIAL CELL FOCUSING IN A CONTRACTION-EXPANSION ARRAY (CEA) MICROCHANNEL**
Ali C. Atik, Ender Yıldırım, and Haluk Külah
Middle East Technical University, TURKEY
- Th7-711.a 2D PHASE-FIELD SIMULATION AND EXPERIMENTAL VALIDATION OF DROPLET FORMATION IN A FLOW-FOCUSING JUNCTION**
Ali C. Atik, Ender Yıldırım, and Haluk Külah
Middle East Technical University, TURKEY
- Th7-712.a NUMERICAL MODELING OF SEQUENTIAL SEGMENTATION FOR ENHANCEMENT OF MICROMIXING**
Ibragim Abu Dagga^{1,2} and Mohamed Abdelgawad¹
¹*American University of Sharjah, UAE* and ²*Khalifa University of Science and Technology, UAE*
- Th8-811.a BEHAVIOR OF PHASE CHANGE SLURRY IN A MICROCHANNEL**
Vikram Soni, Hannah McPhee, Sepehr Saber, Jason Riordon, and David Sinton
University of Toronto, CANADA
- Th8-812.a RESIDENCE TIME DISTRIBUTION IN MICROMIXERS: SCALE-UP EFFECTS**
Harrison S. Santana¹ and João L. Silva Jr.²
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Others

- M1-114.a HIGH-THROUGHPUT SPERM SORTING BY A FLAT RHEOTAXIS MICROFLUID DEVICE**
Suei-Shen Wang¹ and Fan-Gang Tseng^{1,2}
¹National Tsing Hua University, TAIWAN and ²Academia Sinica, TAIWAN
- M2-214.a TO STICK OR NOT TO STICK: PREDICTING PARTICLE CAPTURE ON A SURFACE IN A MICROCHANNEL**
Donatien Mottin^{1,2}, Florence Razan², Frédéric Kanoufi³, and Marie-Caroline Jullien¹
¹University of Rennes, FRANCE, ²École Normale Supérieure de Rennes, FRANCE, and ³Université de Paris, FRANCE
- T3-314.a IMPROVED UNDERSTANDING OF PARTICLE MIGRATION IN SHEAR THINNING VISCOELASTIC FLUID**
Shamik Hazra¹, Sushanta K. Mitra², and Ashis Kumar Sen¹
¹Indian Institute of Technology, Madras, INDIA and ²University of Waterloo, CANADA
- T4-413.a CONCENTRATION-DEPENDENT LOSS OF CHARGED ANALYTES IN PAPERFLUIDIC DEVICES**
Siddhant Jaitpal¹, Priyanka Naik¹, Shashwat Banerjee², and Debjani Paul¹
¹Indian Institute of Technology, Bombay, INDIA and ²Maharashtra Institute of Medical Education and Research Medical College, INDIA
- W5-513.a DIFFERENTIAL 3D-VISCOELASTIC FOCUSING OF PARTICLES IN A RECTANGULAR MICROFLUIDIC CHANNEL**
Ludovica Barilla, Jian Zhou, Zhangli Peng, and Ian Papautsky
University Illinois, Chicago, USA
- W6-613.a DNA CONCENTRATION WAVE FORMATION IN PILLAR ARRAYS**
Oskar E. Ström, Jason P. Beech, and Jonas O. Tegenfeldt
Lund University, SWEDEN
- Th7-713.a EFFECT OF DEAN FLOWS ON SUB-MICRON PARTICLES IN LOW ASPECT RATIO MICROCHANNELS – ANALYSIS OF DFF**
Suhanya Duraiswamy¹ and Lin Yue Lanry Yung²
¹Indian Institute of Technology, Hyderabad, INDIA and ²National University of Singapore, SINGAPORE
- Th8-813.a EFFECTS OF PARTICLE SIZE AND FLUID ELASTICITY ON ELASTO-INERTIAL MIGRATION IN SPIRAL CHANNEL**
Hua Gao, Jian Zhou, and Ian Papautsky
University of Illinois, Chicago, USA

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Industrial Benefactor

- M2-215.a LITHOGRAPHY SOLUTIONS FOR MICROFLUIDICS AND BIOTECH**
Charles Turk
OAI, USA
- T3-383.a FROM SURFACTANTS TO HYDROGEL BEADS TO EMULSION TEMPLATING KITS**
Robert Lintner, Brian O'Day, Anne-Milda Pu and Roger Nassar
RAN Biotechnologies Inc.

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Late News

- M1-172.a ARRESTED COALESCENCE OF LIQUID MARBLES TRIGGERED BY ELECTROSTATICS**
Yage Zhang¹, Chentianyi Yang¹, Shuai Yuan¹, Xiaoxue Yao², and Ho Cheung Shum¹
¹University of Hong Kong, HONG KONG and ²Shenzhen University, CHINA
- M1-173.a RECTIFIED AC ELECTROOSMOSIS INDUCED BY SURFACE CONDUCTANCE AROUND INSULATING MICROPOSTS**
Victor Calero¹, Raul Fernández-Mateo¹, Pablo García-Sánchez², Antonio Ramos², and Hywel Morgan¹
¹University of Southampton, UK and ²Universidad de Sevilla, SPAIN
- M2-272.a A NOVEL MICROFLUIDIC DEVICE TO FLEXIBLY GENERATE GROOVED MICROFIBERS AS ANISOTROPIC SCAFFOLDS**
Meng-Qian Zhao, Hai-Tao Liu, Hui Wang, Ting-Ting Tao, and Jian-Hua Qin
Chinese Academy of Sciences, CHINA
- M2-273.a DIGITAL-WGS: AUTOMATED, HIGHLY EFFICIENT WHOLE-GENOME SEQUENCING OF SINGLE CELLS BY DIGITAL MICROFLUIDICS**
Qingyu Ruan¹, Weidong Ruan¹, Xiaoye Lin¹, Zhi Zhu¹, and Chaoyong Yang^{1,2}
¹Xiamen University, CHINA and ²Shanghai Jiao Tong University, CHINA
- T3-373.a CELL MANIPULATION VIA ACOUSTIC FORCES IN A SPHERICAL MICROCHAMBER**
Bettina Sailer, Rune Barnkob, and Oliver Hayden
Technical University of Munich, GERMANY
- T3-374.a DOUBLE MONOCLONAL DISPLAY FOR HIGHLY EFFICIENT PEPTIDE SCREENING**
Junxia Wang, Yuyu Tan, Jiajun Ling, Mingxia Zhang, Wenli Liu, Mengjiao Huang, Jia Song, Ao Li, Yanling Song, Zhi Zhu, and Chaoyong Yang
Xiamen University, CHINA
- T4-473.a HIGH RESOLUTION EXOSOME TYPING METHOD FOR CANCER DIAGNOSIS**
Bingqian Lin¹, Lingling Wu², Zhi Zhu¹, Yanling Song¹, and Chaoyong Yang^{1,2}
¹Xiamen University, CHINA and ²Shanghai Jiao Tong University, CHINA
- T4-474.a HIGHLY EFFICIENT ACOUSTOPHORETIC SINGLE CELL-SUPERNATANT SEPARATION INSIDE NANOLITER DROPLETS**
Michael Gerlt¹, Dominik Haidas², Alexandre Ratschat¹, Philipp Suter¹, Petra Dittrich², and Jürg Dual¹
¹ETH Zürich, SWITZERLAND and ²ETH Zürich, Basel, SWITZERLAND
- W5-572.a DYNAMIC FORMATION OF MULTIPLE PRECONCENTRATED MOLECULE PLUGS**
Barak Sabbagh¹, Elad Stolovicki², Sinwook Park¹, and Gilad Yossion¹
¹Technion - Israel Institute of Technology, ISRAEL and ²Harvard University, USA
- W5-573.a HIGH THROUGHPUT, MOBILE DIGITAL FLUORESCENCE DROPLET ASSAYS USING TIME DOMAIN EXCITATION MODULATION**
Zijian Yang, Yasemin Atiyas, and David Issadore
University of Pennsylvania, USA
- W6-674.a MAPPING THE PHASE DIAGRAM OF DNA HYDROGELS WITH DROPLET MICROFLUIDICS**
Guilhem Mariette^{1,2}, Nicolas Lobato-Dauzier², Robin Deteix², Mia Zhang², Shu Okumura², Yusuke Sato³, Masahiro Takinoue⁴, Teruo Fujii², and Anthony J. Genot²
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Th7-772.a ACCELERATING THE FINITE-ELEMENT METHOD FOR REACTION-DIFFUSION SIMULATIONS ON GPUS WITH CUDA
Hedi Sellami, Leo Cazenille, Teruo Fujii, Masami Hagiya, Nathanael Aubert-Kato, and Anthony J. Genot
University of Tokyo, JAPAN

Th7-773.a NOVEL APPROACH FOR ADVANCED PERSONALIZED CANCER TREATMENT
Anna Luise Grab¹, Ramesh Utharala¹, Thorsten Cramer^{2,3}, Julio Saez-Rodrigue⁴, Nicolas Peschke¹,
Denes Türei^{1,4}, Wenwei Ma¹, Vida Vafaizdah¹, Federica Eduati⁵, and Christoph Merten^{1,6}
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³*Maastricht University, THE NETHERLANDS*, ⁴*Faculty of Medicine of Heidelberg, GERMANY*,
⁵*Eindhoven University of Technology, THE NETHERLANDS*, and
⁶*Swiss Federal Institute of Technology Lausanne, SWITZERLAND*

Th8-871.a VACUUM POUCH MICROFLUIDIC SYSTEM FOR THE APPLICATION OF DIGITAL PCR
Cheng-Je Lee and Yu-Hsiang Hsu
National Taiwan University, TAIWAN

b - Micro- and Nanoengineering

Microscale Fabrication, Patterning, and Integration

M1-115.b A VACUUM-DRIVEN MICROFLUIDIC ARRAY FOR MULTI-STEP SAMPLE DIGITALIZATION
Jiumei Hu, Liben Chen, Hui Li, Kuangwen Hsieh, Pengfei Zhang, and Tza-Huei Wang
Johns Hopkins University, USA

M1-116.b ENGINEERING MULTIPLY ENCAPSULATED MICROGELS FOR CONTROLLED LONG-TERM DRUG DELIVERY
Jing Liu, Cassidy Marie Enloe, Ralph McBride, John S. Oakey, and Katie Li-Oakey
University of Wyoming, USA

M1-117.b FULLY PRINTED PIEZOELECTRIC DEVICES
Marc Alique¹, Marcos Duque², Claudia Delgado¹, Paul Lacharmoise¹, Gonzalo Murillo², and Ana Moya¹
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M1-118.b NANOPARTICLE DETECTION BY SOLID-STATE NANOPORE INTEGRATED INTO A REUSABLE MICROFLUIDIC DEVICE
Izadora Mayumi Fujinami Tanimoto^{1,2}, Benjamin Cressiot³, Jean Roman¹, Nathalie Jarroux^{1,2},
Gilles Patriarche¹, Bruno Le Pioufle¹, Juan Pelta^{1,2,3}, and Laurent Bacri^{1,1}
¹*Université Paris-Saclay, FRANCE*, ²*Université d'Evry, FRANCE*, and ³*CY Cergy Paris Université, FRANCE*

M1-119.b WHY ARE 3D-PRINTED MOLDS INHIBITING PDMS CURING?
Bastien Venzac¹, Shanliang Deng¹, Ziad Mahmoud², Aufried Lenferink¹, Fabrice Bray², Cees Otto¹,
Christian Rolando², and Séverine Le Gac¹
¹*University of Twente, THE NETHERLANDS* and ²*Université de Lille, FRANCE*

M2-216.b AN INTEGRATED FLEXIBLE PLATFORM WITH PRINTED ORGANIC ELECTROCHEMICAL AND FIELD-EFFECT TRANSISTORS FOR BIOCHEMICAL SENSING
Silvia Demuru¹, Khalil Chennit², Vincent Noël², Benoit Piro², Giorgio Mattana², and Danick Briand¹
¹*École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND* and ²*Paris Diderot University, FRANCE*

M2-217.b ETCHED SILICON μ DICER FOR UNIFORM SECTIONING OF TISSUE SAMPLES
Seth C. Cordts, Saisneha Koppaka, Nicolas Castaño, and Sindy K.Y. Tang
Stanford University, USA

- M2-218.b IN-SITU 3D WRITING OF MICROELECTRODES BASED ON PLASMA-ASSISTED MICROPLATING**
Shinya Sakuma, Natsumi Basaki, Keita Ichikawa, and Yoko Yamanishi
Kyushu University, JAPAN
- M2-219.b OPTICAL GROWTH AND PATTERNING OF HIGHLY CONDUCTIVE SILVER ON ULTRASMooth NANOCELLULOSE PAPER**
Yueyue Pan, Sina Kheiri, Zhen Qin, Binbin Ying, Peng Pan, Ran Peng, and Xinyu Liu
University of Toronto, CANADA
- T3-315.b ANALYSIS OF INSERTION FORCE OF POLYMER MICRONEEDLES WITH HIGH ASPECT RATIO**
Yukihiro Kanda¹, Hiroaki Takehara^{1,2}, and Takanori Ichiki^{1,2}
¹*University of Tokyo, JAPAN* and ²*Kawasaki Institute of Industry Promotion, JAPAN*
- T3-316.b FABRICATION AND CHARACTERIZATION OF 3D MICROFLUIDICS BLADES TO IMPROVE THE CUTTING OF BIOLOGICAL MATERIALS**
Saisneha Koppaka, Lucas R. Blauch, Kevin S. Zhang, Seth C. Cordts, and Sindy K.Y. Tang
Stanford University, USA
- T3-317.b MECHANICALLY DIRECTING THE DIFFERENTIATION AND ORGANISATION OF STEM CELL TO RECAPITULATE KEY LIVER FUNCTION**
Mary Okesola, Tamir S. Rashid, and Ciro Chiappini
King's College London, UK
- T3-318.b PIXELATED CHEMICAL DISPLAYS FOR DRY SURFACE PATTERNING IN INDUSTRIAL ROLL-TO-ROLL PROCESSES**
Pierre-Alexandre Goyette¹ and Thomas Gervais^{1,2}
¹*École Polytechnique de Montréal, CANADA* and ²*Université de Montréal, CANADA*
- T4-414.b 2D TO 3D TRANSFORMATION OF PEN-DRAWING**
Sumin Lee¹, Seo Woo Song¹, Jun Kyu Choe², Na-Hyang Kim², Junwon Kang¹, Ju-Young Kim², Jiyun Kim², and Sunghoon Kwon¹
¹*Seoul National University, KOREA* and ²*Ulsan National Institute of Science & Technology (UNIST), KOREA*
- T4-415.b BIOMIMETIC MICROFLUIDIC SYSTEM FOR EVALUATION OF SPERM NAVIGATION BEHAVIOR**
Yimo Yan, Qiqi Fu, Boxuan Zhang, and Ran Liu
Tsinghua University, CHINA
- T4-416.b FABRICATION AND CHARACTERIZATION OF LITHIUM DOPED NAFION MEMBRANE AND HOLLOW GLASSY CARBON MICRONEEDLE FOR MICROPUMP BASED DRUG DELIVERY**
Arkaprava Datta, Richa Mishra, Shatavisha Biswas, Jhimli Sarkar Manna, Riddhiman Dhar, and Tarun Kanti Bhattacharyya
Indian Institute of Technology, Kharagpur, INDIA
- T4-417.b METAMOLDING: A MODULAR APPROACH TOWARD LARGE SCALE MICROPATTERNING AND MICROFLUIDICS**
Jung Y. Han, Pranav Menon, and Don L. DeVoe
University of Maryland, College Park, USA
- T4-418.b QUANTITATIVE DESIGN STRATEGY OF THE RESOLUTION AND SCREEN AREA OF MICROFLUIDIC REFLECTIVE DISPLAY WITH SUB-PIXELS**
Jumpei Muramatsu and Hiroaki Onoe
Keio University, JAPAN

- W5-514.b 360° LIGHT HARVESTING REFLECTOR FULLY INTEGRATED ON MICROFLUIDIC PLATFORM**
Filippo Storti^{1,2}, Silvio Bonfadini¹, and Luigino Criante¹
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- W5-515.b CELL TRANSPORT WITH ADDRESSABLE MICROCHANNEL FORMED BY GEL ACTUATORS**
Hiroki Wada¹, Yuha Koike¹, Yoshiyuki Yokoyama², and Takeshi Hayakawa¹
¹*Chuo University, JAPAN* and ²*Toyama Industrial Technology Research and Development Center, JAPAN*
- W5-516.b FABRICATION OF ACTIVE MICROFLUIDICS ON GLASS WITH SEMICONDUCTOR GRADE MATERIAL**
Boshen Liang^{1,2}, Grim Keulemans¹, Brice Eychenne¹, Shruti Jambaldinni¹, David Cheyns¹, Tim Stakenborg¹, Veronique Rochus¹, Paul Heremans^{1,2}, and Lei Zhang¹
¹*IMEC, BELGIUM* and ²*KU Leuven, BELGIUM*
- W5-517.b MICRO-PATTERNED PAPER FOR DRUG TESTING OF 3D TUMOR MODELS**
Bisan Samara¹, Pavithra Sukumar¹, and Mohammad A. Qasaimeh^{1,2}
¹*New York University Abu Dhabi, UAE* and ²*New York University, USA*
- W5-518.b RADIOPAQUE HYDROGEL MICROFIBER FOR ARTERIAL EMBOLIZATION**
Naoki Takakura¹, Hiroki Ohta², Teppei Komatsu², Yuta Kurashina³, Hiroataka J. Okano², and Hiroaki Onoe¹
¹*Keio University, JAPAN*, ²*Jikei University School of Medicine, JAPAN*, and ³*Tokyo Institute of Technology, JAPAN*
- W6-614.b 3D PRINTED MULTIPURPOSE ATOMIC FORCE MICROSCOPY PROBES**
Ayoub Glia, Muhammedin Deliorman, and Mohammad A. Qasaimeh
¹*New York University Abu Dhabi, UAE* and ²*New York University, USA*
- W6-615.b DIGITAL LIGHT PROCESSING-BASED 3D PRINTED HYDROGEL SCAFFOLDS FOR ARTICULAR CARTILAGE TISSUE ENGINEERING**
Chuan-Yung Wu¹, Yun-Jie Hao¹, Yu-Chuan Su¹, and Fan-Gang Tseng^{1,2}
¹*National Tsing Hua University, TAIWAN* and ²*Academia Sinica, TAIWAN*
- W6-616.b FABRICATION OF HIGHLY ORDERED POLYCAPROLACTONE MICROSPHERES FOR IN VITRO DRUG DELIVERY USING MICROFLUIDIC TECHNOLOGIES**
Alejandro Forigua, Laila Abelseh, Stephanie M. Willerth, and Katherine S. Elvira
University of Victoria, CANADA
- W6-617.b MICROFLUIDIC DEVICES FOR PLASMA SEPARATION FABRICATED WITH A HIGH RESOLUTION CUSTOM MADE 3D PRINTER**
Sandra Garcia-Rey^{1,2}, Gregory P. Nordin¹, Lourdes Basabe-Desmots^{1,3}, Fernando Benito-Lopez¹, and Adam T. Woolley²
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- W6-618.b STRETCHABLE INERTIAL MICROFLUIDICS**
Hedieh Fallahi, Jun Zhang, Hoang-Phuong Phan, and Nam-Trung Nguyen
Griffith University, AUSTRALIA
- Th7-714.b 3D SKIN MICROFLUIDIC PHANTOM FOR IN VITRO WEARABLE TESTING**
Genís Rabost-García^{1,2}, Oscar Carreras-Gallo¹, Valeria Colmena², Javier Aguilar², Jaime Punter-Villagrasa², Francesc X. Muñoz^{2,3}, Josep Farré-Lladós¹, and Jasmina Casals-Terré¹
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- Th7-715.b DNA MICRO-DISK FOR THE EFFICIENT MANAGEMENT OF DNA-BASED DATA STORAGE**
Hansol Choi¹, Yeongjae Choi¹, Amos Chungwon Lee¹, Wook Park², and Sunghoon Kwon¹
¹Seoul National University, KOREA and ²Kyung Hee University, KOREA
- Th7-716.b FOCUSING OF MICROPARTICLES AT LOW REYNOLDS NUMBERS**
Tianlong Zhang^{1,2}, Yaxiaer Yalikun¹, Misuzu Namoto¹, Kazunori Okano¹, Yo Tanaka³, Ming Li²,
and Yoichiro Hosokawa¹
¹Nara Institute of Science and Technology, JAPAN, ²Macquarie University, AUSTRALIA, and ³RIKEN, JAPAN
- Th7-717.b MULTIPLEXED CONVECTION-ENHANCED KINETICS IN MICROTITER PLATES**
Iago Pereiro, Anna Fomitcheva Khartchenko, Robert D. Lovchik, and Govind V. Kaigala
IBM Research - Europe, SWITZERLAND
- Th7-718.b TUNING FIELD NON-UNIFORMITY ACROSS MICROCHANNELS FOR FLOW-THROUGH DIELECTROPHORETIC SEPARATIONS**
XuHai Huang, Karina Torres-Castro, Walter Varhue, and Nathan S. Swami
University of Virginia, USA
- Th8-814.b A GENERALIZED SEMI-AUTOMATED RATIONAL DESIGN OF MICROPILLAR ARRAYS FOR MECHANOBIOLOGICAL STUDIES**
Christopher J. Stubbs¹, Samuel O. Sofela^{2,3}, Navajit S. Baban^{2,3}, and Yong-Ak Song^{2,3}
¹University of Idaho, USA, ²New York University Abu Dhabi, UAE, and ³New York University, USA
- Th8-815.b EASILY-FABRICATED FLUOROPOLYMER CHIPS FOR SENSITIVE LONG-TERM ABSORBANCE MEASUREMENT IN DROPLET MICROFLUIDICS**
Adrian M. Nightingale¹, Sammer-ul Hassan¹, Kyriacos Makris², Wahida T. Bhuiyan¹, Terry J. Harvey¹,
and Xize Niu^{1,2}
¹University of Southampton, UK and ²SouthWestSensor Ltd., UK
- Th8-816.b FOUR-DIMENSIONAL PHOTONIC MICRO-ACTUATORS FOR MICROFLUIDICS APPLICATIONS**
Marc del Pozo¹, Colm Delaney², Cees W.M. Bastiaansen^{1,3}, Dermot Diamond⁴, Albert P.H.J. Schenning¹,
and Larisa Florea²
¹Eindhoven University of Technology, THE NETHERLANDS, ²Trinity College Dublin, IRELAND, ³Queen Mary University of London, UK and ⁴Dublin City University, IRELAND
- Th8-817.b NanoFACes: AN OPTICALLY TRANSPARENT NANOPAPER-BASED DEVICE FOR CELL CULTURE**
Siwan Park¹, Binbin Ying^{1,2}, Edmond W.K. Young¹, and Xinyu Liu¹
¹University of Toronto, CANADA and ²McGill University, CANADA
- Th8-818.b VISCOELASTIC FOCUSING OF PARTICLES IN TRIANGULAR MICROCHANNEL**
Prithviraj Mukherjee, Jian Zhou, and Ian Papautsky
University of Illinois, Chicago, USA

b - Micro- and Nanoengineering

Nanoscale Fabrication, Patterning, and Integration

- M1-120.b POLYMER-BASED NANOFLUIDIC DEVICES FOR RESISTIVE-PULSE SENSING OF HEPATITIS B VIRUS CAPSIDS**
Sheng-Yuan Huang, Mi Zhang, Zhongchao Zhao, Adam Zlotnick, and Stephen C. Jacobson
Indiana University, USA
- M2-220.b APTAMER-BASED NANOFLUIDICS FOR THE MOLECULAR DETECTION IN ULTRA-SMALL VOLUME**
Jinbin Yang¹, Hiroki Kamai¹, Yong Wang², and Yan Xu^{1,3}
¹*Osaka Prefecture University, JAPAN*, ²*Pennsylvania State University, USA*, and ³*Japan Science and Technology Agency (JST), JAPAN*
- M2-221.b SURFACE PATTERNING OF NANOFLUIDIC CHANNELS AND ITS EVALUATION USING STREAMING CURRENT**
Kyojiro Morikawa¹, Haruki Kazumi¹, Ryoichi Ohta¹, and Takehiko Kitamori^{1,2}
University of Tokyo, JAPAN and ²*National Tsing Hua University, TAIWAN*
- T3-319.b COATING MOFs ON MAMMALIAN CELL FOR BIOMEDICAL APPLICATIONS**
Laura Ha and Dong-Pyo Kim
Pohang University of Science and Technology (POSTECH), KOREA
- T3-320.b SELECTIVE ELECTRICAL SWITCHING OF MOLECULAR MOTORS BY DYNAMIC VIRTUAL CATHODE**
Kenta Hatazawa¹, Ryuzo Kawamura², and Takayuki Hoshino¹
¹*Hirosaki University, JAPAN* and ²*Saitama University, JAPAN*
- T4-419.b DEVELOPMENT OF FABRICATION METHOD FOR CONCENTRIC CONNECTION OF MICROCHANNEL AND NANOCHANNEL**
Kyojiro Morikawa¹, Erina Takeuchi¹, and Takehiko Kitamori^{1,2}
¹*University of Tokyo, JAPAN* and ²*National Tsing Hua University, TAIWAN*
- T4-420.b TECHNOLOGICAL ASPECTS OF DEVICES FOR EFFICIENT ION CONCENTRATION POLARIZATION AND ELECTRODRIVENSEPARATION WITH ULTRA-SHALLOW NANOCHANNELS**
Elizaveta Vereshchagina¹, Yuliya Shakalisava², Aina Suphellen¹, Sigurd Moe¹, and Thomas Hankemeier²
¹*SINTEF, NORWAY* and ²*Leiden University, THE NETHERLANDS*
- W5-519.b FABRICATION OF SUB-40-NANOMETER NANO-IN-NANO STRUCTURES IN NANOCHANNELS**
Hiroki Kamai¹ and Yan Xu^{1,2}
¹*Osaka Prefecture University, JAPAN* and ²*Japan Science and Technology Agency (JST), JAPAN*
- W5-520.b TWO-PHOTON POLYMERIZATION OF MASTERS FOR POLYMERIC NANOPILLAR REPLICATION**
Niamh Geoghegan^{1,2}, Colm Delaney¹, Larisa Florea³, Mark O' Loughlin¹, and Susan M. Kelleher^{1,2}
¹*University College Dublin, IRELAND*, ²*National University of Ireland, Galway, IRELAND*, and ³*Trinity College Dublin, IRELAND*
- W6-619.b INTEGRATION OF GLASS DEFORMATION NANOCHANNEL OPEN/CLOSE VALVES INTO A NANOFLUIDIC DEVICE AND FEMTO-LITER FLUID OPERATIONS**
Hiroki Sano¹, Yutaka Kazoe², Kyojiro Morikawa¹, and Takehiko Kitamori^{1,3}
¹*University of Tokyo, JAPAN*, ²*Keio University, JAPAN*, and ³*National Tsing Hua University, TAIWAN*

Th7-719.b NANOFLUIDIC DEVICE WITH fL-pL DROPLET HANDLING FOR SINGLE MOLECULE CHEMICAL REACTION

Naoya Sawahata¹, Kyojiro Morikawa¹, and Takehiko Kitamori^{1,2}

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Th8-819.b NANOSURFACE MICROFLUIDIC DEVICE EMBEDDED WITH NANO-TRIANGLES FOR SURFACE-ENHANCED RAMAN SPECTROSCOPY AND SURFACE-ENHANCED FLUORESCENT MICROSCOPY

Mahsa Jalali, Sayed Imman Issac Hosseini, Tamer Abdelfattah, Lara Montermini, Sebastian Wachsmann Hugo, Janusz Rak, and Sara Mahshid

McGill University, CANADA

b - Micro- and Nanoengineering

Micropumps, Valves, and Dispensers

M1-121.b A MODULAR MICROFLUIDIC PARALLEL DISPENSING SYSTEM

Dean de Boer, Anke R. Vollertsen, Albert van den Berg, Andries D. van der Meer, and Mathieu Odijk

University of Twente, THE NETHERLANDS

M2-222.b AUTOMATED BLOOD PLASMA SEPARATION AND METERING FOR CLINICAL SETTINGS AND CENTRIFUGAL MICROFLUIDICS DEVICES

Noa Lapins, Amin Kazemzadeh, and Aman Russom

KTH Royal Institute of Technology, SWEDEN

T3-321.b AUTONOMOUS CAPILLARY MICROFLUIDIC DEVICES WITH CONSTANT FLOW RATE AND TEMPERATURE-CONTROLLED VALVING

Lanhui Li^{1,2}, Eiko Westerbeeck¹, Jeroen Vollenbroek^{1,3}, Lingling Shui², Mathieu Odijk¹, and Jan Eijkel¹

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³University Medical Center, THE NETHERLANDS

T4-421.b BARRIER-FILM BASED REAGENT STORAGE AND RELEASE ON MICROFLUIDIC PLATFORMS FOR SAMPLE-TO-ANSWER AUTOMATION OF BIOASSAYS

Rohit Mishra, Darren McAuley, Natalia Rolinska, David Boyle, and Jens Ducreé

Dublin City University, IRELAND

W5-521.b DEVELOPMENT OF A MIST-BASED HYDROGEL CROSSLINKING PRINTHEAD FOR DROPLET-BASED BIOPRINTING

Ben MacCallum, Sara Badr, Emad Naseri, Armin Bodaghkhani, and Ali Ahmadi

University of Prince Edward Island, CANADA

W6-620.b 3D-PRINTED PERISTALTIC PUMP KIT

Terry Ching^{1,2}, Yi-Chin Toh^{2,3}, and Michinao Hashimoto¹

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W6-621.b METACHRONAL ACTUATION OF MAGNETIC ARTIFICIAL CILIA GENERATES STRONG MICROFLUIDIC PUMPING

Shuaizhong Zhang, Zhiwei Cui, Ye Wang, and Jaap den Toonder

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Th7-720.b A MICRO-MACHINED HYDRAULIC FLOW AND COMPLIANCE TUNER

Cornelia Nef¹, Peter Heeb², Sabrina Frey³, Dominic Obrist⁴, and André Bernard⁵

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Th7-721.b RECIPROCATING FLOW-ASSISTED FINGER-ACTUATED DNA EXTRACTION DEVICE

Dong Hyun Han, Juhwan Park, and Je-Kyun Park
Korea Advanced Institute of Science and Technology (KAIST), KOREA

Th8-820.b A MICROFLUIDIC VALVING ARRAY FOR WEARABLE BIOFLUID MANAGEMENT

Jiawei Tan, Haisong Lin, Shuyu Lin, Wenzhuo Yu, Jialun Zhu, Yichao Zhao, Xuanbing Cheng, Siyang Yang, Eric Tang, and Sam Emaminejad
University of California, Los Angeles, USA

Th8-821.b ROTARY ACTUATION SYSTEM FOR MAGNETIC BEADS

Fujio Tsumori and Kazuki Tokumaru
Kyushu University, JAPAN

b - Micro- and Nanoengineering

Bonding, Sealing & Interfacing Technologies

M1-122.b DIRECT LASER WRITING IN THERMOPLASTIC MICROCHANNELS BY *IN SITU* PHOTOINITIATION

Jung Y. Han, Sarah Warshawsky, and Don L. DeVoe
University of Maryland, College Park, USA

M2-223.b SIMULATION OF TUMOR CELL EXTRAVASATION ON A PHOTOLITHOGRAPHY-FREE MICROFLUIDIC DEVICE

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b - Micro- and Nanoengineering

New Materials and Surface Modification

M1-123.b MECHANISTIC STUDY OF OXYGEN-SCAVENGING PROPERTIES OF OFF-STOICHIOMETRIC THIOL-ENES

Iiro Kiiski¹, Päivi Järvinen¹, Ville Jokinen², and Tiina Sikanen¹
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M2-224.b MULTI-MODAL ANALYSIS OF TUMOR-DERIVED EXTRACELLULAR VESICLES IMMUNOCAPTURED FROM PLASMA

Pepijn Beekman¹, Agustin Enciso-Martinez², Melissa Piontek³, Leon Terstappen², Wouter Roos³, Cees Otto², and Séverine Le Gac¹
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T3-322.b DEVELOPMENT OF A FLOW-FREE GRADIENT GENERATOR USING A SELF-ADHESIVE THIOL-ACRYLATE MICROFLUIDIC RESIN/HYDROGEL (TAMR/H) HYBRID SYSTEM

Anowar H. Khan¹, Noah M. Smith¹, Michael P. Tullier¹, B. Seth Roberts¹, Derek Englert², John A. Pojman¹, and Adam T. Melvin¹
¹Louisiana State University, USA and ²University of Kentucky, USA

T3-323.b NANOCATALYSTS FOR MAGNETIC FILED ASSISTED BIOFILM ERADICATION

Mamata Karmacharya^{1,2}, Sumit Kumar^{1,2}, and Yoon-Kyoung Cho^{1,2}
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T4-422.b ELECTROACTIVE POLYMER MEMBRANES AS SUBSTRATES FOR POINT-OF-CARE DEVICES

Ricardo Brito-Pereira¹, André S. Macedo¹, Senentxu Lanceros-Méndez^{1,2,3}, and Vanessa F. Cardoso¹
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W5-522.b EVALUATION OF MINERAL AND BACTERIA ADHESION ON MICROCHANNEL COATED WITH DIAMOND LIKE CARBON AND MPC BASED COPOLYMER

Tomomi Sato, Shun Murooka, Toshihiro Kasama, Zhou Lu, Madoka Takai, and Ryo Miyake
University of Tokyo, JAPAN

W6-622.b FABRICATION OF GOLD-NANORINGS FOR MASSIVELY PARALLEL INTRACELLULAR DELIVERY

Loganathan Mohan¹, Ren Hattori¹, Miho Ishii-Teshima¹, Sathish Sundar Dhillip Kumar², Srabani Kar³,
Tuhin Subhra Santra⁴, Takayuki Shibata¹, and Moeto Nagai¹
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³*University of Cambridge, UK*, and ⁴*Indian Institute of Technology Madras, INDIA*

Th7-722.b HOLIFAB: PRECISE FLOW CONTROL USING PHOTO ACTUATED HYDROGEL VALVES AND PI CONTROLLED LED ACTUATION FOR MICROFLUIDIC MEMS.

Ruairí Barrett, Komala Pandurangan, Akshay Shinde, Dermot Diamond, and Margaret McCaul
Dublin City University, IRELAND

Th8-822.b MECHANICAL CHARACTERIZATION OF SPIDER SILK NANOMEMBRANES

Linnea Gustafsson, Christos Panagiotis Tasiopoulos, Thijs Duursma, Ronnie Jansson, Thomas Christian Gasser,
My Hedhammar, and Wouter van der Wijngaart
KTH Royal Institute of Technology, SWEDEN

b - Micro- and Nanoengineering

Others

T4-423.b RECONSTITUTION OF HUMAN PRIMORDIAL GERM CELL DEVELOPMENT FROM PLURIPOTENT STEM CELLS IN A SYNTHETIC EMBRYONIC ENVIRONMENT

Sajedeh Nasr Esfahani¹, Yi Zheng¹, Agnes M. Resto Irizarry¹, Yue Shao², Sicong Wang¹, Xufeng Xue¹,
and Jianping Fu¹
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b - Micro- and Nanoengineering

Industrial Benefactor

M1-124.b FROM LAB TO FAB: CONSIDERATIONS FOR DEVICE DESIGN AND MANUFACTURING OPTIONS FOR UPSCALING MICROFLUIDIC DEVICE PRODUCTION

Holger Becker, Nadine Hlawatsch, Richard Klemm, and Claudia Gärtner
microfluidic ChipShop GmbH, GERMANY

M2-282.b Hicomp - YOUR TRUSTED TECHNOLOGY AND SOLUTION PROVIDER FOR MICROFLUIDICS

Yexiam Wu
HiComp Microtech (Suzhou) Co., Ltd., CHINA

Th7-783.b MASKLESS ALIGNER TECHNOLOGY FOR THICK PHOTORESIST APPLICATIONS

Gregg Moore and Niels Wijnaendts van Resandt
Heidelberg Instruments, Inc., USA

b - Micro- and Nanoengineering

Late News

- M1-174.b CELLOPHANE-BASED ANALYTICAL DEVICES FOR PUMP-FREE LIQUID TRANSPORT AND BACKGROUND-TINTED COLORIMETRIC ASSAYS**
Hiroki Shigemori, Kento Maejima, Hiroyuki Shibata, Yuki Hiruta, and Daniel Citterio
Keio University, JAPAN
- M1-175.b ON-CHIP BIDIRECTIONAL MICROFLUIDIC PUMPING ACTUATED REMOTELY BY ACOUSTIC WAVES**
Tao Luo and Mingming Wu
Cornell University, USA
- M1-176.b REVERSIBLE UNDERWATER-ADHESIVE HYDROGEL MICROSTRUCTURE BASED ON PHOTOCROSSLINKING GRADIENT**
Jinsik Yoon and Wook Park
Kyung Hee University, KOREA
- M2-274.b DEMOCRATISED MICROFLUIDIC PROTOTYPING USING A 3D-PRINTED CLICK-AND-CONNECT SCAFFOLD LIBRARY**
Robert R. Hughes, Harry Felton, and Andrea Diaz Gaxiola
University of Bristol, UK
- M2-275.b OPTICAL METHOD FOR THE MEASUREMENT OF TRANSIENT FLOW RATES OF A TPU-MEMBRANE-BASED MICROPUMP**
Hannah Bott¹, Ronny Leonhardt¹, Franz Laermer¹, Roland Zengerle², and Jochen Hoffmann¹
¹Robert Bosch GmbH, GERMANY and ²University of Freiburg, GERMANY
- M2-276.b SIMPLE METHOD FOR MICRO-PATTERNED CONDUCTIVE HYDROGEL FABRICATION**
Hyeli Kim, Goomin Kwon, Jungmok You, and Wook Park
Kyung Hee University, KOREA
- T3-375.b DESIGN AND MICROFABRICATION OF MICROREACTOR ARRAY FOR PLATE READER FOR *E. Coli* RESEARCH**
Gaozhe Cai^{1,2}, Shilun Feng¹, Yang Liu¹, Wenshuai Wu¹, Jingbo Zhang¹, Jianhan Lin², and Ai-Qun Liu¹
¹Nanyang Technological University, SINGAPORE and ²China Agricultural University, CHINA
- T3-376.b STUDY OF THE FABRICATION OF MODULAR FLUIDIC/MICROFLUIDIC PLATFORM USING A LOW-CLASS 3D PRINTER**
Isa Anshori¹, Vincent Lukito¹, Angelica Irene¹, Brian Yulianto¹, and Brilliant Adhi Prabowo²
¹Institut Teknologi Bandung, INDONESIA and ²International Iberian Nanotechnology Laboratory, PORTUGAL
- T4-475.b DEVELOPMENT OF A MICRO-MICROBIAL DOMESTICATION POD FOR *IN-SITU* MARINE BACTERIAL CULTIVATION**
Sydney K. Wheatley¹, Christopher Cartmell¹, Bradley A. Haltli^{1,2}, Russell G. Kerr^{1,2}, and Ali Ahmadi¹
¹University of Prince Edward Island, CANADA and ²Nautilus Biosciences, CANADA
- T4-476.b THROMBOGENIC POLYMER SURFACE MANIPULATION OF MICROFLUIDIC CHIPS VIA ULTRAVIOLET LASER**
Yi Xu¹, Guang Yu¹, Ruqiong Nie², and Zhigang Wu¹
¹Huazhong University of Science and Technology, CHINA and ²Sun Yat-Sen University, CHINA
- W5-574.b DUAL-SCALE PERMANENT MAGNET FOR ENHANCED MAGNETIC SORTING EFFICIENCY IN A MICROFLUIDIC SYSTEM**
Lucie Descamps¹, Samir Mekkaoui¹, Marie-Charlotte Audry¹, Emmanuelle Laurenceau¹, Jessica Garcia¹, Léa Payen², Anne-Laure Deman¹, and Damien Le Roy²
¹Université Lyon 1, FRANCE and ²Hospices Civils de Lyon, FRANCE

- W5-575.b TRAFFIC-LIGHT-TYPE MICROFLUIDIC PAPER-BASED ANALITICAL DEVICE FOR HYDROGEN PEROXIDE DETECTION**
Sera Ohta, Ryuya Hiraoka, Yuki Hiruta, and Daniel Citterio
Keio University, JAPAN
- W6-675.b ACTIVE AND PASSIVE FLOW CONTROL BY PNEUMATIC ACTUATED FLEXIBLE VALVE ON SINGLE LAYER**
Yoshiharu Bessho, Yingzhe Wang, and Keisuke Morishima
Osaka University, JAPAN
- W6-676.b FABRICATION OF A MICROPARTICLE COATED WITH A GOLD NANO THIN FILM**
Kibeom Kim and Wook Park
Kyung Hee University, KOREA
- Th7-774.b BATTERY-FREE BUILT-IN MICROPUMP DRIVEN BY A SELF-PROPELLED DROPLET**
Taiji Okano¹, Kazuki Otsubo², Junya Wada², and Hiroaki Suzuki²
¹Tokyo University of Agriculture and Technology, JAPAN and ²Chuo University, JAPAN
- Th7-775.b HYDROGEL-BASED Microswimmer MOVING TOWARDS THE TARGET POSITION WITH RECOGNITION OF ENVIRONMENTAL CHANGES**
Cheolheon Park¹, Youngjae Choi², Sunghoon Kwon², and Wook Park¹
¹Kyung Hee University, KOREA and ²Seoul National University, KOREA
- Th8-872.b FULLY AUTOMATED IMMUNOASSAY IN A LAB-ON-A-FOIL DEVICE WITH LED-ACTUATED VALVES**
Mireia Burdó-Masferrer¹, María Díaz-González¹, Ana Sanchis^{2,3}, M.-Pilar Marco^{2,3}, César Fernández-Sánchez^{1,3}, and Antonio Baldi¹
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- Th8-873.b INK-JET PRINTED MICROFLUIDIC PAPER-BASED ANALYTICAL DEVICES RELYING ON QR CODE DETECTION**
Aya Katoh, Kento Maejima, Yuki Hiruta, and Daniel Citterio
Keio University, JAPAN

c - Sensors and Detection Technologies

Physical Sensors

- M1-125.c HARDNESS MEASUREMENT BY MICROMANIPULATOR WITH EMBEDDED SEMICONDUCTOR STRAIN GAUGE**
Mitsuhiro Horade
National Defense Academy of Japan, JAPAN
- M2-225.c LOVE WAVE SENSOR FOR DETECTION OF VISCOSITY CHANGES ON A CELL MONOLAYER**
Pedro A. Segura Chavez^{1,2}, Frederic Sarry^{1,2}, Mohamed Lamine Fayçal Bellaredj², Jérémy Bonhomme^{1,2}, Lucile Olive², Denis Beyssen², Mourad Oudich², and Paul G. Charette¹
¹Université de Sherbrooke, CANADA and ²Université de Lorraine, FRANCE
- T3-324.c DEVELOPMENT OF A QCM-P SENSING SYSTEM FOR BIOLOGICAL DETECTION**
Siqi Ji¹, Berk Akinci², Tory A. Farnping³, Thomas A. Radzik³, and Hongwei Sun¹
¹University of Massachusetts, Lowell, USA, ²Invitrometrix, USA, and ³Lowell High School, USA
- T4-424.c WEARABLE MICROFLUIDIC SENSOR TO MONITOR SWEAT FLOW RATE AND ELECTROLYTE CONCENTRATION**
Yuki Hashimoto¹, Yuki Sakurai^{1,2}, Takako Ishihara¹, Kei Kuwabara¹, and Hiroyoshi Togo¹
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- W5-523.c A FLEXIBLE AND STABLE STRAIN SENSOR BASED ON POLYIMIDE INCORPORATED WITH CARBON BLACK**
Jie Wang, Yunfei Liu, Wenhan Chang, Shoule Sun, Chengchen Gao, Zhenchuan Yang, and Yilong Hao
Peking University, CHINA
- W6-623.c CARBON NANOTUBE-PAPER COMPOSITE-CAPACITIVE SENSOR FOR RESPIRATORY MONITORING**
Tianyi Li, Vigneshwar Sakthivelpathi, Seong-Joong Kahng, Zhongjie Qian, Sheila Goodman, Heather Wise, Anthony B. Dichiaro, Younghoon Kwon, and Jae-Hyun Chung
University of Washington, USA
- Th7-723.c A COMPACT MICROCALORIMETER FOR THE RAPID CHARACTERIZATION OF LIQUID THERMAL PROPERTIES**
Sheng Ni¹, Hanliang Zhu², Pavel Neuzil^{2,3}, and Levent Yobas¹
¹*Hong Kong University of Science and Technology, HONG KONG,*
²*Northwestern Polytechnical University, CHINA, and* ³*Brno University of Technology, CZECH REPUBLIC*
- Th8-823.c DESIGN AND CONSTRUCTION OF A CONTINUOUS QUANTITATIVE FORCE MEASUREMENT MICRODEVICE FOR ARTIFICIAL SKELETAL MUSCLE**
Masaki Harada, Tomohiro Nakamura, and Sho Yokoyama
Osaka Institute of Technology, JAPAN

c - Sensors and Detection Technologies

Chemical & Electrochemical Sensors

- M1-126.c A PAPER-BASED DEVICE FOR INTEGRATED HIGH-THROUGHPUT COVID-19 DETECTION**
Hao Sun^{1,2}, Jianping Zheng³, Hui Dong^{1,2}, and Yuan Jia⁴
¹*Fuzhou University, CHINA,* ²*Fujian Provincial Collaborative Innovation Center of High-End Equipment Manufacturing, CHINA,* ³*Fujian Provincial Hospital, CHINA, and* ⁴*Southeast University, CHINA*
- M1-127.c ELECTROCHEMICAL OLIGONUCLEOTIDE TEMPLATED REACTIONS**
Robert B. Channon¹, Philip Gillespie¹, Md Nazmul Islam², Xiaotong Meng¹, Yu-Chih Chen¹, Danny O'Hare¹, and Sylvain Ladame¹
¹*Imperial College London, UK and* ²*Teeside University, UK*
- M1-128.c MULTISTEP REACTIONS BY ALIGNED TABLET REAGENTS FOR LONG TERM MONITORING OF PLANT CULTURE SOLUTION**
Yoko Azuma^{1,4}, Toshihiro Kasama^{1,4}, Yoshishige Endo^{1,4}, Tetsushi Koide^{2,4}, Chiharu Sone^{3,4}, Masashi Komine^{3,4}, Atsushi Ogawa^{3,4}, and Ryo Miyake^{1,4}
¹*University of Tokyo, JAPAN,* ²*Hiroshima University, JAPAN,* ³*Akita Prefectural University, JAPAN, and* ⁴*Japan Science and Technology Agency (JST), JAPAN*
- M1-129.c PRINTED MULTISENSING PATCH WITH INTEGRATED MICROFLUDICS FOR WEARABLE SWEAT ANALYSIS APPLICATIONS**
Brince Paul¹, Silvia Demuru¹, Rubaiyet Iftekharul Haque¹, Peter van der Wal¹, Céline Lafaye², Mathieu Saubade², and Danick Briand¹
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- M2-226.c A THREAD-BASED ELECTROCHEMICAL SENSOR FOR SPATIAL MONITORING OF WOUND OXYGENATION**
Junfei Xia, Wenxin Zeng, Wei Wang, Rachel Owyung, Victor Arsenescu, and Sameer Sonkusale
Tufts University, USA

- M2-227.c ELECTROCHEMICAL SENSOR FOR Mn DETECTION IN DRINKING WATER**
Elena Boselli¹, Zhizhen Wu¹, Alexa Friedman², Birgit Claus Henn², and Ian Papautsky¹
¹University of Illinois, Chicago, USA and ²Boston University School of Public Health, USA
- M2-228.c NANOPORE DECODING FOR DNA COMPUTATION WITH PARALLEL SELF-ASSEMBLY**
Sotaro Takiguchi and Ryuji Kawano
Tokyo University of Agriculture and Technology, JAPAN
- M2-229.c TiO₂ NANOTUBES-HYDROGEL BIOSENSOR SCAFFOLD FOR SWEAT MONITORING**
Udara B. Gunatilake¹, Edilberto Ojeda¹, Sandra Garcia-Rey¹, Lourdes Basabe-Desmonts^{1,2},
and Fernando Benito-Lopez¹
¹University of the Basque Country, SPAIN and ²Basque Foundation of Science, IKERBASQUE, SPAIN
- T3-325.c ANALYSIS OF ION COMPONENTS DERIVED FROM PARTICULATE MATTER USING ION SELECTIVE ELECTRODES**
Haruka Yamauchi¹, Taisuke Shimada¹, Takao Yasui^{1,2}, Tatsuro Goda³, Noritada Kaji⁴, Yuji Miyahara³,
and Yoshinobu Baba^{1,5}
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³Tokyo Medical and Dental University, JAPAN, ⁴Kyushu University, JAPAN,
⁵National Institutes for Quantum and Radiological Science and Technology, JAPAN
- T3-326.c EMBEDDED SENSOR BASED ON TANDEM SMARTPHONE-MICROFLUIDIC DEVICE FOR THE DETECTION OF TNT IN SURFACE AND SEA WATERS**
Jérémy Bell, Mustafa Biyikal, and Knut Rurack
Bundesanstalt für Materialforschung & -prüfung (BAM), GERMANY
- T3-327.c NOVEL FORMAT OF A PAPER-BASED DEVICE FOR COMPETITIVE IMMUNOASSAYS**
Takeshi Komatsu, Masatoshi Maeki, Akihiko Ishida, Hirofumi Tani, and Manabu Tokeshi
Hokkaido University, JAPAN
- T3-328.c TOWARDS ON-SITE MONITORING OF SOIL NUTRIENTS VIA CAFETIERE-BASED EXTRACTION AND PAPER-BASED ANALYSIS**
Samantha Richardson¹, Samira AlHinai¹, Jesse Gitaka², Will M. Mayes¹, Mark Lorch¹, and Nicole Pamme¹
¹University of Hull, UK and ²Mount Kenya University, KENYA
- T4-425.c ANALYSIS OF PARTICULATE MATTERS VIA SURFACTANT-ASSISTED IONIC CURRENT SENSING**
Keiko Fujino¹, Taisuke Shimada¹, Takao Yasui^{1,2}, Kazuki Nagashima³, Takashi Yanagida³, Noritada Kaji³,
and Yoshinobu Baba^{1,4}
¹Nagoya University, JAPAN, ²Japan Science and Technology Agency (JST), JAPAN, ³Kyushu University,
JAPAN, and ⁴National Institutes for Quantum and Radiological Science and Technology, JAPAN
- T4-426.c HIGH-RESOLUTION BIOCHEMICAL ACTIVITY MEASUREMENTS WITH COMMERCIAL TRANSISTORS**
Seulki Cho, Son T. Le, Curt A. Richter, and Arvind Balijepalli
National Institute of Standards and Technology (NIST), USA
- T4-427.c ON-CHIP MONITORING OF PHOSPHATE VIA A DROPLET MICROFLUIDIC SENSOR**
Bingyuan Lu¹, Sharon Coleman¹, Evanthia Papadopoulou², Kyriacos Makris², Brett M. Warren²,
Adrian M. Nightingale¹, and Xize Niu¹
¹University of Southampton, UK and ²SouthWestSensor Ltd., UK
- T4-428.c WEARABLE PATCH-TYPE DEVICE FOR BIO-INFORMATION MONITORING WITH POROUS MICRONEEDLE AND FLEXIBLE AG/AGCL REFERENCE ELECTRODE**
Ryohei Takizawa, Yuina Abe, Bibek Raut, Hajime Konno, Natsumi Kimura, Shotaro Yoshida, Hiroya Abe,
and Matsuhiko Nishizawa
Tohoku University, JAPAN

- W5-524.c A BIOCHIP INTEGRATED WITH MICROELECTRODES FOR MONITORING OF PYOCYANIN IN THE FORMATION PROCESS OF BIOFILMS**
Lulu Liu, Ling Li, Chuang Ge, and Yi Xu
Chongqing University, CHINA
- W5-525.c CARBON DOT-CONJUGATED-NAPHTHALIMIDE BASED RATIOMETRIC FLUORESCENCE PROBE FOR HYALURONIDASE DETECTION**
Pushap Raj and Tae Yoon Lee
Chungnam National University, KOREA
- W5-526.c HYBRID WEARABLE TECHNOLOGY FOR SWEAT BIOMONITORING**
Meritxell Rovira¹, César Fernández-Sánchez¹, Silvia Demuru², Rubaiyet Haque², Danick Briand², and Cecilia Jimenez-Jorquera¹
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²*École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND*
- W5-527.c OPEN CHANNEL SWEAT VIA FOR LONG-TERM MONITORING OF SWEAT RATE AND CONCENTRATION**
Jina Choi¹, Sangha Kim¹, Sunho Kim², Hyunjung Yi², and Rhokyun Kwak¹
¹*Hanyang University, KOREA and* ²*Korea Institute of Science and Technology (KIST), KOREA*
- W6-624.c A DIFFERENTIAL MODE EXTENDED GATE FIELD EFFECT TRANSISTOR PH SENSOR BASED ON AL₂O₃ THICKNESS DEPENDENT SENSITIVITY**
Qi Cheng, Qiancheng Zhao, Chengchen Gao, Yilong Hao, and Zhenchuan Yang
Peking University, CHINA
- W6-625.c DIFFERENTIAL PHOTOELECTROCHEMICAL DNA SENSING BY MODULATING THE PLASMONIC PROPERTIES OF METAL NANOPARTICLES**
Sudip Saha, Amanda Victorious, and Leyla Soleymani
McMaster University, CANADA
- W6-626.c HYDROGEL-BASED TRANSPARENT SUBDURAL ELECTRODE WITH IONIC CONNECTION**
Ayaka Nishimura, Ryota Suwabe, Yuka Ogihara, Yuina Abe, Hiroya Abe, Shotaro Yoshida, and Matsuhiko Nishizawa
Tohoku University, JAPAN
- W6-627.c OXYGEN METABOLISM ANALYSIS OF A VASCULARIZED SPHEROID USING A SCANNING ELECTROCHEMICAL MICROSCOPY**
Yuji Nashimoto¹, Rei Mukomoto¹, Takato Terai¹, Kosuke Ino¹, Koichi Nishiyama², Ryuji Yokokawa³, Takahsi Miura⁴, and Hitoshi Shiku¹
¹*Tohoku University, JAPAN,* ²*Kumamoto University, JAPAN,* ³*Kyoto University, JAPAN, and* ⁴*Kyushu University, JAPAN*
- Th7-724.c A DUAL-READOUT PAPER-BASED SENSOR FOR ON-SITE DETECTION OF PENICILLINASE WITH A SMARTPHONE**
Jia Xu and Li Yang
Northeast Normal University, CHINA
- Th7-725.c EFFECT OF MEMBRANE ELECTRODE VIBRATION ON MASS TRANSFER FOR ELECTROCHEMICAL MICRO SENSORS**
Tianyi Zhang, Peng Zhou, Terrence Simon, and Tianhong Cui
University of Minnesota, USA

- Th7-726.c LABEL-FREE IMPEDIMETRIC SENSING OF CORTISOL IN HUMAN SERUM BASED ON NANOWELL ARRAY ELECTRODES**
Seyed Reza Mahmoodi¹, Pengfei Xie¹, Daniel P. Zachs², Erik J. Peterson², Hubert H. Lim², Mark Allen³, and Mehdi Javanmard¹
¹Rutgers University, USA, ²University of Minnesota, USA, and ³University of Pennsylvania, USA
- Th7-727.c POINT-OF-CARE MICROANALYZER FOR POTENTIOMETRIC DETERMINATION OF AMMONIUM IN PLASMA**
Beatriz Rebollo-Calderon¹, Antonio Calvo-Lopez¹, Aida Ormazabal², Mar Puyol¹, Rafael Artuch², and Julian Alonso-Chamarro¹
¹Autonomous University of Barcelona, SPAIN and ²Sant Joan de Déu Hospital, SPAIN
- Th8-824.c A NON-ENZYMATIC ELECTROCHEMICAL SENSOR USING WRINKLED GOLD FILM ON SHRINK POLYMER**
Xiaomeng Bian¹ and Tianhong Cui²
¹Tsinghua University, CHINA and ²University of Minnesota, USA
- Th8-825.c ELECTROCHEMICAL DETERMINATION OF MANGANESE IN WHOLE BLOOD**
Zhizhen Wu and Ian Papautsky
University of Illinois, Chicago, USA
- Th8-826.c MULTIPLEX SENSOR FOR ION SENSING BASED ON PRINTED CIRCUIT BOARD**
Zhehao Zhang and Ian Papautsky
University of Illinois, Chicago, USA
- Th8-827.c POWER-FREE AUTOMATED CAPILLARY FLOW ASSAY FOR SARS-COV-2 DETECTION**
Jeremy Link¹, Cody Carrell¹, Ilhoon Jang^{1,2}, Yosita Panraksa^{1,3}, Ana Sánchez-Cano^{1,4}, Zachary Call¹, Eka Noviana¹, David S. Dandy¹, Brian J. Geiss¹, and Charles S. Henry¹
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c - Sensors and Detection Technologies

Optical Sensors & Imaging

- M1-130.c DNA SEQUENCING USING RGB SENSOR OF CONSUMER DIGITAL CAMERA**
Takashi Anazawa¹, Motohiro Yamazaki², Shuhei Yamamoto², and Ryoji Inaba²
¹Hitachi, Ltd., JAPAN and ²Hitachi High-Tech Corporation, JAPAN
- M1-131.c REAL-TIME STRAIN MEASUREMENT OF PIEZOELECTRICALLY ACTUATED POLYDIMETHYLSILOXANE (PDMS) BAR USING FIBRE BRAGG GRATING SENSOR FOR BIOMEDICAL APPLICATIONS**
Rahul Kumar¹, Bruno Rente¹, Souvik Ghosh¹, Christabel Tan², Tong Sun¹, and Kenneth Grattan¹
¹City University of London, UK and ²University of Hertfordshire, UK
- M2-230.c REAL-TIME TRACKING OF PARTICLES AT >1,200 EVENTS PER SECOND USING GPU-ACCELERATED IMAGE PROCESSING**
Arpith Vedhanayagam and Amar S. Basu
Wayne State University, USA
- T3-329.c FABRICATION AND CHARACTERIZATION OF AXIAL VIEW LIQUID ELECTRODE PLASMA**
Yueh-Han Huang¹, Daisuke Hirose², Meng-Jiy Wang¹, and Yuzuru Takamura²
¹National Taiwan University of Science and Technology, TAIWAN and ²Japan Advanced Institute of Science and Technology, JAPAN

- T3-330.c REFERENCE PH MICROSENSOR FOR FLUORESCENCE MEASUREMENT IN CELL CULTURE ENVIRONMENT WITHOUT INITIAL PH INFORMATION**
Hisataka Maruyama¹ and Fumihito Arai²
¹Nagoya University, JAPAN and ²University of Tokyo, JAPAN
- T4-429.c HIGH RESOLUTION PATTERNING OF HYDROGEL SENSING MOTIFS WITHIN FIBROUS SUBSTRATES FOR HIGHLY SENSITIVE AND MULTIPLEXED DETECTION OF NUCLEIC ACID BIOMARKERS**
Dana Al Sulaiman, Sarah J. Shapiro, Jose Gomez-Marquez, and Patrick S. Doyle
Massachusetts Institute of Technology, USA
- T4-430.c SOLVENT-ENHANCED PHOTOTHERMAL MOLECULE DETECTION METHOD FOR NANOFLUIDICS AND ITS APPLICATION TO FEMTOLITER NORMAL-PHASE CHROMATOGRAPHY**
Yoshiyuki Tsuyama, Kyojiro Morikawa, and Kazuma Mawatari
University of Tokyo, JAPAN
- W5-528.c A MODULAR SMARTPHONE-ENABLED PLATFORM TO DETECT NUCLEIC ACID TARGETS BASED ON QUANTIFICATION OF COALESCED LAMP PRECIPITATE**
Manaswini Masetty, Joseph Sepate, Sanghyun Do, and Aashish Priye
Univeristy of Cincinnati, USA
- W5-529.c INTEGRATED MICROFLUIDIC SERS CHIP FOR THE CAPTURE AND DETECTION OF PATHOGENIC BACTERIA IN THE AIR**
Xi Su, Rui Ren, Shifang Li, Li Chen, and Yi Xu
Chongqing University, CHINA
- W5-530.c SPATIOTEMPORAL MAPPING OF A HYPOXIA-FFA SYNERGY ON BETA CELL CALCIUM OSCILLATIONS**
Kai Duan and Joe Fujiou Lo
University of Michigan, Dearborn, USA
- W6-628.c ACHIEVING SUB-MICROMETER IMAGING RESOLUTION IN PDMS SOFT LITHOGRAPHY DEVICES USING MODIFIED INVERTED SELECTIVE PLANE ILLUMINATION MICROSCOPY**
Tienan Xu¹, Yean Jin Lim¹, Yujie Zheng¹, Moon Sun Jung², Katharina Gaus², Elizabeth E. Gardiner¹, and Woei Ming Lee¹
¹Australian National University, AUSTRALIA and ²University of New South Wales, AUSTRALIA
- W6-629.c LOW-COST AND PORTABLE PHOTONIC IMMUNO-SENSOR BASED ON GUIDED MODE RESONANCE**
Alexander Drayton, Kezheng Li, Matthew Simmons, Christopher Reardon, and Thomas F. Krauss
University of York, UK
- W6-630.c ULTRASENSITIVE PLASMONIC SENSORS ON OPTICAL FIBERS END-FACE**
Alba Calatayud-Sanchez¹, Angel Ortega-Gomez¹, Javier Barroso¹, Joseba Zubia¹, Fernando Benito-Lopez¹, Joel Villatoro^{1,2}, and Lourdes Basabe-Desmonts^{1,2}
¹University of the Basque Country, SPAIN and ²Basque Foundation of Science, IKERBASQUE, SPAIN
- Th7-728.c DETECTION OF HYDROGEN SULPHIDE IN HUMAN BLOOD PLASMA ON A MICROFLUIDIC PLATFORM**
Ravindra Gaikwad, Karunya Ramsamy, and Ashis K. Sen
Indian Institute of Technology, Madras, INDIA

- Th7-729.c METAL ION ENRICHMENT USING ORGANIC NANOCRYSTAL COATED-MICROFLUIDIC PAPER ANALYTICAL DEVICES TO ACHIEVE HIGHLY SENSITIVE COLORIMETRIC DETECTION**
Grasianto, Mao Fukuyama, Derrick Mott, Yoshitaka Koseki, Hitoshi Kasai, and Akihide Hibara
Tohoku University, JAPAN
- Th8-828.c DEVELOPMENT OF A SCANNING PIV TECHNIQUE FOR 3D CHARACTERIZATION OF FLOWS IN MICROCHANNELS**
Quentin Galand, Pierre Gelin, Ketki Srivastava, David Blinder, Peter Schelkens, and Wim De Malsche
Vrije Universiteit Brussel, BELGIUM
- Th8-829.c RAPID IDENTIFICATION OF HCC SERUM BASED ON MICROFLUIDIC SERS CHIP**
Xinyu He, Chuang Ge, Li Chen, and Yi Xu
Chongqing University, CHINA

c - Sensors and Detection Technologies

Others

- M1-132.c FLEXIBLE POLYOLEFIN-BASED DOPAMINE SENSOR WITH HIGH SELECTIVITY**
Wenzheng He¹, Ruitao Liu¹, Peng Zhou², Qingyuan Liu¹, Tianhong Cui²
¹*Tsinhua University, CHINA* and ²*University of Minnesota, USA*
- M1-133.c WIRELESS AND BATTERY-FREE DIGESTIBLE SENSOR FOR INTESTINAL BACTERIA MONITORING**
Ayaka Inami, Erika Iyama, Shun Itai, and Hiroaki Onoe
Keio University, JAPAN
- M2-231.c GRADIENT ELUTION MOVING BOUNDARY ELECTROPHORESIS OF HOMEMADE FUEL-OXIDIZER EXPLOSIVES**
Shannon T. Krauss¹, Dillon Jobes², and Thomas P. Forbes¹
¹*National Institute of Standards and Technology (NIST), USA* and ²*Tulane University, USA*
- T3-331.c LOW-COST LOW-MOTION ARTIFACT ON-SKIN SENSOR-SYSTEM FOR PHYSIOLOGICAL SIGNAL RECORDING**
Anan Zhang, Thalia Hua, Damian Redfearn, and S.K. Ameri
Queen's University, CANADA
- T4-431.c PAPER MICROFLUIDICS DEVICE FOR LABEL-FREE DETECTION OF MESENCHYMAL STEM CELLS SECRETED VASCULAR ENDOTHELIAL GROWTH FACTOR**
Enrique Azuaje Hualde¹, Marian Martínez de Pancorbo¹, Fernando Benito Lopez¹, and Lourdes Basabe-Desmots^{1,2}
¹*University of the Basque Country, SPAIN* and ²*Basque Foundation of Science, IKERBASQUE, SPAIN*
- W5-531.c PLGA POROUS MICRONEEDLES FOR INTERSTITIAL FLUID COLLECTION AIMED FOR CONTINUOUS GLUCOSE SENSING**
Gwenaël Bonfante, Hakjae Lee, Leilei Bao, Nobuyuki Takama, and Beomjoon Kim
University of Tokyo, JAPAN
- W6-631.c RAPID LABEL-FREE DNA QUANTIFICATION BY MULTI-FREQUENCY IMPEDANCE SENSING ON A CHIP**
Jianye Sui¹, Neeru Gandotra², Curt Scharfe², and Mehdi Javanmard¹
¹*Rutgers University, USA* and ²*Yale University, USA*

- Th7-730.c AN ULTRASENSITIVE SURFACE ACOUSTIC WAVE SENSOR BASED ON $\text{Ti}_3\text{C}_2\text{Tx}/\text{Au}$ NPS COMPOSITE FOR THE DETECTION OF ENDOTOXIN**
Xiao Li Wang, Chuang Ge, Li Chen, and Yi Xu
Chongqing University, CHINA
- Th7-731.c SHAKE IT OR SHRINK IT: MASS TRANSPORT AND KINETICS IN SURFACE BIOASSAYS USING AGITATION AND MICROFLUIDICS**
Anna Fomitcheva Khartchenko, Iago Pereiro, and Govind V. Kaigala
IBM Research - Europe, SWITZERLAND
- Th8-830.c DETECTION OF PROTEOFORMS FROM SINGLE CELLS BY MULTIPLEXED ION BEAM IMAGING**
Gabriela Lomeli¹, Marc Bosse², Sean Bendall², Michael Angelo², and Amy E. Herr³
¹*UC Berkeley – UCSF Graduate Program in Bioengineering, USA,*
²*University of California, Berkeley, USA, and* ³*Stanford University, USA*
- Th8-831.c STIMULI-RESPONSIVE HYDROGELS EMBEDDING MECHANICAL METAMATERIALS FOR HIGH SENSITIVE BIOCHEMICAL SENSORS**
Shota Yamawaki, Mio Tsuchiya, and Hiroaki Onoe
Keio University, JAPAN

c - Sensors and Detection Technologies

Industrial Benefactor

- T3-332.c NOVEL IMAGING BASED HIGH-SPEED, HIGH-THROUGHPUT ANALYSIS AND CONTROL SYSTEM FOR MICROFLUIDICS**
Daniel Geiger¹, Jonas Pfeil¹, Tobias Neckernuss¹, Lisa Kwapich², Patricia Schwilling², and Othmar Marti²
¹*Sensific GmbH, GERMANY and* ²*University of Ulm, GERMANY*
- T4-432.c FAST ELECTRICAL IMPEDANCE SPECTROSCOPY FOR CELL CHARACTERIZATION AND COUNTING**
Meng Li
Zurich Instruments AG, SWITZERLAND

c - Sensors and Detection Technologies

Late News

- M1-177.c PARALLELIZED FLOW CYTOMETRY REALIZED BY ARRAY OF TIME-GATED SINGLE PHOTON AVALANCHE DIODES**
Camille Trzeciakowski¹, Daiki Sato², Takahiro Shindo², Takeshi Mitsunaka², Yoshihisa Fujimoto², Kunihiko Iizuka², Saori Tago¹, Teruo Fujii¹, and Soo Hyeon Kim^{1,3}
¹*University of Tokyo, JAPAN,* ²*Sharp Corporation, JAPAN, and*
³*Japan Science and Technology Agency (JST), JAPAN*
- M2-277.c PHOTONIC SENSOR TO DETECT OF SARS-COV-2**
Binh T.T. Nguyen¹, Zhenyu Li¹, Yuzhi Shi¹, Patricia Y. Liu¹, Hongwei Zhao², Xiaohong Zhou¹, Eric P.H. Yap¹, and Ai Qun Liu¹
¹*Nanyang Technological University, SINGAPORE,* ²*Hainan University, CHINA, and*
³*Tsinghua University, CHINA*
- T3-377.c ELECTROCHEMICAL DNA SENSING ENHANCED BY ELECTRIC FIELD USING CRISPR-CAS12A**
Ziyue Li^{1,2}, Xiong Ding¹, Kun Yin¹, and Changchun Liu¹
¹*University of Connecticut Health Center, USA and* ²*University of Connecticut, USA*

- T3-378.c RAPID ANTIFUNGAL SUSCEPTIBILITY TESTING ON SILICON MICROWELLS**
Christopher Heuer^{1,2}, Heidi Leonard¹, Nadav Nitzan¹, Ariella Lavy-Alperovitch¹, Naama Massad-Ivanir¹, Janina Bahnemann², Thomas Scheper², and Ester Segal¹
¹*Technion - Israel Institute of Technology, ISRAEL* and ²*Leibniz University Hannover, GERMANY*
- T4-477.c AN IMPROVED ACETYLCHOLINESTERASE INHIBITION ASSAY UTILIZING ORGANIC SOLVENT EXTRACTION FOR FOOD ANALYSIS**
Lili Jin¹, Zhenxia Hao^{1,2}, Qingin Zheng¹, Hongping Chen^{1,2}, and Chengyin Lu^{1,2}
¹*Chinese Academy of Agricultural Sciences, CHINA* and ²*Ministry of Agriculture and Rural Affairs, CHINA*
- T4-478.c FLEXIBLE DOPAMINE SENSOR WITH ELECTROPHORETIC DEPOSITED GRAPHENE OXIDE/PEDOT:PSS COMPOSITE FOR BRAIN DISORDER MONITORING**
Seung Hyeon Ko^{1,2}, Seung Wook Kim², and Yi Jae Lee¹
¹*Korea Institute of Science and Technology (KIST), KOREA* and ²*Korea University, KOREA*
- W5-576.c ANALYSIS OF ELECTRICAL PROPERTIES OF THE CELLS USING ELECTROROTATION AND LENS-FREE IMAGE DETECTION**
Camila D.M. Campos^{1,2}, Yuqian Li¹, Ziduo Lin¹, Geert Vanmeerbeek¹, Pawel Barmuta^{2,3}, Tomislav Markovic^{1,2}, Rahul Yadav^{1,2}, Giovanni Mangraviti¹, Willem Van Roy¹, Ilja Ocket¹, Yao Hong Liu¹, Tim Stakenborg¹, Richard Stahl¹, Liesbet Lagae^{1,2}, Jan Genoe^{1,2}, and Chengxun Liu¹
¹*Imec, BELGIUM*, ²*KU Leuven, BELGIUM*, and ³*Warsaw University of Technology, POLAND*
- W5-577.c MICROFLUIDIC CHIP FOR THE ELECTROCHEMICAL DETECTION OF MICRORNAs: STUDY OF THE SPECIFICITY**
Claire Poujouly¹, Pedro Gonzalez Losada¹, Sébastien Banzet², and Jean Gamby¹
¹*Université Paris-Saclay, FRANCE* and ²*Institut de Recherche Biomédicale des Armées, FRANCE*
- W6-677.c A MINIATURE ON-CHIP MICROSCOPE**
Ekta Prajapati and Shishir Kumar
Indian Institute of Technology, Hyderabad, INDIA
- Th7-776.c CAN WE MAKE POROUS SILICON BIOSENSORS MORE SENSITIVE? MODELING AND LIMITATIONS**
Sofia Arshavsky-Graham^{1,2}, Evgeniy Boyko¹, Rachel Salama¹, and Ester Segal¹
Technion-Israel Institute of Technology, ISRAEL
- Th8-874.c INTEGRATION OF PLASMONICS AND ELECTRONICS FOR DYNAMIC TRAPPING AND SENSING OF BIOMOLECULES**
Daehan Yoo¹, Avijit Barik¹, Fernando de León-Pérez^{2,3}, Daniel A. Mohr¹, Matthew Pelton⁴, Luis Martín-Moreno³, and Sang-Hyun Oh¹
¹*University of Minnesota, Minneapolis, USA*, ²*Centro Universitario de la Defensa de Zaragoza, SPAIN*, ³*Universidad de Zaragoza, SPAIN*, and ⁴*University of Maryland, Baltimore County, USA*

d - Integrated Microfluidic Platforms

Electrophoretic & Chromatographic Separation

- M1-134.d MIXED-SCALE FLUIDIC SYSTEM FOR POINT-OF-CARE TESTING**
Steven A. Soper¹, Michael C. Murphy², and Sunggook Park²
¹*University of Kansas, USA* and ²*Louisiana State University, USA*
- M2-232.d 3D PRINTING FOR ENHANCED FABRICATION OF MICROFLUIDIC FREE-FLOW ELECTROPHORESIS**
John-Alexander Preuss and Janina Bahnemann
Leibniz Universität, Hannover, GERMANY

- M2-233.d OVERCOMING MASS TRANSFER LIMITATIONS BY INTRODUCING VORTEX CHROMATOGRAPHY**
Eiko Y. Westerbeek^{1,2}, Guillermo Gonzalez Amaya¹, Wouter Olthuis², Jan C.T. Eijkel², and Wim de Malsche¹
¹*Vrije Universiteit Brussel, BELGIUM and* ²*University of Twente, THE NETHERLANDS*
- T3-333.d A MEDIUM THROUGHPUT SYSTEM FOR MEASUREMENT OF ISLET SECRETIONS**
Yao Wang, Weijia Leng, and Michael G. Roper
Florida State University, USA
- T3-334.d SUMMIT: A SEMI-AUTOMATED PROTEIN PEAK QUANTIFICATION ALGORITHM FOR HIGH-THROUGHPUT SINGLE-CELL ELECTROPHORESIS**
Julea Vlassakis¹, Kevin A. Yamauchi^{1,2}, and Amy E. Herr¹
¹*University of California, Berkeley, USA and* ²*Friedrich Miescher Institute for Biomedical Research, SWITZERLAND*
- T4-433.d A MICROFLUIDIC IN-SITU SAMPLING PROBE INTEGRATED WITH LIQUID CHROMATOGRAPHIC SEPARATION CAPACITY FOR MASS SPECTROMETRY ANALYSIS**
Di-Qiong Jin, Shao-Wen Shi, Yan Ma, and Qun Fang
Zhejiang University, CHINA
- W5-532.d A MONOLITHIC 3D PRINTED μ FFE DEVICE WITH INTEGRATED SWAB RECEPTACLE FOR ENRICHMENT OF MULTIDRUG-RESISTANT PATHOGENS**
Christian Neubert¹, Ole Behrmann¹, Denny Maaz², Frank T. Hufert¹, and Gregory Dame¹
¹*Brandenburg Medical School Theodor Fontane, GERMANY and* ²*German Federal Institute for Risk Assessment, GERMANY*
- W6-632.d DETECTING CELL DEATH BY ELECTROPHORETIC CYTOMETRY**
Ana E. Gomez Martinez and Amy E. Herr
University of California, Berkeley, USA
- Th7-732.d DEVELOPMENT OF A NOVEL MICROFLUIDIC APPROACH FOR RAPID AND CONTINUOUS DETECTION OF PATHOGENS IN FOOD AND WATER SAMPLES**
Gurpreet Klar, Crystal M. Han, and Liat Rosenfeld
San Jose State University, USA
- Th8-832.d INTEGRATED SAMPLE PREPARATION FOR HIV MOLECULAR TESTING IN A PAPER-BASED DEVICE**
Andrew T. Bender¹, Benjamin P. Sullivan¹, Jane Y. Zhang¹, Lorraine Lillis², David S. Boyle², and Jonathan D. Posner¹
¹*University of Washington, USA and* ²*PATH, USA*

d - Integrated Microfluidic Platforms

Particle Separation

- M1-135.d HIGH THROUGHPUT EXTRACELLULAR VESICLE SORTING USING ELECTROKINETIC DETERMINISTIC LATERAL DISPLACEMENT**
Bao D. Ho, Jason P. Beech, and Jonas O. Tegenfeldt
Lund University, SWEDEN
- M1-136.d PARTICLE MANIPULATION USING PROGRAMMABLE HYDRODYNAMIC FORCES**
Ankur Kislalaya, Daniel S.W. Tam, and Jerry Westerweel
Delft University of Technology, THE NETHERLANDS

- M2-234.d HIGH THROUGHPUT ISOLATION OF SMALL EXTRACELLULAR VESICLES FROM WHOLE BLOOD USING MULTIPLEXED SPIRAL MICROFLUIDICS (ExoDF^{HT})**
Sheng Yuan Leong¹, Hui Min Tay¹, Megha Upadya¹, Fang Kong¹, Rinkoo Dalan², Dao Ming^{1,3}, and Han Wei Hou¹
¹Nanyang Technological University, SINGAPORE, ²Tan Tock Seng Hospital, SINGAPORE, and ³Massachusetts Institute of Technology, USA
- M2-235.d POROUS PDMS SUBSTRATE-ASSISTED PARTICLE SORTING BASED ON HYDRODYNAMIC CROSS-FLOW MICROFLUIDIC FILTRATION**
Yurika Sakurai, Takeru Sato, Masumi Yamada, and Minoru Seki
Chiba University, JAPAN
- T3-335.d HIGH-THROUGHPUT CONTINUOUS INERTIAL FOCUSING OF MICROALGAE IN ASYMMETRIC SERPENTINE CHANNELS**
Mohammad Al-Hurani, Rodney Forster, Nicole Pamme, and Alex Iles
University of Hull, UK
- T3-336.d SCALING OF DLD DEVICES FOR CELL FRACTIONATION DOWN TO A SINGLE COLUMN FOR ULTRAHIGH THROUGHPUT PER AREA**
Weibin Liang, Robert H. Austin, and James C. Sturm
Princeton University, USA
- T4-434.d DETERMINISTIC LATERAL DISPLACEMENT OCCURS WITHOUT CONTACT AT INERTIAL FLOW RATES**
William J. Monck¹, Calum P. Mallorie², Rohan R. Vernekar², Timm Krüger², and David W. Inglis¹
¹Macquarie University, AUSTRALIA and ²University of Edinburgh, UK
- T4-435.d MANIPULATION OF BIOMOLECULES USING A 3D-PRINTED INSULATOR-BASED DIELECTROPHORESIS DEVICE**
Mohammad Towshif Rabbani, Mukul Sonker, Jorvani Cruz Villarreal, and Alexandra Ros
Arizona State University, USA
- T4-436.d SHAPE BASED CHROMOSOME SEPARATION IN THE INERTIAL FOCUSING DEVICE**
Haidong Feng, Bruce Gale, Himanshu Sant
University of Utah, USA
- W5-533.d DETERMINISTIC LATERAL DISPLACEMENT SYSTEMS WITH ARRAYED THREE-DIMENSIONAL ELECTRODES FOR TUNABLE PARTICLE SORTING**
Gloria Porro¹, Kevin Keim¹, Giovanni Cappai¹, Jason P. Beech², Jonas O. Tegenfeldt², and Carlotta Guiducci¹
¹École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND and ²Lund University, SWEDEN
- W5-534.d OPERATING SPIRAL INERTIAL MICROFLUIDICS AT CONCENTRATIONS UP TO 3.4X10⁹ CELLS/ML FOR HIGH-CONCENTRATION DEWATERING OF *CHLORELLA VULGARIS***
Catherine Hill, Nik Willoughby, and Helen Bridle
Heriot-Watt University, UK
- W5-535.d STREAM BIFURCATION INDUCED BLOOD CELL SEPARATION IN SEMI-DILUTED VISCOELASTIC FLOW**
Haidong Feng, Jules Magda, and Bruce K. Gale
University of Utah, USA
- W6-633.d DEVELOPING MICROFLUIDIC DEVICES AND TECHNIQUES FOR ISOLATION AND DETECTION OF EXTRACELLULAR VESICLES (EVS)**
Himayasri Rao Lekkala¹, Ian Johnston¹, Nikolay Dimov¹, and Jameel Inal^{2,3}
¹University of Hertfordshire, UK, ²School of Life and Medical Sciences, UK, and ³London Metropolitan University, UK

- W6-634.d PAPER-BASED PUMP-FREE MAGNETOPHORESIS**
Zachary D. Call, Cody S. Carrell, Ilhoon Jang, Brian J. Geiss, David S. Dandy, and Charles S. Henry
Colorado State University, USA
- W6-635.d UPSCALING OF DIELECTROPHORETIC CONTINUOUS-FLOW DNA SEPARATION IN A MICROFLUIDIC SYSTEM**
Jakob Derksen, Dario Anselmetti, and Martina Viefhues
Bielefeld University, GERMANY
- Th7-733.d FLOW FIELD-ASSISTED MICROFLUIDIC CHIP FOR THE SHEATHLESS SEPARATION OF MICROPARTICLES AND CELLS**
Shitao Shen¹, Mingliang Jin¹, Zichuan Yi², Xing Li¹, Zhibin Yan¹, Guofu Zhou¹, and Lingling Shui^{1,2}
¹*South China Normal University, CHINA and*
²*University of Electronic Science and Technology of China, CHINA*
- Th7-734.d PARTICLE AND PATHOGEN FOCUSING AND PRE-ENRICHMENT IN ASYMMETRICALLY CURVED WINDING CHANNELS VIA INERTIAL MICROFLUIDICS**
Pablo Rodriguez-Mateos, Charlotte E. Dyer, Alexander Iles, and Nicole Pamme
University of Hull, UK
- Th8-833.d HIGH THROUGHPUT CLOGGING-FREE MICROFLUIDIC PARTICLE FILTER BY FEMTOSECOND LASER MICROMACHINING**
Filippo Storti^{1,2}, Silvio Bonfadini¹, and Luigino Criante¹
¹*Istituto Italiano di Tecnologia, ITALY and* ²*Politecnico di Milano, ITALY*
- Th8-834.d PARTICLE MIGRATION IN SHEAR THINNING VISCOELASTIC FLUID**
Shamik Hazra¹, Sushanta K. Mitra², and Ashis Kumar Sen¹
¹*Indian Institute of Technology, Madras, INDIA and* ²*University of Waterloo, CANADA*

d - Integrated Microfluidic Platforms

Micromixers & Microreactors

- M1-137.d HIGH-THROUGHPUT 3D GLASS MICROMIXER WITH AN IMPELLER MONOLITHICALLY FABRICATED USING SELECTIVE LASER-INDUCED ETCHING (SLE)**
Sungil Kim^{1,2}, Jeongtae Kim¹, Yeun-Ho Joung¹, Sanghoon Ahn², Jiyeon Choi², and Chiwan Koo¹
¹*Hanbat National University, KOREA and* ²*Korea Institute of Machinery and Materials (KIMM), KOREA*
- M2-236.d STUDY OF LIQUID PHASE OXIDATIVE DEGRADATION OF LIGNIN IN MICROFLUIDIC AND BATCH REACTOR**
Niloofar Manafi and Neda Nazemifard
University of Alberta, CANADA
- T3-337.d THE INFLUENCE OF SHEAR ON THE POLYMORPHISM OF ROY UNDER CONSTANT SHEAR CONDITIONS**
Sander Stroobants, Marzena Krezk, Pierre Gelin, Iwona Ziemecka, Yousef Pourvais, Heidi Ottevaere, Wim De Malsche, and Dominique Maes
Vrije Universiteit Brussel, BELGIUM
- T4-437.d THERMAL MANIPULATION FOR A SINGLE CELL UTILIZING AREA COOLING**
Yigang Shen^{1,2}, Yaxiaer Yalikul^{1,3}, Yusufu Aishan^{1,2}, and Yo Tanaka^{1,2}
¹*RIKEN, JAPAN,* ²*Osaka University, JAPAN, and* ³*Nava Institute of Science and Technology, JAPAN*
- Th7-735.d DEVELOPMENT OF A PILLAR ARRAY MIXER FOR POST-COLUMN DERIVATIZATION ON A CHIP**
Makoto Tsunoda, Muneki Isokawa, and Takashi Funatsu
University of Tokyo, JAPAN

- Th8-835.d ENHANCEMENT OF PHOTOCATALYTIC REACTION ASSISTED BY NANOELECTROKINETICS**
Cong Wang and Jungyul Park
Sogang University, KOREA

d - Integrated Microfluidic Platforms

Chemical & Particle Synthesis

- M1-138.d PHOTOCHEMISTRY IN AN ASSEMBLY OF 108 MICROMETRIC CAPILARIES (id 3.65µm) GRAFTED WITH A PHOTSENSITIZER**
Christian Rolando, Fabien Gelat, Christophe Penverne, Maël Penhoat, Géraud Bouwmans, and Laëtitia Chausset-Boissarie
Université de Lille, FRANCE
- W5-536.d A BOLT-NUT MICROREACTOR FOR THE SYNTHESIS OF CuInS₂/ZnS QUANTUM DOTS**
Hyunbin Kim and Do Hyun Kim
Korea Advanced Institute of Science and Technology (KAIST), KOREA
- W6-636.d A CONTINUOUS PLATFORM FOR EMBEDDED DROPLET PRINTING OF PHARMACEUTICAL PARTICLES**
Arif Z. Nelson¹, Jiaxun Xie², Saif A. Khan², and Patrick S. Doyle³
¹*Singapore-MIT Alliance for Research and Technology (SMART) Centre, SINGAPORE,*
²*National University of Singapore, SINGAPORE, and* ³*Massachusetts Institute of Technology, USA*
- Th7-736.d CHEMOENZYMATIC MICROFLUIDIC CASCADE REACTION: COUPLING OF A DIELS-ALDER REACTION WITH A TRANSKETOLASE-CATALYZED REACTION**
Mariana Santos¹, Brian O'Sullivan¹, Sarah Müller², Alina Bunescu², Frank Baganz¹, Marco P.C. Marques¹, Helen Hailes¹, Nicolas Szita¹, and Roland Wohlgemuth³
¹*University College London, UK,* ²*Sigma-Aldrich, GERMANY, and* ³*Technical University, Lodz, GERMANY*
- Th8-836.d DEVELOPMENT OF SYNTHESIS ROUTES TO HUMAN DRUG METABOLITES USING IMMOBILISED ENZYMATIC REACTIONS WITHIN MICROFLUIDIC REACTORS**
Bradley Doyle¹, Leigh A. Madden¹, Nicole Pamme¹, and Huw S. Jones²
¹*University of Hull, UK and* ²*University of Bradford, UK*

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Other Applications in Chemistry

- M1-139.d DEVELOPMENT OF AN OPTIC MICRO-RHEOMETER USING MULTILAYER PMMA CARTRIDGES AND MODULAR POLYMERIC MICROPUMPS**
Yara Alvarez-Braña¹, Josep Ferre-Torres², Andreu Benavent-Claro², Francisco Palacio-Bonet², Fernando Benito-Lopez¹, Mauricio Moreno-Sereno², Aurora Hernandez-Machado², and Lourdes Basabe-Desmots^{1,3}
¹*University of the Basque Country, SPAIN,* ²*University of Barcelona, SPAIN, and* ³*Basque Foundation of Science, IKERBASQUE, SPAIN*
- M2-237.d A DEVICE FOR URINE CELL CONCENTRATION, LYSIS AND NUCLEIC ACID AMPLIFICATION FOR CHLAMYDIA DETECTION AT THE POINT OF CARE**
Steven Bennett, Sujatha Kumar, Erin Heiniger, and Paul Yager
University of Washington, USA
- M2-238.d HYBRID MONOLITHS SUPPORTED ON FDM-BASED 3D-PRINTED SCAFFOLDS**
Marcella E.P. Schmidt, Lucas P. Bressan, José A.F. da Silva, and Carla B.G. Bottoli
State University of Campinas, BRAZIL

- T3-338.d A DISPOSABLE INTEGRATED DIAGNOSTIC DEVICE FOR BLOOD ACQUISITION, SAMPLE PROCESSING, LYSIS, AND DETECTION OF EBOLA VIRUS MARKERS**
Sujatha Kumar, Steven Bennett, Shichu Huang, Joshua Buser, and Paul Yager
University of Washington, USA
- T3-339.d PRE-CONCENTRATION WITH ELECTROSPUN MEMBRANES COUPLED WITH PAPER-BASED ASSAYS TOWARDS ONSITE MONITORING OF HEAVY METALS IN WATER**
Bongkot Ngamsom, Samantha Richardson, Mila Sari, Alexander Iles, Mark Lorch, Will M. Mayes, and Nicole Pamme
University of Hull, UK
- T4-438.d A MONOLITHIC WEARABLE SYSTEM DESIGN METHODOLOGY FOR PHYSIOLOGICAL ACTUATION AND ELECTROCHEMICAL SENSING**
Hannaneh Hojaiji, Yichao Zhao, Max C. Gong, Mudith Mallajosyula, Amir M. Hojaiji, Asad M. Madni, and Sam Emaminejad
University of California, Los Angeles, USA
- W5-537.d ACCELERATED MICROFLUIDIC STUDIES OF SWITCHABLE HYDROPHILICITY SOLVENTS**
Suyong Han, Mahdi Ramezani, and Milad Abolhasani
North Carolina State University, USA
- W6-637.d AMYLOID β ANALYSIS FROM MICRODISSECTED BRAIN CELLS USING MICROFLUIDICS AND MALDI MASS SPECTROMETRY**
Jorvani Cruz Villarreal, Ana Egatz-Gomez, Jiawei Liu, Robert Ros, Paul D. Coleman, and Alexandra Ros
Arizona State University, USA
- Th7-737.d AN INTEGRATED CENTRIFUGAL DEGASSED PDMS-BASED MICROFLUIDIC DEVICE FOR SERIAL DILUTION**
Anyang Wang, Samaneh Moghadasi Boroujeni, Stelios T. Andreadis, and Kwang W. Oh
University at Buffalo, USA
- Th8-837.d DEVELOPING THE FUTURE OF CLINICAL RADIOPHARMACY: OPTIMISING ON-CHIP GALLIUM-68 RADIOLABELLING FOR PET IMAGING**
Vincent Nail, Mark D. Tarn, Ping He, Nicole Pamme, and Stephen J. Archibald
University of Hull, UK

d - Integrated Microfluidic Platforms

Industrial Benefactor

- W5-538.d HOLIFAB: MICROFLUIDIC INTEGRATION PILOT LINE AND CAD SOFTWARE FOR COMMERCIALIZATION OF YOUR MICROFLUIDIC SET-UP**
Nicolas Lafitte, Mikael Trellet, Ygor Oliveira, Benjamin Rouffet, Serge Renouard, and Jean-Louis Viovy
Holifab/Fluigent, FRANCE

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Late News

- M1-178.d MULTI-LAYERED CLASSIFICATION BY DNA BASED COMPUTING WITH DROPLET PLATFORM**
Shu Okumura¹, Guillaume Gines², Nicolas Lobato-Dauzier¹, Robin Deteix¹, Alexandre Baccouche¹, Teruo Fujii¹, Yannick Rondelez², and Anthony J. Genot¹
¹University of Tokyo, JAPAN and ²ESPCI Paris, FRANCE
- W6-678.d HIGHLY EFFICIENT EXOSOME PURIFICATION FROM HUMAN PLASMA BY TANGENTIAL FLOW FILTRATION BASED MICROFLUIDIC CHIP**
Zhenzhen Han¹, Cheng Peng², Jia Yi¹, Dongxue Zhang¹, Bin Su³, Baohong Liu¹, Yuhui Shen², and Liang Qiao¹
¹Fudan University, CHINA, ²Shanghai Jiao Tong University School of Medicine, CHINA, and ³Zhejiang University, CHINA
- Th7-777.d DROPLET MICROFLUIDICS TO ENGINEER SMART BUILDING BLOCKS FOR MODULAR TISSUE ENGINEERING**
Niels Willemen, Tom Kamperman, Cindy Kelder, Michelle Koerselman, João Crispim, Jan Hendriks, Sieger Henke, Xandra De Peuter, Piet Dijkstra, Marcel Karperien, and Jeroen Leijten
University of Twente, NETHERLANDS
- Th8-875.d INTEGRATED IMPEDANCE SENSORS IN A MICROFLUIDIC SYSTEM: TOWARD A FULLY AUTOMATED HIGH THROUGHPUT NMR SPECTROSCOPY**
Omar Nassar, Mazin Jouda, Jan Korvink, Dario Mager, and Neil Mackinnon
Karlsruhe Institute of Technology, GERMANY

e - Cells, Organisms and Organs on a Chip

Cell Capture, Counting, & Sorting

- M1-140.e FULLY-AUTOMATED AND FIELD-DEPLOYABLE BLOOD SEPARATION PLATFORM USING MULTI-DIMENSIONAL DOUBLE SPIRAL (MDDS) INERTIAL MICROFLUIDICS**
Hyungkook Jeon^{1,2} and Jongyoon Han¹
¹Massachusetts Institute of Technology, USA and ²Pohang University of Science and Technology, KOREA
- M1-141.e PORTABLE PLATELET APHERESIS SYSTEM**
Lap Man Lee, Ketan H. Bhatt, Dustin W. Haithcock, Balabhaskar Prabhakarandian, and Kapil Pant
CFD Research Corporation, USA
- M1-142.e ULTRASENSITIVE DETECTION AND DEPLETION OF RARE LEUKEMIC B CELLS IN T CELL POPULATIONS VIA MICROFLUIDICS-MEDIATED IMMUNOMAGNETIC CELL RANKING**
Zongjie Wang and Shana O. Kelley
University of Toronto, CANADA
- M2-239.e GENTLE TRAP-AND-RELEASE MECHANISM FOR MULTISTEP CELL PROCESSING USING PDMS SPONGE-INTEGRATING MICROFLUIDIC DEVICES**
Natsumi Miura, Masumi Yamada, and Minoru Seki
Chiba University, JAPAN
- M2-240.e RARE CELLS ISOLATION ON SACA CHIP FOR AUTOMATIC CELLS ANALYSIS**
Yi-Wen Hu¹, Ping-Hao Yeh¹, Hsin-Yao Wu¹, and Fan-Gang Tseng^{1,2}
¹National Tsing Hua University, TAIWAN and ²Academia Sinica, TAIWAN
- T3-340.e HIGH-THROUGHPUT LIVE CELL PRINTING SYSTEM USING NEAR INFRA-RED PULSE LASER**
Amos Chungwon Lee, Wooseok Lee, Yongju Lee, Ahyoun Choi, Sudeok Kim, Kyoung Seob Shin, and Sunghoon Kwon
Seoul National University, KOREA

- T3-341.e SAFELY SORTING AND ISOLATING RARE SPERM USING DIELECTROPHORESIS BY TRAPPING THE TAIL AND SIMULTANEOUSLY DISTANCING THE HEAD FROM STRONG ELECTRIC FIELDS**
Sholom Shuchat¹, Ofer Fainaru², Shahar Kol³, and Gilad Yossifon¹
¹*Technion – Israel Institute of Technology, ISRAEL*, ²*Rappaport Faculty of Medicine, ISRAEL*, and ³*Elisha Hospital, Haifa Israel, ISRAEL*
- T4-439.e A DROPLET-BASED DETECTION AND SORTING OF CELLS UTILIZING OPTOFLUIDICS AND ELECTRO- COALESCENCE TECHNIQUE**
Ravindra Gaikwad and Ashis K. Sen
Indian Institute of Technology, Madras, INDIA
- T4-440.e HIGH-THROUGHPUT SINGLE-CELL QUANTIFICATION OF ELASTIC MODULUS**
Ryan Dubay^{1,2}, Jason Fiering², and Eric M. Darling¹
¹*Brown University, USA* and ²*Draper, USA*
- T4-441.e SELECTIVE RETRIEVAL OF INDIVIDUAL CELLS FROM MICROFLUIDIC ARRAYS COMBINING DIELECTROPHORETIC FORCE AND DIRECTED HYDRODYNAMIC FLOW**
Pierre-Emmanuel Thiriet, Joern Pezoldt, Gabriele Gambardella, Kevin Keim, Bart Deplancke, and Carlotta Guiducci
École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND
- W5-539.e CELL SORTING ACROSS LAMINAR INTERFACE USING STIFFNESS CONTRAST**
Shamik Hazra¹, Sushanta K. Mitra², and Ashis Kumar Sen¹
¹*Indian Institute of Technology, Madras, INDIA* and ²*University of Waterloo, CANADA*
- W5-540.e LABEL-FREE SINGLE-CELL CAPTURE AND RELEASE VIA A FIRST-IN FIRST-OUT MICROFLUIDIC CELL ROUTER**
Nathaniel Liu, Kristina Chan, and Lydia L. Sohn
University of California, Berkeley, USA
- W5-541.e SINGLE CELL PER WELL TRAPPING AND ANALYSIS OF *CHLAMYDOMONAS REINHARDTII* USING SURFACE ACOUSTIC WAVES**
Mingyang Cui, Philip V. Bayly, Susan K. Dutcher, and J. Mark Meacham
Washington University, St. Louis, USA
- W6-638.e DEFORMABILITY BASED CELL SORTING AS A BIOMARKER FOR THE QUALITY OF STORED RED BLOOD CELLS**
Emel Islamzada¹, Kerry Matthews¹, Erik Lamoureux¹, Quan Guo¹, Aline T. Santoso¹, Mark D. Scott^{1,2}, and Hongshen Ma^{1,3}
¹*University of British Columbia, CANADA*, ²*Canadian Blood Services, CANADA*, and ³*Vancouver General Hospital, CANADA*
- W6-639.e MICROFLUIDIC MEDIUM EXCHANGER WITH MICROPORED FLUID DRAINAGE FOR CELL CULTURE APPLICATIONS**
Takeru Sato, Yurika Sakurai, Masumi Yamada, and Minoru Seki
Chiba University, JAPAN
- W6-640.e SPIRAL MICROFLUIDICS ENHANCED ISOLATION OF EPITHELIAL CELLS FROM INFECTED MICE URINE**
Suhanya Duraiswamy¹, Lin Yue Lanry Yung², and Swaine L. Chen²
¹*Indian Institute of Technology, Hyderabad, INDIA*, ²*National University of Singapore, SINGAPORE*, and ³*Genome Institute of Singapore, SINGAPORE*

- Th7-738.e FABRICATION OF CMOS-COMPATIBLE GRAPHENE MICROHALL SENSORS FOR MAGNETIC CYTOMETRY**
Nishal Shah, Vasant Iyer, and David Issadore
University of Pennsylvania, USA
- Th7-739.e MICROFLUIDIC TRAP ARRAYS FOR PROBING STOCHASTIC IMMUNE-TUMOR DYNAMICS**
Michael C. Yeh^{1,2}, Emanuel Salazar Cavazos², Supriya Padmanabhan¹, Grégoire Altan-Bonnet²,
and Don L. DeVoe¹
¹*University of Maryland, College Park, USA and* ²*National Cancer Institute, USA*
- Th7-740.e TECHNIQUE FOR PASSIVE DROPLET SORTING AFTER PHOTO-TAGGING**
Chandler Dobson, Claudia Zielke, Ching Pan, Cameron Feit, and Paul Abbyad
Santa Clara University, USA
**poster will be presented during the M2 poster session on Monday*
- Th8-838.e FERTDISH: MICROFLUIDIC SPERM SELECTION-IN-A-DISH FOR ICSI**
Sa Xiao¹, Jason Riordon¹, Alexander Lagunov², Tom Hannam², Reza Nosrati³, and David Sinton¹
¹*University of Toronto, CANADA,* ²*Hannam Fertility Centre, CANADA, and* ³*Monash University, AUSTRALIA*
- Th8-839.e PAIRING CELLS WITH DIFFERENT DIMENSIONS IN A MICROFLUIDIC DEVICE USING A UNIDIRECTIONAL FLOW**
Faruk A. Shaik¹, Clara Lewuillon^{1,2}, Yasmine Touil^{1,2}, Aurélie Guillemette^{1,2}, Bruno Quesnel^{1,2},
Carine Brinster^{1,2}, Loic Lemonnier², Dominique Collard³, and Mehmet C. Tarhan^{1,4}
¹*University of Lille, FRANCE,* ²*INSERM, FRANCE,* ³*University of Tokyo, FRANCE, and* ⁴*University Valenciennes, FRANCE*
- Th8-840.e THE EFFECT OF ELEVATED HEMATOCRIT ON HUMAN BLOOD FLOW IN A MICROCHANNEL**
Md Ehtashamul Haque^{1,2}, Krystian Wlodarczyk¹, Duncan P. Hand¹, Miguel O. Bernabeu²,
and Maïwenn Kersaudy-Kerhoas^{1,2}
¹*Heriot Watt University, UK and* ²*Edinburgh University, UK*

e - Cells, Organisms and Organs on a Chip

Single-Cell Analysis

- M1-143.e LABEL-FREE ASSESSMENT OF CELL CYCLE SYNCHRONIZATION IN NEURAL PROGENITOR CELLS BY IMPEDANCE CYTOMETRY**
Carlos Honrado, Nadine Michel, John H. Moore, Armita Salahi, Veronica Porterfield, Michael J. McConnell,
and Nathan S. Swami
University of Virginia, USA
- M1-144.e ELECTROROTATION FOR SINGLE CELL ANALYSIS OF MEMBRANE DAMAGE INDUCED BY TOXINS MIMICKING THE NEURODEGENERATIVE EFFECT OF AMYLOID BETA IN THE ALZHEIMER'S DISEASE**
Till Ryser, Kevin Keim, Anne-Laure Mahul-Mellier, Hilal Lashuel, and Carlotta Guiducci
École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND
- M1-145.e MICROFLUIDIC HANGING PILLARS ARRAYS FOR SINGLE-CELL ANALYSIS OF OSMOTIC SWELLING DYNAMICS AS PHYSICAL BIOMARKERS**
Apresio K. Fajrial, Kun Liu, Yu Gao, and Xiaoyun Ding
University of Colorado, Boulder, USA

- M1-146.e SPATIALLY RESOLVED GENOMICS FROM SINGLE CELLS WITH DISTINCT FLUORESCENT SIGNALS USING TRANSPOSASE-BASED DIRECT LIBRARY PREPARATION**
 Ahyouon Choi¹, Amos Chungwon Lee¹, Yongju Lee¹, Jinhyun Kim¹, Kyoung Seob Shin¹, Dajeong Jeong², Myoung Hee Ham², Sung-Min Kim³, Okju Kim⁴, Yushin Jung⁴, Changhoe Kim⁴, Taehoon Ryu⁴, Dongsoon Lee^{2,3}, and Sunghoon Kwon¹
¹Seoul National University, KOREA, ²Seoul National University Hospital, KOREA, ³Seoul National University College of Medicine, KOREA, and ⁴Celemics, Inc., KOREA
- M2-241.e 3D PROJECTION ELECTROPHORESIS FOR HIGH-DENSITY SINGLE-CELL IMMUNOBLOTTING**
 Samantha M. Grist, Andoni P. Mourdoukoutas, and Amy E. Herr
 University of California, Berkeley, USA
- M2-242.e BIOMECHANICAL MARKERS FOR MONITORING HETEROGENEITY IN ISLET REORGANIZATION DYNAMICS WITH ADIPOSE STEM CELLS**
 Karina Torres-Castro, Mohammad S. Azimi, Walter B. Varhue, Carlos Honrado, Shayn M. Pierce-Cottler, and Nathan S. Swami
 University of Virginia, USA
- M2-243.e HIGH-THROUGHPUT QUANTIFICATION OF SINGLE-CELL CORTICAL TENSION USING MULTIPLE CONSTRUCTION CHANNELS**
 Ke Wang¹, Yan Liu^{2,3}, Xiaohao Sun⁴, Deyong Chen^{2,3}, Junbo Wang^{2,3}, and Jian Chen^{2,3}
¹Beijing University of Posts and Telecommunications, CHINA, ²Chinese Academy of Sciences, CHINA, ³University of Chinese Academy of Sciences, CHINA, and ⁴University of Colorado Boulder, USA
- M2-244.e MONITORING THE GROWTH PHASES OF MICROALGAE USING STRAIGHTFORWARD DIELECTROPHORESIS MEASUREMENTS**
 Yu-Sheng Lin^{1,2}, Bruno Le Pioufle², and Hsiang-Yu Wang¹
¹National Tsing Hua University, TAIWAN and ²Université Paris Saclay, FRANCE
- M2-245.e SPATIALLY TARGETED WHOLE TRANSCRIPTOME ACCESSIBLE IN SITU SEQUENCING**
 Kyoungseob Shin², Hower Lee¹, Yongju Lee¹, Ahyouon Choi², Amos Chungwon Lee², Narayanan Madaboosi¹, Mats Nilsson¹, and Sunghoon Kwon²
¹Stockholm University, SWEDEN and ²Seoul National University, KOREA
- T3-342.e A DUAL IMAGING SYSTEM FOR UNDERSTANDING MICROSWIMMER LOCOMOTION**
 Farzan Akbaridoust^{1,2}, Ivan Marusic², and Reza Nosrati¹
¹Monash University, AUSTRALIA and ²University of Melbourne, AUSTRALIA
- T3-343.e CONSTRICTION CHANNEL BASED MICROFLUIDIC SYSTEM OF QUANTIFYING SINGLE-CELL CYTOPLASMIC VISCOSITY, CYTOPLASMIC CONDUCTIVITY AND SPECIFIC MEMBRANE CAPACITANCE**
 Yan Liu¹, Ke Wang², Xiaohao Sun³, Deyong Chen¹, Junbo Wang¹, and Jian Chen¹
¹Chinese Academy of Sciences, CHINA, ²Beijing University of Posts and Telecommunications, CHINA, and ³University of Colorado Boulder, USA
- T3-344.e IMPEDANCE CYTOMETRY OF APOPTOTIC BODIES TO QUANTIFY DRUG SENSITIVITY OF PANCREATIC TUMOR XENOGRAFTS**
 Carlos Honrado, John H. Moore, Sara J. Adair, Armita Salahi, Todd W. Bauer, and Nathan S. Swami
 University of Virginia, USA
- T3-345.e MULTIPLEXED RESISTIVE-PULSE SENSING THROUGH CODED NODE-PORE CHANNEL GEOMETRY**
 Kristen L. Cotner¹ and Lydia L. Sohn^{1,2}
¹UC Berkeley – UCSF Graduate Program in Bioengineering, USA and ²University of California, Berkeley, USA

- T3-346.e VIBRATIONAL FLOW CYTOMETRY ON A CHIP: A LABEL-FREE TOOL FOR METABOLIC PHENOTYPING**
Julia Gala de Pablo¹, Matthew Lindley¹, Kotaro Hiramatsu^{1,2}, Akihiro Isozaki^{1,2}, and Keisuke Goda^{1,3,4}
¹University of Tokyo, JAPAN, ²Kanagawa Institute of Industrial Science and Technology, JAPAN, ³University of California, Los Angeles, USA, and ⁴Wuhan University, JAPAN
- T4-442.e A GENETIC NETWORK FOR THE COMMUNICATION AND SYNCHRONIZATION OF NEUROSPORA CRASSA**
Xiao Qiu, Jia Hwei Cheong, Heinz-Bernd Schüttler, Jonathan Arnold, and Leidong Mao
University of Georgia, USA
- T4-443.e DETECTING MULTIPLEX MUTATION IN SINGLE MELANOMA CELLS USING MOLECULAR BEACONS IN LOOP-MEDIATED ISOTHERMAL AMPLIFICATION (MB-LAMP)**
Darshna Pagariya, Marcelino Varona, Jared L. Anderson, and Robbyn K. Anand
Iowa State University, USA
- T4-444.e MACHINE LEARNING-ENABLED HIGH-SPEED IMPEDANCE CYTOMETRY**
Federica Caselli¹, Adele De Ninno^{1,2}, Riccardo Reale¹, Luca Businaro², and Paolo Bisegna¹
¹University of Rome Tor Vergata, ITALY and ²Italian National Research Council, ITALY
- T4-445.e OCEAN CARBON CYCLE STUDIED BY SINGLE-CELL IMPEDANCE CYTOMETRY ON CALCIFYING ALGAE**
Douwe S. de Bruijn¹, Paul M. ter Braak¹, Dedmer B. Van de Waal², Wouter Olthuis¹, and Albert van den Berg¹
¹University of Twente, THE NETHERLANDS and ²Netherlands Institute of Ecology (NIOO-KNAW), THE NETHERLANDS
- W5-542.e A HIGH-THROUGHPUT MEMS DEVICE FOR MECHANICAL DETECTION OF CANCER CELLS**
Quentin Rezard^{1,2}, Grégoire Perret^{1,3}, Jean Claude Gerbedoen^{1,3}, Deniz Pekin^{3,4}, Dominique Collard^{1,3}, Chann Lagadec^{1,4}, and Mehmet C. Tarhan^{1,2}
¹University of Lille, FRANCE, ²University of Valenciennes, FRANCE, ³University of Tokyo, JAPAN, and ⁴INSERM, FRANCE
- W5-543.e DETERMINISTIC CELL-BEAD AND CELL-CELL PAIRING AND ENCAPSULATION**
Rafal Krzysztóń, Martin Sauzade, and Eric Brouzes
Stony Brook University, USA
- W5-544.e LIGHT-SHEET IN A μ TAS FOR SINGLE CELL IMAGING**
Erick Vargas-Ordaz¹, Sergey Gorelick¹, Adrian Neild¹, Alex de Marco^{1,2}, and Victor J. Cadarso^{1,3}
Monash University, AUSTRALIA, ²University of Warwick, UK, and ³Melbourne Centre for Nanofabrication, AUSTRALIA
- W5-545.e OPTIMIZATION OF MARINE BACTERIA MICROENCAPSULATION FOR THE DISCOVERY OF NOVEL MARINE NATURAL PRODUCTS**
Emily Pope, Tartela Alkayyali, Sydney Wheatley, Christopher Cartmell, Jultwahnique MacDonald, Bradley Haltli, Russell G. Kerr, and Ali Ahmadi
University of Prince Edward Island, CANADA
- W6-641.e A HYPERBOLIC MICROFLUIDIC IMPEDANCE CHIP FOR DEFORMABILITY CYTOMETRY**
Riccardo Reale¹, Adele De Ninno^{1,2}, Luca Businaro², Paolo Bisegna¹, and Federica Caselli¹
¹University of Rome Tor Vergata, ITALY and ²Italian National Research Council, ITALY
- W6-642.e DIRECT QUANTIFICATION OF SINGLE CELL DRUG UPTAKE**
Erika J. Fong¹, Nick R. Hum^{1,2}, Kelly A. Martin¹, Melinda Simon³, Gaby G. Loots^{1,2}, and Ted J. Ognibene¹
¹Lawrence Livermore National Laboratory, USA, ²University of California, Merced, USA and ³San Jose State University, USA

- W6-643.e MACROMOLECULE DELIVERY INTO HARD-TO-TRANSFECT PRIMARY CELLS VIA HYDRODYNAMIC CELL DEFORMATION**
Jeongsoo Hur and Aram Chung
Korea University, KOREA
- W6-644.e PHENOTYPE BASED SELECTIVE SINGLE CELL ISOLATION USING NEAR-INFRARED PULSE LASER FOR SPATIALLY RESOLVED OMICS ANALYSIS**
Yongju Lee¹, Amos Chungwon Lee¹, Ahyoun Choi¹, Kyoungseob Shin¹, Okju Kim², Yushin Jung², Changhoe Kim², Taehoon Ryu², and Sunghoon Kwon¹
¹*Seoul National University, KOREA and* ²*Celetics, Inc., KOREA*
- Th7-741.e A MICROFLUIDIC DEVICE TO MEASURE THE SHEAR ELASTIC MODULUS OF SINGLE RED BLOOD CELLS**
Ninad Mehendale¹, Savita Kumari¹, Priyanka Naik¹, Dhruvadiya Mitra^{2,3}, and Debjani Paul¹
¹*Indian Institute of Technology, Bombay, INDIA,* ²*KTH Royal Institute of Technology, SWEDEN, and* ³*Stockholm University, SWEDEN*
- Th7-742.e DROPLET MICROFLUIDICS FOR STUDIES OF BACTERIAL GENETIC TRANSFORMATION IN *STREPTOCOCCUS PNEUMONIAE***
Trinh Lam, Mark Maienschein-Cline, David T. Eddington, and Donald A. Morrison
University of Illinois, Chicago, USA
- Th7-743.e MARKERS FOR ASTROGENESIS IN HETEROGENEOUS NEURAL STEM CELL SAMPLES BY SINGLE-CELL IMPEDANCE CYTOMETRY**
John Moore¹, Carlos Honrado¹, Armita Salahi¹, Alan Jiang², Andrew Yale², Lisa Flannagan², and Nathan S. Swami¹
¹*University of Virginia, USA and* ²*University of California, Irvine, USA*
- Th7-744.e RED BLOOD CELLS AS MODEL PARTICLES WITH MODULATED SUBCELLULAR ELECTROPHYSIOLOGY FOR IMPEDANCE CYTOMETRY**
Armita Salahi, Carlos Honrado, and Nathan S. Swami
University of Virginia, USA
- Th8-841.e ACTIVE PARTICLE BASED SELECTIVE TRANSPORT AND RELEASE OF CELL ORGANELLES AND MECHANICAL PROBING OF A SINGLE NUCLEUS**
Yue Wu, Afu Fu, and Gilad Yossifon
Technion – Israel Institute of Technology, ISRAEL
- Th8-842.e ELECTRICAL SENSING OF SICKLED RED BLOOD CELLS SUBPOPULATIONS IN MICROFLUIDIC DEVICE**
Tieying Xu¹, Maria A. Lizarralde-Iragorri², Jean Roman¹, Emile Martincic³, Valentine Brousse², Olivier Français⁴, Wassim El Nemer², and Bruno Le Pioufle¹
¹*Université Paris-Saclay, FRANCE,* ²*Université de Paris, FRANCE,* ³*Université Paris-Sud, FRANCE, and* ⁴*University Gustave Eiffel, FRANCE*
- Th8-843.e MATCHING AND COMPARING OBJECTS IN A SERIAL CYTOMETER**
Nikita Podobedov^{1,2}, Matthew DiSalvo^{2,3}, Jason Hsu^{2,4}, Paul Patrone², and Gregory A. Cooksey²
¹*Columbia University, USA,* ²*National Institute of Standards and Technology (NIST), USA,* ³*Johns Hopkins University, USA, and* ⁴*Montgomery Blair High School, USA*
- Th8-844.e SERIAL MICROFLUIDIC CYTOMETRY WITH INERTIAL AND HYDRODYNAMIC FLOW FOCUSING**
Matthew DiSalvo^{1,2}, Paul N. Patrone², and Gregory A. Cooksey²
¹*Johns Hopkins University, USA and* ²*National Institute of Standards and Technology (NIST), USA*

e - Cells, Organisms and Organs on a Chip
Cell-Culturing & Perfusion (2D & 3D)

- M1-147.e AN ENZYME-FREE AND ULTRAFAST CELL-DISSOCIATION TECHNIQUE FOR CELL CULTURE APPLICATIONS USING ACOUSTOFLUIDICS**
Alinaghi Salari^{1,2}, Sila Appak-Baskoy^{1,2}, Imogen R. Coe¹, Scott S.H. Tsai^{1,2}, and Michael C. Kolios^{1,2}
¹*Institute for Biomedical Engineering, Science and Technology (iBEST), CANADA and*
²*Ryerson University, CANADA*
- M1-148.e MODULAR TISSUE ASSEMBLY FOR FABRICATION OF COMPLEX AND SCALED UP TISSUE**
Byeongwook Jo, Yuya Morimoto, and Shoji Takeuchi
University of Tokyo, JAPAN
- M1-149.e TUNABLE 3D IN VITRO ARTERY-MIMICKING MULTICHANNEL SYSTEM FOR DISEASE MODELING**
Minkyung Cho and Je-Kyun Park
Korea Advanced Institute of Science and Technology (KAIST), KOREA
- M2-246.e DIRECTING SELF-ORGANIZATION AND DIFFERENTIATION OF STEM CELLS USING A MICROMESH SUSPENSION CULTURE**
Kennedy O. Okeyo, Yuta Ando, and Taiji Adachi
Kyoto University, JAPAN
- M2-247.e NEW MICROFLUIDIC DESIGNS FOR HIGH-THROUGHPUT ANALYSIS OF ANGIOGENESIS, BLOOD VESSEL PERMEABILITY AND ENDOTHELIAL ACTIVATION**
Elise Delannoy^{1,2}, Anthony Treizebre², and Fabrice Soncin¹
¹*Lille University, FRANCE and* ²*University Polytechnique Hauts-de-France, FRANCE*
- M2-248.e Z-WIRE – A MICRO-SCAFFOLD THAT SUPPORTS GUIDED TISSUE ASSEMBLY AND INTRAMYOCARDIUM DELIVERY FOR CARDIAC REPAIR**
Luis E. Portillo-Esquivel, Vibudha Nanduri, Feng Zhang, Wenbin Liang, and Boyang Zhang
McMaster University, CANADA
- T3-347.e FLOW-THROUGH CELL CULTURE SYSTEM USING MICROCAVITIES EMBEDDED IN SPONGELIKE PDMS MATRIX**
Mai Takagi, Masumi Yamada, and Minoru Seki
Chiba University, JAPAN
- T3-348.e RAPID PROTOTYPING OF CONCAVE MICROWELLS FOR SPHEROID CULTURE BY COMBINING MICROMILLING AND CAMEL REPLICIA MOULDING**
Zhiyuan Dong, Bangyong Sun, and Gang Li
Chongqing University, CHINA
- T4-446.e 3D CO-CULTURED MULTICELLULAR SPHEROIDS ON MICROFLUIDIC CHIP FOR STUDYING ECM-MEDIATED DRUG RESISTANCE**
Venkanagouda S. Goudar¹, Long Sheng Lu², Manohar Prasad Koduri¹, and Fan-Gang Tseng^{1,3}
¹*National Tsing Hua University, TAIWAN,* ²*Taipei Medical University Hospital, TAIWAN, and*
³*Academia Sinica, TAIWAN*
- T4-447.e FORMATION OF CONTRACTILE SKELETAL MUSCLE TISSUE WITH TENDON TISSUE AT BOTH ENDS**
Yuya Morimoto, Shigenori Miura, and Shoji Takeuchi
University of Tokyo, JAPAN

- T4-448.e REPLICIA MOLDING OF THIOL-ENE MICROWELL ARRAYS FOR MICROFLUIDIC 3D CELL SPHEROID CULTURING**
Päivi Järvinen¹, Sari Tähkä¹, Ashkan Bonabi¹, Ville Jokinen², and Tiina Sikanen¹
¹University of Helsinki, FINLAND and ²Aalto University, FINLAND
- W5-546.e 3D PRINTED DEVICE FOR 96-WELL HYDROSTATIC PRESSURE CONTROL**
Adam Szmelter and David Eddington
University of Illinois, Chicago, USA
- W5-547.e HIGHLY PARALLELIZED HUMAN EMBRYONIC STEM CELL DIFFERENTIATION IN NANOLITER CHAMBERS**
Anke R. Vollertsen, Simone A. ten Den, Verena Schwach, Albert van den Berg, Robert Passier, Andries D. van der Meer, and Mathieu Odijk
University of Twente, THE NETHERLANDS
- W5-548.e SEQUESTERING EXTRACELLULAR VESICLE PROFILES IN NEUROFLUIDICS**
Zeynep Malkoc, Stephanie E. McCalla, and Anja Kunze
Montana State University, USA
- W6-645.e A DROPLET MICROFLUIDIC PLATFORM FOR GENERATING STEM CELL-DERIVED AND LONG-LASTING HUMAN LIVER MICROTISSUES**
Regeant Panday¹, David A. Kukla¹, Alexandra L. Crampton², David K. Wood², and Salman R. Khetani¹
¹University of Illinois, Chicago, USA and ²University of Minnesota, USA
- W6-646.e INTEGRATED HEPATOCYTE SPHEROID FORMATION AND ENCAPSULATION FOR SYSTEMATIC STUDY OF EXTRACELLULAR MATRIX EFFECT**
Shuai Deng, Yanlun Zhu, Xiaoyu Zhao, and Hon Fai Chan
Chinese University of Hong Kong, CHINA
- W6-647.e SIMPLE CHEMICAL GRADIENT GENERATION FOR A SPHEROID CULTURE ARRAY**
Panhui Yang, Lei Wu, and Hongju Mao
Chinese Academy of Sciences, CHINA
- Th7-745.e A MICROFLUIDIC ORGANOID TRAPPING DEVICE TO FORM TUBE-LIKE INTESTINAL ORGANOIDS**
Miki Matsumoto¹, Yuya Morimoto¹, Toshiro Sato², and Shoji Takeuchi¹
¹University of Tokyo, JAPAN and ²Keio University School of Medicine, JAPAN
- Th7-746.e INTERPENETRATING HYDROGEL NETWORK BASED ON 3D-PRINTABLE ENDOTHELIAL CELLS COCULTURED WITH FIBROBLASTS**
Soo Jee Kim, Gihyun Lee, and Je-Kyun Park
Korea Advanced Institute of Science and Technology (KAIST), KOREA
- Th7-747.e SKIN-EQUIVALENT CULTURE DEVICE FOR APPLYING VERTICAL COMPRESSION**
Satoshi Inagaki, Keigo Nishimura, Yuya Morimoto, and Shoji Takeuchi
University of Tokyo, JAPAN
- Th8-845.e A SIMPLE METHOD TO ANALYZE NATURAL HYPOXIA EXPRESSION IN JUMBO SPHEROIDS ON-CHIP**
Elena Refet-Mollof^{1,2}, Ouafa Najyb², Rodin Chermat^{1,2}, Julie Lafontaine², Philip Wong², and Thomas Gervais^{1,2}
¹Polytechnique Montréal, CANADA and ²Centre Hospitalier de l'Université de Montréal, CANADA
- Th8-846.e MODELING CTC CLUSTERS USING 3D-PRINTED AGAROSE MICROWELLS**
Qiyue Luan, Jian Zhou, Celine Macaraniag, and Ian Papautsky
University of Illinois, Chicago, USA

Th8-847.e TIME-LAPSE IMAGING OF MOUSE EMBRYONIC STEM CELLS USING AN AUTOMATED MICROFLUIDIC DEVICE

Adam F. Laing¹, Venkat Tirumala¹, Evan Hegarty¹, Sudip Mondal¹, Peisen Zhao¹, William B. Hamilton², Joshua M. Brickman², and Adela Ben-Yakar¹

¹University of Texas, Austin, USA and ²University of Copenhagen, DENMARK

e - Cells, Organisms and Organs on a Chip

Inter- & Intracellular Signaling, Cell Migration

T3-349.e A CIRCULATING CO-CULTURE MICROFLUIDIC DEVICE FOR THE DYNAMIC SAMPLING OF PARACRINE FACTORS

Emmaline F. Miller¹, Jacy Busboom², Joshua J. Clavin¹, Elizabeth C. Martin¹, and Adam T. Melvin¹

¹Louisiana State University, USA and ²University of Wyoming, Laramie, USA

T4-449.e A MODULAR GRANULOMA MODEL FOR MICROENVIRONMENT SIGNALING STUDIES *IN VITRO*

Maia S. Gower, Samuel B. Berry, Xiaojing Su, Chetan Seshadri, and Ashleigh B. Theberge

University of Washington, USA

W5-549.e DENDRITIC CELL MIGRATION IN 2D CONFINED ENVIRONMENT

Yongjun Choi^{1,2} and Yoon-Kyoung Cho^{1,2}

¹Ulsan National Institute of Science & Technology (UNIST), KOREA and

²Institute for Basic Science (IBS), KOREA

W6-648.e HIGH THROUGHPUT INTRACELLULAR DELIVERY FACILITATED BY ACOUSTOFLUIDICS

Alinaghi Salari^{1,2}, Sila Appak-Baskoy^{1,2}, Imogen R. Coe², John Abousawan², Costin N. Antonescu², Scott S.H. Tsai^{1,2}, and Michael C. Kolios^{1,2}

¹Institute for Biomedical Engineering, Science and Technology (iBEST), CANADA and

²Ryerson University, CANADA

Th7-748.e MICROFLUIDIC CHAMBER DEVICE TO TEST QUORUM SENSING THEORY

Jia Hwei Cheong, Xiao Qiu, Yang Liu, James Griffith, Heinzr Bernd Schüttler, Jonathan Arnold, and Leidong Mao

University of Georgia, USA

Th8-848.e MULTIPLEXED END-POINT MICROFLUIDIC CHEMOTAXIS ASSAY USING CENTRIFUGAL ALIGNMENT

Pan Deng¹, Sampath Satti¹, Kerry Matthews¹, Simon P. Duffy^{1,2}, and Hongshen Ma^{1,3}

¹University of British Columbia, CANADA, ²British Columbia Institute of Technology, CANADA, and

³Vancouver General Hospital, CANADA

e - Cells, Organisms and Organs on a Chip

Organisms on Chip (*C. elegans*, Zebrafish, Arabidopsis, etc.)

M1-150.e AN ULTRA-HIGH-DENSITY MICROFLUIDIC PLATFORM TO IMAGE *C. ELEGANS* FOR HIGH-CONTENT PHENOTYPIC SCREENS

Sudip Mondal, Evan Hegarty, Chris Martin, Sertan K. Gökçe, and Adela Ben-Yakar

University of Texas, Austin, USA

M1-151.e MICROFLUIDIC DEVICE TO SCREEN THE ELECTRIC INDUCED BEHAVIORAL RESPONSE OF MULTIPLE ZEBRAFISH LARVAE

Arezoo Khalili, Ellen van Wijngaarden, Khaled Youssef, Georg Zoidl, and Pouya Rezai

York University, CANADA

- M2-249.e** **CONTROLLABLE MICROFLUIDIC ROTATION OF *CAENORHABDITIS ELEGANS***
Peng Pan^{1,2}, John D. Laver¹, Zhen Qin¹, Yuxiao Zhou¹, Ran Peng¹, Lijun Zhao³, Hui Xie³,
John A. Calarco¹, and Xinyu Liu¹
¹University of Toronto, CANADA, ²McGill University, CANADA, and
³Harbin Institute of Technology, CANADA
- M2-250.e** **ON-DEMAND DIRECT CURRENT ELECTRIC FIELD IMMOBILIZATION ENABLES HIGH-RESOLUTION IMAGING OF *C. ELEGANS***
Khaled Youssef¹, Daphne Archonta¹, Terrance J. Kubiseski¹, Anurag Tandon², and Pouya Rezai¹
¹York University, CANADA and ²University of Toronto, CANADA
- T3-350.e** **CONTROLLING THE BODY ORIENTATION OF *C. ELEGANS* BY EXPLOITING ITS PROPRIOCEPTION IN A MICROFLUIDIC CONFINEMENT FOR BODY WALL MUSCLE IMAGING**
Samuel Sofela^{1,2}, Sarah Sahloul¹, Sukanta Bhattacharjee¹, and Yong-Ak Song^{1,2}
¹New York University Abu Dhabi, UAE and ²New York University, USA
- T3-351.e** **ON-DEMAND SAMPLE SELECTION AND BEHAVIORAL SCREENING OF ACTIVE MICROSWIMMERS ENABLED BY AN OPEN-ACCESSIBLE DEVICE**
Gongchen Sun, Cassidy-Arielle Manning, Ga Hyun Lee, and Hang Lu
Georgia Institute of Technology, USA
- T4-450.e** **EFFECT OF MICROFLUIDIC PROCESSING ON THE VIABILITY OF BOAR AND BULL SPERMATOZOA**
Tanja Hamacher¹, Johanna T.W. Berendsen¹, Stella A. Kruit¹, Marleen L.W.J. Broekhuijse^{2,3},
and Loes I. Segerink¹
¹University of Twente, THE NETHERLANDS, ²CRV, THE NETHERLANDS, and
³Topigs Norsvin, THE NETHERLANDS
- T4-451.e** **PARALLEL SCREENING OF SINGLE ZOOSPORE GERMINATION AND GERM TUBE PROTRUSIVE FORCES**
Yiling Sun, Ayelen Tayagui, Ashley Garrill, and Volker Nock
University of Canterbury, NEW ZEALAND
- W5-550.e** **EGG LAYING NEURON MEDIATES ELECTROSENSATION IN *CAENORHABDITIS ELEGANS***
Khaled Youssef¹, Daphne Archonta¹, Terrance J. Kubiseski¹, Anurag Tandon², and Pouya Rezai¹
¹York University, CANADA and ²University of Toronto, CANADA
- W5-551.e** **STRAIGHTFORWARD MICROFLUIDIC SYSTEM FOR BEHAVIORAL RESPONSES ANALYSIS OF *C. ELEGANS* TO PHYSICAL CUES**
Sunhee Yoon, Tae-Joon Jeon, and Sun Min Kim
Inha University, KOREA
- W6-649.e** **HABITUATION OF ZEBRAFISH LARVAE TO ELECTRICAL STIMULUS**
Arezoo Khalili, Ellen van Wijngaarden, Georg Zoidl, and Pouya Rezai
York University, CANADA
- Th7-749.e** **ELECTRIC FIELD INDUCED *C. ELEGANS* EGG LAYING IS NEURON-MEDIATED AND DEPENDENT ON FIELD POLARITY**
Khaled Youssef¹, Daphne Archonta¹, Terrance J. Kubiseski¹, Anurag Tandon², and Pouya Rezai¹
¹York University, CANADA and ²University of Toronto, CANADA
- Th8-849.e** ***IN-VIVO* QUANTIFICATION OF DROSOPHILA LARVA HEART FUNCTIONS**
Alireza Zabihhesari, Arthur J. Hilliker, and Pouya Rezai
York University, CANADA

e - Cells, Organisms and Organs on a Chip

Organs on Chip

- M1-152.e A MICROFLUIDIC MODEL OF THE HUMAN PLACENTA**
Taisei Amanokura, Takeshi Hori, Norio Kobayashi, Hiroaki Okae, Takahiro Arima, and Hirokazu Kaji
Tohoku University, JAPAN
- M1-153.e FABRICATION AND FLUIDIC INTEGRATION OF SELF-ASSEMBLED CELLULAR MICROTUBULES FOR NEPHRON-ON-CHIP APPLICATIONS**
Kevin Tröndle¹, Ahmad Itani¹, Fritz Koch¹, Roland Zengerle^{1,2}, Stefan Zimmermann¹, and Peter Koltay^{1,2}
¹*University of Freiburg, GERMANY* and ²*Hahn-Schickard, GERMANY*
- M1-154.e LAB-ON-A-CHIP SYSTEM INTEGRATED WITH NANOFIBER MATS FOR BIOCHEMICAL SIMULATION OF HYPOXIA OF CARDIAC CELLS**
Anna Kobuszewska, Dominik Kolodziejek, Michal Wojasiński, Tomasz Ciach, Zbigniew Brzózka, and Elżbieta Jastrzębska
Warsaw University of Technology, POLAND
- M1-155.e MODELLING SKIN PRO-INFLAMMATORY RESPONSE IN AN ENGINEERED INFECTED EPIDERMIS MODEL**
Maryam Jahanshahi, Zhina Hadisi, and Mohsen Akbari
University of Victoria, CANADA
- M1-156.e WOUND-ON-A-CHIP DEVICE FOR HUMAN SKIN HEALING ASSAYS**
Kamil Talar¹, Holly N. Wilkinson², Alexander Iles¹, Matthew J. Hardman², and Nicole Pamme¹
¹*University of Hull, UK* and ²*Hull York Medical School, UK*
- M2-251.e A MULTI-CULTURE ARRAY FOR MODELLING NUMEROUS MECHANISMS OF CUTANEOUS DRUG REACTIONS**
Lor Huai Chong¹, Terry Ching^{1,2}, Gianluca Greci³, and Yi-Chin Toh^{1,4}
¹*National University of Singapore, SINGAPORE*, ²*Singapore University of Technology and Design, SINGAPORE*, ³*Mechanobiology Institute, SINGAPORE*, and ⁴*Queensland University of Technology, AUSTRALIA*
- M2-252.e FROM MODEL SYSTEM TO THERAPY – SCALABLE PRODUCTION OF PERFUSABLE VASCULARIZED LIVER SPHEROIDS IN "OPEN-TOP" 384- WELL PLATE**
Dawn S.Y. Lin, Shravanthi Rajasekar, Mandeep Kaur Marway, and Boyang Zhang
McMaster University, CANADA
- M2-253.e LOW-COST OPEN MICROFLUIDIC DEVICE FOR VASCULARIZED SPHEROID-ON-A-CHIP**
Qinyu Li, Kai Niu, and Xiaolin Wang
Shanghai Jiao Tong University, CHINA
- M2-254.e MODELLING THE TUMOR MICRO-ENVIRONMENT IN HEPATOCELLULAR CARCINOMA USING MULTI-CELLULAR SPHEROIDS**
Ana Ortiz-Perez, Agnieszka Zuchowska, Jean-Baptiste Blondé, Ruchi Bansal, and Séverine Le Gac
University of Twente, THE NETHERLANDS
- T3-352.e A VASCULARIZED MICRO LIVER MODEL SUPPORTS ROBUST ALBUMIN AND CYP450 EXPRESSION BY HUMAN HEPATOCYTES**
Satomi Matsumoto, Jennifer S. Fang, Yu-Hsi Chen, Da Zhao, Abraham P. Lee, and Christopher C.W. Hughes
University of California, Irvine, USA
- T3-353.e HEART-LIVER ON A CHIP INTEGRATED WITH A MICROELECTRODE ARRAY TO MONITOR EXTRACELLULAR FIELD POTENTIALS OF CARDIOMYOCYTES**
Dongxiao Zhang¹, Yoshikazu Hirai¹, Ken-ichiro Kamei¹, Osamu Tabata^{1,2}, and Toshiyuki Tsuchiya¹
¹*Kyoto University, JAPAN* and ²*Kyoto University of Advanced Science, JAPAN*

- T3-354.e MEASURING BARRIER FUNCTION IN A GUT-ON-CHIP**
 Elsbeth G.B.M. Bossink, Mariia Zakharova, Mathieu Odijk, and Loes Segerink
University of Twente, THE NETHERLANDS
- T3-355.e ON-CHIP MODELLING OF THE BIOPHYSICS OF PANCREATIC DUCTAL ADENOCARCINOMA FOR ASSESSMENT WITH NEW THERAPEUTICS**
 Delanyo Kpeglo¹, Margaret Knowles¹, Malcolm Haddrick², Stephen D. Evans¹, and Sally A. Peyman¹
¹University of Leeds, UK and ²Medicines Discovery Catapult (MDC), UK
- T4-452.e AN ELASTIC PROTEIN MEMBRANE FOR PERFUSABLE MICROFLUIDIC CELL BARRIER MODELLING IN A POLYDIMETHYLSILOXANE-FREE FLEXIBLE CHIP**
 Lisa D. Muiznieks, Jessica Ayache, Emma Thomée, and Noémi Thomazo
Elvesys - Microfluidics Innovation Center, FRANCE
- T4-453.e HEMOSTASIS-ON-A-CHIP: EVALUATING THE EFFICACY OF THROMBIN-CONJUGATED IRON OXIDE NANOPARTICLES FOR PLATELET ACTIVATION IN ORGANOTYPIC BLOOD VESSELS**
 Alexander F. Pessell, Kennedy R. Baugh, Anthony Geraci, Kayle Riley, Max M. Gong, and Melanie G. Watson
Trine University, USA
- T4-454.e MECHANICAL STIMULATION INCREASES ECM PRODUCTION BY CHONDROCYTES IN A CARTILAGE-ON-A-CHIP PLATFORM**
 Carlo Alberto Paggi¹, Jan Hendriks¹, Liliana Moreira Teixeira^{1,2}, Marcel Karperien¹, and Séverine Le Gac¹
¹University of Twente, THE NETHERLANDS and ²Utrecht University, THE NETHERLANDS
- T4-455.e ORAL MUCOSA-CHIP AS AN ALTERNATIVE PLATFORM TO EVALUATE THE IMPACTS OF DENTAL MONOMERS**
 Khanh Ly¹, Seyed Rooholghodos¹, Christopher Rahimi¹, Benjamin Rahimi¹, Diane R. Bienek², Gili Kaufman², Christopher Raub¹, and Xiaolong Luo¹
¹Catholic University of America, USA and ²ADA Science and Research Institute, USA
- W5-552.e CANCER METASTASIS RECAPITULATED IN THREE-DIMENSIONAL HUMAN LIVER-CHIP**
 Jooyoung Ro^{1,2}, Junyoung Kim^{1,2}, Chaeun Lee^{1,2}, and Yoon-Kyoung Cho^{1,2}
¹Ulsan National Institute of Science & Technology (UNIST), KOREA and
²Institute for Basic Science (IBS), KOREA
- W5-553.e MEMS ACTUATION PROMOTES IN VITRO BRAIN-ON-CHIP MATURATION**
 Alex Bastiaens¹, Gulden Akcay¹, Maaïke Fransen¹, Sijia Xie², and Regina Luttgé¹
¹Eindhoven University of Technology, THE NETHERLANDS and ²Paul Scherrer Institute, SWITZERLAND
- W5-554.e RECONSTITUTING THE ARTERIAL INTIMA-MEDIA INTERFACE USING A DUAL-LANE EXTRACELLULAR MATRIX PATTERNED MICROFLUIDIC 3D CO-CULTURE PLATFORM FOR STUDY OF ATHEROSCLEROSIS**
 Chengxun Su¹, Nishanth Venugopal Menon¹, Xiaohan Xu¹, Yu Rong Teo¹, Huan Cao¹, Rinkoo Dalan^{1,2}, Chor Yong Tay¹, and Han Wei Hou¹
¹Nanyang Technological University, SINGAPORE and ²Tan Tock Seng Hospital, SINGAPORE
- W6-650.e A 3D MICROPATTERNED NEURONAL CULTURE PLATFORM USING EXTRACELLULAR MATRIX-BASED HYDROGEL ON A MICROELECTRODE ARRAY**
 Dongjo Yoon, Jaejung Son, Je-Kyun Park, and Yoonkey Nam
Korea Advanced Institute of Science and Technology (KAIST), KOREA
- W6-651.e CONTINUOUS MONITORING OF ISOGENIC BLOOD-BRAIN BARRIER INTEGRITY IN A PDMS-FREE MICROPHYSIOLOGICAL SYSTEM**
 Thomas E. Winkler¹, Isabelle Matthiesen¹, Dimitrios Voulgaris¹, Polyxeni Nikolakopoulou², and Anna Herland^{1,2}
¹KTH Royal Institute of Technology, SWEDEN and ²Karolinska Institute, SWEDEN

- W6-652.e INTEGRATED ANISOTROPIC TUBULAR CARDIAC TISSUE AND CIRCULATING MICROCHANNEL SYSTEM FOR DRUG TESTING**
Bo-Heng (Henry) Liu and Fan-Gang Tseng
National Tsing Hua University, TAIWAN
- W6-653.e WITHDRAWN**
- W6-654.e SECRETOME ANALYSIS WITH SIMULTANEOUS ON-CHIP ANGIOGENESIS AND ANASTOMOSIS BETWEEN HUMAN ARTERIAL AND VENOUS CELLS**
Elisabeth Hirth¹, Claudius Dietsche¹, Todd Duncombe¹, Danilo Ritz², Maria Filippova^{2,3}, and Petra S. Dittrich¹
¹*ETH Zürich, Basel, SWITZERLAND*, ²*University of Basel, SWITZERLAND*, and ³*University Hospital, SWITZERLAND*
- Th7-750.e A 3D-PRINTED MODULAR MICROCHIP WITH AN INTEGRATED IMPELLER PUMP TO MODEL INTER-ORGAN COMMUNICATION**
Sophie R. Cook and Rebecca R. Pompano
University of Virginia, USA
- Th7-751.e DEVELOPMENT OF CLOSED AND PUMPLESS PLATFORM FOR CO-CULTURE IN MINIMALIZED SPACE**
Hidetaka Ueno^{1,2}, Yuri Aoki³, Kenji Hanamura³, Mai Yamamura³, Tomoaki Shirao³, and Takaaki Suzuki³
¹*National Institute of Advanced Industrial Science and Technology (AIST), JAPAN*, ²*JSPS Research Fellow, JAPAN*, and ³*Gunma University, JAPAN*
- Th7-752.e INTEGRATING PANCREAS TISSUE SLICES WITH ADVANCED ANALYTICAL APPROACHES FOR MEASUREMENT OF INSULIN RELEASE**
I-An Wei and Michael G. Roper
Florida State University, USA
- Th7-753.e MICROFLUIDICS AND IMMUNOTHERAPY: MODELLING SOLID TUMORS**
Jose M. Ayuso, Maria Virumbrales-Munoz, Patrick H. McMinn, Shujah Rehman, Cate M. Fitzgerald, Melissa C. Skala, and David J. Beebe
University of Wisconsin, USA
- Th7-754.e SOFT STRETCHABLE BIOLOGICAL MEMBRANES FOR ORGANS-ON-CHIP**
Pauline Zamprognio¹, Giuditta Thoma¹, Veronika Cencen², Dario Ferrari¹, Barbara Putz³, Johann Michler³, Georg E. Fantner², and Olivier T. Guenat^{1,4}
¹*University of Bern, SWITZERLAND*, ²*Ecole Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND*, ³*EMPA Swiss Federal Laboratories for Materials Science and Technology, SWITZERLAND*, and ⁴*University Hospital of Bern, SWITZERLAND*
- Th8-850.e A LIVER-IN-CHIP PLATFORM FOR PRESERVING EX VIVO TISSUE VIABILITY**
Foivos Chatzidimitriou, Soon Seng Ng, S. Tamir Rashid, Joseph M. Sherwood, and Darryl R. Overby
Imperial College London, UK
- Th8-851.e EFFECT OF SHEAR STRESS ON THE EXPRESSION OF FUNCTIONAL PROTEINS IN A BILAYER PROXIMAL TUBULE-ON-A-CHIP**
Ramin Banan Sadeghian¹, Ryohei Ueno¹, Toshikazu Araoka¹, Jun Yamashita¹, Tatsuji Enoki², Minoru Takasato³, and Ryuji Yokokawa¹
¹*Kyoto University, JAPAN*, ²*Takara Bio, Inc., JAPAN*, and ³*RIKEN, JAPAN*

- Th8-852.e INVESTIGATING DRUG-INDUCED AUTOPHAGY IN A MICROFLUIDIC MODEL OF GLIOBLASTOMA**
Ehsan Samiei¹, Saeid Ghavami², and Mohsen Akbari¹
¹University of Victoria, CANADA and ²University of Manitoba, CANADA
- Th8-853.e MICROPILLAR-BASED MICROFLUIDIC SYSTEM FOR STUDIES OF 3D PANCREATIC ISLET STRUCTURES**
Patrycja Sokolowska^{1,2}, Anna Grabowska¹, Kamil Żukowski¹, Elzbieta Jastrzebska¹, Zbigniew Brzozka¹, and Agnieszka Dobrzyn²
¹Warsaw University of Technology, POLAND and ²Nencki Institute of Experimental Biology, POLAND
- Th8-854.e SYNOVIAL MEMBRANE ON CHIP: A NEW TOOL TO STUDY CO-CULTURE RESPONSE TO MECHANICAL STIMULATION**
Carlo Alberto Paggi¹, Mariia Zakharova¹, Loes Segerink¹, Séverine Le Gac¹, Liliana Moreira-Teixeira^{1,2}, and Marcel Karperien¹
¹University of Twente, THE NETHERLANDS and ²Utrecht University, THE NETHERLANDS

e - Cells, Organisms and Organs on a Chip
Bioinspired, Biomimetic & Biohybrid Devices

- M1-157.e FORMATION OF A NEURON-MUSCLE CONSTRUCT USING NEURAL CELL FIBERS AND SKELETAL MUSCLE TISSUE FOR BIOHYBRID ACTUATORS**
Akihiro Sunagawa¹, Midori Negishi^{1,2}, Minghao Nie¹, Yuya Morimoto¹, and Shoji Takeuchi¹
¹University of Tokyo, JAPAN and ²Musashino University, JAPAN
- M2-255.e A NEW PLATFORM FOR CULTURE AND ELECTROPORATION OF 3D CELL CONSTRUCTS BASED ON A POROUS SCAFFOLD**
Marie Frénéa-Robin, Julien Marchalot, Laure Franqueville, and Charlotte Rivière
University of Lyon, FRANCE
- M2-256.e RECAPITULATING CYCLIC STRETCH IN MICROVASCULATURE BY FLOW-INDUCED CUES IN HYDROGEL MICROCHANNELS**
Walter Varhue, Aditya Rane, Shayn Peirce-Cottler, George Christ, and Nathan S. Swami
University of Virginia, USA
- T3-356.e ACTOMYOSIN-COLLAGEN HYBRID SOFT ACTUATOR**
Kenjiro Kohno¹, Shusei Kawara¹, Yuichi Hiratsuka², and Hiroaki Onoe¹
¹Keio University, JAPAN and ²Japan Advanced Institute of Science and Technology (JAIST), JAPAN
- T3-357.e THE INFLUENCE OF SHEAR STRESS GENERATED BY OSMOTIC DRIVEN FLOW ON THE ALIGNMENT OF ENDOTHELIAL CELL**
Zong-Han Sie¹, Lu-Wei Wu¹, Yen-Yu Chang¹, Yi-Chin Toh², and Ya-Yu Chiang¹
¹National Chung-Hsing University, TAIWAN and ²Queensland University of Technology, AUSTRALIA
- T4-456.e ANTI-BIOFOULING SURFACES FEATURED WITH MAGNETIC ARTIFICIAL CILIA**
Shuaizhong Zhang¹, Pan Zuo¹, Ye Wang¹, Patrick R. Onck², and Jaap M.J. den Toonder¹
¹Eindhoven University of Technology, THE NETHERLANDS and ²University of Groningen, THE NETHERLANDS
- W5-555.e ZINC OXIDE NANOPILLARS INHIBIT BACTERIAL ATTACHMENT**
Nicholas Lin, Amin Valiei, Nathalie Tufenkji, and Christopher Moraes
McGill University, CANADA

- W6-655.e CELL-BASED SENSOR INTEGRATED IN OPTICAL FIBER TOWARD MONITORING OF NEUROTRANSMITTERS**
Hisashi Shimizu¹, Yuichi Morohashi², Yoko Yazaki-Sugiyama^{1,2}, and Shoji Takeuchi¹
¹University of Tokyo, JAPAN and ²Okinawa Institute of Science and Technology Graduate University, JAPAN
- Th7-755.e CROSSLINKING AEROSOL-BASED MULTI-BIOINK PRINTING SYSTEM TO CONSTRUCT HETEROGENEOUS AND MULTILAYERED HYDROGELS**
Gihyun Lee, Soo Jee Kim, and Je-Kyun Park
Korea Advanced Institute of Science and Technology (KAIST), KOREA
- Th8-855.e EXOSKELETAL BIOHYBRID ROBOT USING ANTAGONISTIC XENOPUS MUSCLE**
Jinhwa Lee¹, Yuya Morimoto¹, Masahiro Shimizu², and Shoji Takeuchi¹
¹University of Tokyo, JAPAN and ²Osaka University, JAPAN

e - Cells, Organisms and Organs on a Chip

Synthetic Biology

- T4-457.e CELL-FREE LOW-COST *DE NOVO* BACTERIOPHAGE GENOME SYNTHESIS FROM SEQUENCE-VERIFIED MICROARRAY-SYNTHEZED DNA OLIGONUCLEOTIDES**
Huiran Yeom^{1v}, Taehoon Ryu², Namphil Kim¹, and Sunghoon Kwon¹
¹Seoul National University, KOREA and ²Celemics, Inc, KOREA
- W5-556.e DNA NANOBALL RETRIEVAL MICROCHIP DESIGN FOR HIGH-THROUGHPUT ERROR-FREE DNA PURIFICATION PLATFORM**
Namphil Kim, Huiran Yeom, Yonghee Lee, and Sunghoon Kwon
Seoul National University, KOREA
- W6-656.e DROPLET MICROFLUIDIC MICROCOLONY SORTING BY FLUORESCENCE AREA FOR HIGH THROUGHPUT, YIELD-BASED SCREENING OF TRIACYL GLYCERIDES IN *S. CEREVISIAE***
Sara M. Björk, Martin Schappert, and Haakan N. Joensson
KTH Royal Institute of Technology, SWEDEN
- Th7-756.e INTRACELLULAR SENSING OF EXPRESSED FACTORS BY REDOX AMPLIFICATION USING BIO-CAPACITOR ON NANOPOROUS GOLD**
Yi Liu, John H. Moore, and Nathan S. Swami
University of Virginia, USA
- Th8-856.e RT-OGENE: A REAL-TIME OPTOGENETICS SYSTEM FOR CONTROLLING GENE EXPRESSION USING MODEL-BASED DESIGN**
James M. Perry, Guy Soffer, and Steve C.C. Shih
Concordia University, CANADA

e - Cells, Organisms and Organs on a Chip

Liposomes/Membranes

- M1-158.e AN APROTIC POLAR SOLVENT ASSISTED SIZE-TUNING METHOD FOR MICROFLUIDIC PRODUCTION OF LIPID-BASED DRUG NANOCARRIERS WITH VARIOUS SIZES**
Niko Kimura, Masatoshi Maeki, Akihiko Ishida, Hirofumi Tani, and Manabu Tokeshi
Hokkaido University, JAPAN
- M2-257.e MICROFLUIDIC FORMATION OF LIPID-OUT ASYMMETRIC DROPLET INTERFACE BILAYERS FOR ON-CHIP PHARMACOKINETICS MODELLING**
Elanna B. Stephenson and Katherine S. Elvira
University of Victoria, CANADA

T3-358.e PLASMONIC STRUCTURES FOR CLINICAL-SCALE EXOSOME ANALYSIS
Felix Kurth, Luc Driencourt, Fabian Lütolf, Rolando Ferrini, and Silvia Generelli
CSEM, SWITZERLAND

T4-458.e THE BOTTOM-UP SYNTHESIS OF BESPOKE PROTOTISSUES USING A MICROFLUIDIC PLATFORM
Kaitlyn E. Ramsay¹, Jae F. Levy¹, Pierangelo Gobbo², and Katherine Elvira¹
¹*University of Victoria, CANADA and 2University of Bristol, UK*

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Other Applications in Biology

W5-557.e AN ACOUSTIC-ELECTRICAL SHEAR OPENING PORATION (AESOP) PLATFORM FOR INTRACELLULAR DELIVERY
Yu-Hsi Chen, Mohammad Aghaamoo, and Abraham P. Lee
University of California, Irvine, USA

W6-657.e DEVELOPMENT OF NOVEL SCREENING PLATFORM AND ORGANOID CULTURE MODEL FOR QUANTIFIABLE HIGH THROUGHPUT SCREENING OF TUMOR ORGANOID
Yong Hun Jung¹, Donghee Choi¹, Kyungwon Park¹, Satbyol Lee³, Hyunwoo Chung¹, Jihun Yang¹, Jinah Kim¹, Byungsoh Min³, and Seok Chung^{1,2}
¹*Korea University, KOREA, 2Korea Institute of Science and Technology (KIST), KOREA, and 3Yonsei University College of Medicine, KOREA*

Th7-757.e MICROFLUIDIC INTRACELLULAR DELIVERY VIA FLUID CELL SHEARING
GeoumYoung Kang, Chan Kwon, and Aram Chung
Korea University, KOREA

Th8-857.e ORGANOSILICON INTERACTION WITH BIOLOGICAL MEMBRANES
Pepijn Beekman¹, Agustin Enciso-Martinez¹, Sidharam Pujari², Han Zuilhof², Leon Terstappen¹, Cees Otto¹, and Séverine Le Gac¹
¹*University of Twente, THE NETHERLANDS and 2Wageningen University, THE NETHERLANDS*

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W6-658.e CUSTOMIZABLE MICROFLUIDIC DEVICES FOR CO-CULTURE AND ALI RECREATION: BE-DOUBLEFLOW & BE-TRANSFLOW
Sandra González Lana^{1,2}, Lara Pancorbo Lambán¹, Sara Aldea Martín¹, Luis E. Serrano Ramón¹, and Rosa M. Monge Prieto¹
¹*BEOnChip S.L., SPAIN and 2University of Zaragoza, SPAIN*

Th8-879.e NOURISHING, MONITORING AND STIMULATING CELLS WITH BI/OND'S ORGAN-ON-CHIP DEVICE
Amr Othman¹, Lucie Decourt¹, William F. Quiros-Solano¹, Dik C. van Gent², Sanjiban Chakrabarty³, Cinzia Silvestri¹, and Nikolas Gaio¹
¹*BIOND Solutions B.V., THE NETHERLANDS, 2Erasmus Medical Centre, THE NETHERLANDS, and 3Manipal Academy of Higher Education, INDIA*

M1-182.e A USER-FRIENDLY MICROFLUIDICS PLATFORM FOR HIGH-CONTENT IMAGING OF SMALL MODEL ORGANISMS FOR ASSESSMENT OF CHEMICAL TOXICITY
Evan M. Hegarty, Adam F. Laing, Adela Ben-Yakar
Newormics LLC, USA

- T4-483.e RESEALABLE, RECIRCULATING PLATFORM FOR THE MECHANICAL STIMULATION OF CELL CO-CULTURES IN A TRANSWELL INSERT**
Sandro Meucci¹, Jasper ten Napel¹, Bianka Fabinyi¹, Astrid D. Bakker², Lasse Jensen³, and Anna Fahlgren⁴
¹*Micronit Microtechnologies BV, THE NETHERLANDS*, ²*Academisch Centrum Tandheelkunde Amsterdam (ACTA), THE NETHERLANDS*, ³*BioReperia, SWEDEN*, and ⁴*Linköping University, SWEDEN*

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Late News

- M1-180.e REAL-TIME OPTICAL MONITORING OF CELL CULTURE IN CENTRIFUGAL MICROFLUIDICS**
Edwin En-Te Hwu¹, Lina Gruzinskyte^{1,3}, Atsushi Ishimoto^{1,2}, Laura Seriola¹, Sriram Thoppe Rajendran¹, Akinobu Yamaguchi², Kinga Zór¹, and Anja Boisen¹
¹*Technical University of Denmark, DENMARK*, ²*University of Hyogo, JAPAN*, and ³*University of Copenhagen, DENMARK*
- M2-278.e A MICROFLUIDIC CHIP FOR MEASURING WHITE BLOOD CELL CONCENTRATION FROM AN UNDILUTED, WHOLE BLOOD**
Georgia Korompili¹, Katerina Skorda¹, and Nikos Chronis^{1,2}
¹*National Centre of Scientific Research (NCSR) Demokritos, GREECE* and ²*University of Crete, GREECE*
- M2-279.e A MICROFLUIDIC SYSTEM FOR INVESTIGATING THE TRANSIT DYNAMICS OF LIVE AND HEAT-KILLED *E. COLI* BACTERIA IN *C. ELEGANS***
Vittorio Viri, Thomas Lehnert, and Martin A.M. Gijs
École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND
- T3-379.e 3D VASCULAR NETWORKS CO-CULTURED WITH VARIOUS TYPES OF COLORECTAL CANCER CELLS FOR VALIDATION OF NATURAL KILLER CELL CYTOTOXICITY**
Hyeri Choi, Jiyoung Song, Dohyun Park, and Noo Li Jeon
Seoul National University, KOREA
- T3-380.e HIGH-RESOLUTION AND MASSIVE TRAPPING AND SEPARATION OF BACTERIA AND NANOPARTICLES IN AN OPTOFLUIDIC CHIP**
Yuzhi Shi, Yi Zhang, Yang Liu, Shilun Feng, Wee Ser, Peng Huat Yap, and Ai Qun Liu
Nanyang Technological University, SINGAPORE
- T4-479.e EVALUATION OF PLURIPOTENCY IN HUMAN INTESTINAL CELLS BY MICROFLUIDIC-BASED SINGLE CELL DEFORMABILITY ANALYSIS**
Miyu Terada¹, Sachiko Ide¹, Toyohiro Naito¹, Michiya Matsusaki², and Noritada Kaji¹
¹*Kyushu University, JAPAN* and ²*Osaka University, JAPAN*
- T4-480.e MICROFLUIDIC COLLAGEN PATTERNING FOR TENDON REGENERATION**
Francesca Giacomini, David B. Barata, Hoon Suk Rho, Zeinab Tahmasebi Birgani, Stefan Giselbrecht, Roman Truckenmüller, and Pamela Habibović
Maastricht University, NETHERLANDS
- W5-578.e HIGHLY PARALLEL SINGLE-CELL SIMULTANEOUS TRANSCRIPTOME AND PROTEIN ANALYSIS**
Xing Xu, Mingxia Zhang, Xuebing Zhang, Zhi Zhu, and Chaoyong Yang
Xiamen University, CHINA
- W5-579.e MICROPHYSIOLOGICAL MODEL OF ENDOTHELIUM-FIBROBLAST INTERFACE FOR INVESTIGATING WOUND HEALING**
Halston E. Deal^{1,2}, Ashlyn T. Young^{1,2}, Ashley C. Brown^{1,2}, and Michael A. Daniele^{1,2}
¹*North Carolina State University, USA* and ²*University of North Carolina, Chapel Hill, USA*

- W6-679.e DNA HYDROGELS AS A SCAFFOLD FOR ORGANS-ON-CHIPS: STUDY OF BUOYANCY AND SEDIMENTATION OF MICROBEADS IN DNA GELS**
 Emilie Belot^{1,2}, Yannick Tauran^{1,2}, Yusuke Sato³, Masahiro Takinoue⁴, Arnaud Brioude¹, Teruo Fujii², and Anthony J. Genot²
¹Université de Lyon, FRANCE, ²University of Tokyo, FRANCE, ³Tohoku University, JAPAN, and ⁴Tokyo Institute of Technology, JAPAN
- W6-680.e RECONSTRUCTION OF 3D HUMAN LYMPHATIC VESSEL WITHIN TUMOR IMMUNE MICROENVIRONMENT USING HIGH-THROUGHPUT PLATFORM**
 Habin Kang¹, Somin Lee¹, Dohyun Park¹, James Yu¹, Seung Kwon Koh², Duck Cho², Da-Hyun Kim¹, Kyung-Sun Kang¹, and Noo Li Jeon¹
¹Seoul National University, KOREA and ²Sungkyunkwan University, KOREA
- Th7-778.e A HYDROGEL CO-CULTURE PLATFORM REVEALS COMMUNITY RESPONSES OF BACTERIA TO ALGAL HOST AND NUTRIENTS UNDER A DIFFUSION-CONTROLLED ENVIRONMENT**
 Hyungseok Kim¹, Jeffrey A. Kimbrel², Jessica Wollard², Xavier Mayali², and Cullen R. Buie¹
¹Massachusetts Institute of Technology, USA and ²Lawrence Livermore National Laboratory, USA
- Th7-779.e TOWARDS HYBRID BIOPRINTING AIDED LIVER ON CHIP**
 Muhammad Asim Faridi, Zofia Korczak, Philip Dalsbecker, and Caroline B. Adiels
 Gothenburg University, SWEDEN
- Th8-876.e MICROGROOVE GUIDED 2D CELL CULTURE APPLIED TO CONSTRUCT 3D SEMI-SPHERICAL HEART PUMPING SYSTEM**
 Bo-Heng (Henry) Liu, Guan-You Shih, and Fan-Gang Tseng
 National Tsing Hua University, TAIWAN
- Th8-877.e THERMAL MORPHOGENESIS IN TISSUE-LIKE ARRAYS OF DROPLETS**
 Nicolas Lobato-Dauzier¹, Robin Deteix¹, Shu Okumura¹, Alexandre Baccouche¹, Guillaume Gines², Yannick Rondelez², Teruo Fujii¹, and Anthony J. Genot¹
¹University of Tokyo, JAPAN and ²PSL Research University, FRANCE

f - Diagnostics, Drug Testing & Personalized Medicine

Liquid Biopsy and Sample Preparation

- M1-159.f ISOLATION OF ALZHEIMER'S DISEASE ASSOCIATED EXOSOMES USING GRAPHENE OXIDE-BASED MICROFLUIDIC CHIP WITH PREFIBRILLAR AMYLOID β (A β ExoChip)**
 Yoon-Tae Kang, Ji-Young Kim, Thomas Hadlock, Andrew Rellinger, Nicholas Kotov, and Sunitha Nagrah
 University of Michigan, Ann Arbor, USA
- M2-258.f CHARACTERIZATION OF EXTRACELLULAR VESICLES PURIFIED BY ULTRACENTRIFUGATION, SIZE-EXCLUSION CHROMATOGRAPHY AND LAB-ON-A-DISC FILTRATION**
 Lucile Alexandre^{1,2}, Philippe DeCorwin-Martin¹, Rosalie Martel¹, Molly Shen¹, Johan Renault¹, Lorenna Oliveira¹, Andy Ng¹, and David Juncker¹
¹McGill University, CANADA and ²Institut Curie, FRANCE
- M2-259.f MOLECULAR AND FUNCTIONAL EXTRACELLULAR VESICLE ANALYSIS USING NANOPATTERNED MICROCHIPS MONITORS TUMOR PROGRESSION AND METASTASIS**
 Peng Zhang^{1,2}, Chaoyong Yang², and Yong Zeng¹
¹University of Kansas, USA and ²Shanghai Jiaotong University School of Medicine, CHINA

- T3-359.f DETERMINISTIC LATERAL DISPLACEMENT FOR THE SORTING OF EXTRACELLULAR VESICLES FROM COMPLEX BIOLOGICAL SAMPLES**
Marie Gaillard¹, Nicolas Sarrut-Rio¹, Léopold Viro¹, François Boizot¹, Nicolas Verplanck¹, Camille Raillon¹, Vincent Agache^{1,2}, Yoann Roupioz¹, and Aurélie Thuaire¹
¹University Grenoble Alpes, FRANCE and ²Massachusetts Institute of Technology, USA
- T3-360.f PRECISELY METERED DRIED BLOOD SPOTS BY USING TUNABLE HYDROPHOBIC BURST VALVES**
Lorenz Van Hileghem, Dries Vloemans, Francesco Dal Dosso, and Jeroen Lammertyn
KU Leuven, BELGIUM
- T4-459.f EFFICIENT HUMAN PLASMA EXTRACTION FROM UNDILUTED WHOLE BLOOD BY CELL-FREE LAYER MARGINATION WITH CLOSED-LOOP SINGLE MICROFLUIDIC CHANNEL DEVICE**
Lap Man Lee, Ketan H. Bhatt, Dustin W. Haithcock, Mary A. Arugula, Balabhaskar Prabhakarpanian, and Kapil Pant
CFD Research Corporation, USA
- T4-460.f TEM GRID PREPARATION WITH MINIMAL USER INTERACTION**
Janosch Hauser¹, Gustaf Kylberg², Göran Stemme¹, Ida-Maria Sintorn², and Niclas Roxhed¹
¹KTH Royal Institute of Technology, SWEDEN and ²Vironova AB, SWEDEN
- W5-558.f EXOSOME ISOLATION VIA CLICK CHEMISTRY (EXOCLICK) CHIP FOR SCREENING AND QUANTIFICATION OF CANCER-ASSOCIATED EXOSOMES**
Yoon-Tae Kang, Thomas Hadlock, Shruti Jolly, and Sunitha Nagrath
University of Michigan, Ann Arbor, USA
- W6-659.f EXTRACELLULAR VESICLE DETECTION DIRECTLY IN COMPLEX MATRICES BY USING FOSPR SENSOR**
Yagmur Yildizhan¹, Venkata Suresh Vajrala¹, Charles Declerck¹, Edward Geeurickx², Sam Noppen¹, Dominique Schols¹, Johannes V. Swinnen¹, Sven Eyckerman², An Hendrix², Jeroen Lammertyn¹, and Dragana Spasic¹
¹KU Leuven, BELGIUM and ²Gent University, BELGIUM
- Th7-758.f HARVESTING BIOMOLECULES FROM TISSUE BY POROUS SILICON NANONEEDLES**
Davide A. Martella and Ciro Chiappini
King's College London, UK
- Th8-858.f INKJET-PRINTED 3D NANO-ENGINEERED MICROCHIPS FOR FUNCTIONAL ANALYSIS OF METASTATIC EXOSOMES**
Yong Zeng¹, Peng Zhang², and Liang Xu²
¹University of Florida, USA and ²University of Kansas, USA

f - Diagnostics, Drug Testing & Personalized Medicine

Nucleic-Acid Analysis

- M1-160.f EVALUATION OF DLP 3D PRINTING MATERIALS FOR THE MANUFACTURE OF RECOMBINASE POLYMERASE AMPLIFICATION (RPA) MICROREACTORS**
Ole Behrmann^{1,2}, Matthias Hügle^{1,2}, Franz Eckardt¹, Iris Bachmann¹, Frank T. Hufert¹, and Gregory Dame¹
¹Brandenburg Medical School Theodor Fontane, GERMANY and ²University of Freiburg, GERMANY
- M2-260.f METAL OXIDE NANOWIRES MICROFLUIDIC DEVICES FOR DNA METHYLATION MAPPING**
Marina Musa¹, Takao Yasui^{1,2}, Taisuke Shimada¹, Akihide Arima¹, and Yoshinobu Baba^{1,3}
¹Nagoya University, JAPAN, ²Japan Science and Technology Agency (JST), JAPAN, and ³National Institutes for Quantum and Radiological Science and Technology, JAPAN

- T3-361.f MICRORNA DETECTION USING STRAND DISPLACEMENT AMPLIFICATION IN HYDROGEL PARTICLES**
Nidhi Juthani and Patrick S. Doyle
Massachusetts Institute of Technology, USA
- T4-461.f NAKED-EYE DETECTION OF POLYMERASE CHAIN REACTION ON MICROFLUIDICS**
Ren Shen¹, Yanwei Jia¹, Pui-In Mak¹, and Rui P. Martins^{1,2}
¹*University of Macau, CHINA and* ²*Universidade de Lisboa, PORTUGAL*
- W5-559.f AUTOMATION OF THE PAPER-BASED VERTICAL FLOW PLATFORM FOR RADIATION BIODOSIMETRY DURING DEEP SPACE MISSION**
Jasmine P. Devadhasan, Paul Kuehl, Jerome Lacombe, Jana Stoudemire, Twyman Clements, Jian Gu, and Frederic Zenhausern
University of Arizona, College of Medicine, USA
- W5-560.f OE-PCR IN DROPLETS FOR RAPID CONVERSION OF ANTIBODY LIBRARIES**
Micaela Vitor¹, Lucas Pereira², Guillaume Mottet¹, Emmanuelle Vigne¹, and Melody Shahsavarian¹
¹*Sanofi, FRANCE and* ²*L'École Supérieure de Physique et de Chimie Industrielles (ESPCI)FRANCE*
- W6-660.f CENTRIFUGAL MICROFLUIDIC 4-PLEX DIGITAL DROPLET PCR FOR QUANTIFICATION OF CIRCULATING TUMOR DNA**
Franziska Schlenker¹, Elena Kipf¹, Nadine Borst^{1,2}, Tobias Hutzenlaub^{1,2}, Nils Paust^{1,2}, Roland Zengerle^{1,2}, Felix von Stetten^{1,2}, and Peter Juelg¹
¹*Hahn-Schickard, GERMANY and* ²*University of Freiburg, GERMANY*
- W6-661.f REAGENT INTEGRATION IN DISPOSABLE THERMOPLASTIC 2D MICROWELL ARRAYS USING A CUSTOM SPOTTING PIN**
Supriya Padmanabhan, Micaela Everitt, Michael Yeh, Ian White, and Don L. DeVoe
University of Maryland, College Park, USA
- Th7-759.f COMPLEX NUCLEIC ACID HYBRIDIZATION REACTIONS INSIDE CAPILLARY-DRIVEN MICROFLUIDIC CHIPS**
Marie L. Salva^{1,2}, Marco Rocca^{1,2}, Yong Hu¹, Emmanuel Delamarche², and Christof M. Niemeyer¹
¹*Karlsruhe Institute of Technology, GERMANY and* ²*IBM Research Europe, SWITZERLAND*
- Th7-760.f UNRAVELLING THE REACTION MECHANISM AND KINETICS OF DNAZYMES BASED ON BULK AND SINGLE MOLECULE STUDIES**
Aida Montserrat Pagès¹, Phebe De Keyser¹, Victor Top¹, Rebecca Andrews², Maarten Hertog¹, Achillefs N. Kapanidis², Dragana Spasic¹, and Jeroen Lammertyn¹
¹*KU Leuven, BELGIUM and* ²*Oxford University, UK*
- Th8-859.f DIGITAL AND MULTIPLEX MICRO RNA DETECTION WITH MICROCOMPARTMENTALIZED BEAD ASSAY**
Thomas Jet¹, Guillaume Gines², Alexis Moravic², Yannick Rondelez², and Valérie Taly¹
¹*Université de Paris, FRANCE and* ²*ESPCI Paris, FRANCE*

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Protein Analysis & Proteomics

- M1-161.f** **AUTOMATING NANODROPLET SAMPLE PREPARATION WITH LIQUID CHROMATOGRAPHY-MASS SPECTROMETRY FOR HIGH THROUGHPUT SINGLE-CELL PROTEOMICS**
Ying Zhu
Pacific Northwest National Laboratory, USA
- M1-162.f** **TIME-RESOLVED MICROFLUIDIC SAMPLE PREPARATION FOR CRYO-EM STRUCTURAL ANALYSIS OF BIOMOLECULAR ASSEMBLIES**
Byungjin Lee¹, Märt-Erik Mäeots², Dong-Ho Kim¹, Kyung Han Kim¹, Sung Sik Lee³, Radoslav E. Ivanov², Matthias Peter³, and Chang-Soo Lee¹
¹*Chungnam National University, KOREA*, ²*ETH Zürich, SWITZERLAND*, and ³*Francis Crick Institute, UK*
- M2-261.f** **BIOASSAY ARCHITECTURE COMBINING A QUANTITATIVE G6PDH ASSAY AND A MEASUREMENT OF HEMOGLOBIN CONCENTRATION ON A SINGLE CAPILLARY-DRIVEN MICROFLUIDIC CHIP**
Marco Rocca^{1,2}, Yuksel Temiz¹, Marie L. Salva^{1,2}, Samuel Castonguay³, Thomas Gervais³, Christof M. Niemeyer², and Emmanuel Delamarche¹
¹*IBM Research Europe, SWITZERLAND*, ²*Karlsruhe Institute of Technology (KIT), GERMANY*, and ³*École Polytechnique de Montréal (EPM), CANADA*
- T3-362.f** **DETECTION OF MULTIPLE SEPSIS BIOMARKERS USING A MICROFLUIDIC FLOW CYTOMETER**
Xilong Yuan¹, Todd Darcie¹, Srishti Garg¹, James Dou², Lu Chen², and J. Stewart Aitchison¹
¹*University of Toronto, CANADA* and ²*Thinkari Research Inc., CANADA*
- T4-462.f** **DROPLET MICROFLUIDICS BASED ENZYMATIC DIGESTION: A NEW SAMPLE PREPARATION TOOL FOR MALDI-TOF MS**
Mathilde Richerd¹, Sarah Bregant², Florent Malloggi², and Stéphanie Descroix¹
¹*Institut Curie, FRANCE* and ²*Université Paris-Saclay, FRANCE*
- W5-561.f** **ELISA UTILIZING THIN-LAYERED CHANNEL FOR PERFECT CAPTURE AND ACCUMULATION OF TARGET MOLECULE**
Ryoichi Ohta¹, Keisuke Sekiya¹, Smirnova Aderina¹, Emi Mori¹, and Takehiko Kitamori^{1,2}
¹*University of Tokyo, JAPAN* and ²*National Tsing Hua University, TAIWAN*
- W6-662.f** **PICO-LITER PROTEIN DIGESTION AND SEPARATION USING NANOFUIDIC DEVICE**
Kyojiro Morikawa¹, Koki Yamamoto¹, Hiroki Sano¹, Yutaka Kazoe², Hisashi Shimizu¹, Hiroyuki Imanaka³, Koreyoshi Imamura³, and Takehiko Kitamori^{1,4}
¹*University of Tokyo, JAPAN*, ²*Keio University, JAPAN*, ³*Okayama University, JAPAN*, and ⁴*National Tsing Hua University, TAIWAN*
- Th7-761.f** **IN SITU NMR LAB-ON-A-CHIP SYSTEM FOR STUDYING PROTEIN-LIGAND INTERACTIONS**
Marek Plata, William Hale, Manvendra Sharma, Jörn M. Werner, and Marcel Utz
University of Southampton, UK
- Th8-860.f** **AUTOMATED CHIP-BASED THIN-LAYERED ELISA**
Adelina Smirnova¹, Ryoichi Ohta¹, and Takehiko Kitamori²
¹*University of Tokyo, JAPAN* and ²*National Tsing Hua University, TAIWAN*
- Th8-861.f** **LOCALIZED MULTIPLEXED SURFACE FUNCTIONALIZATION OF THERMOPLASTIC MICROCHANNELS TOWARDS THE ENRICHMENT AND PROTEIN CARGO ANALYSIS OF EXTRACELLULAR VESICLES**
André Kling, Yannick R.F. Schmid, Jonas Nikoloff, and Petra S. Dittrich
ETH Zürich, SWITZERLAND

f - Diagnostics, Drug Testing & Personalized Medicine

Cancer Research, Capture & Analysis of Circulating Tumor Cells

- M1-163.f PATIENT-DERIVED KIDNEY CANCER MODELS ON-A-CHIP TO INFORM PRECISION ONCOLOGY**
Maria Virumbrales-Muñoz, Jiong Chen, Jose Ayuso, E. Jason Abel, and David J. Beebe
University of Wisconsin, Madison, USA
- M2-262.f A BIO-MICROCHIP FUNCTIONALIZED BY SELF-ASSEMBLED AUNPS FOR EFFICIENT CAPTURE AND RELEASE OF CIRCULATING TUMOR CELLS**
Yixing Gou^{1,2}, Zheng You², Changku Sun¹, and Dahai Ren¹
¹Tianjin University, CHINA and ²Tsinghua University, CHINA
- M2-263.f QUANTIFICATION OF PROTEIN EXPRESSION LOCALLY ON FROZEN TISSUE SECTIONS TO EVALUATE TUMOR HETEROGENEITY**
Anna Fomitcheva Khartchenko^{1,2}, Peter Schraml³, and Govind V. Kaigala²
¹ETH Zürich, SWITZERLAND, ²IBM Research – Europe, SWITZERLAND, and ³University Hospital Zurich, SWITZERLAND
- T3-363.f ACOUSTIC MICROSTREAMING CAPTURE OF CIRCULATING TUMOR CELLS AND CIRCULATING CANCER ASSOCIATED FIBROBLASTS AND FUNCTIONAL IMMUNE ASSESSMENT FROM BREAST CANCER PATIENTS**
Ruoyu Jiang, Sudhanshu Agrawal, Ritesh Parajuli, Anshu Agrawal, and Abraham P. Lee
University of California, Irvine, USA
- T3-364.f SACA CHIP ENABLED CIRCULATING TUMOR CELL CLUSTERS PHENOTYPING FOR CANCER IMMUNOTHERAPY RESPONSE MONITORING**
Chun-Jieh Hsu¹, Yu-Chia Kan², Chun-Wei Lee¹, Jen-Kuei Wu^{1,2}, Kang-Yun Lee³, Po-Hao Feng³, Wei-Chiao Chang³, and Fan-Gang Tseng^{1,2}
¹National Tsing Hua University, TAIWAN, ²Academia Sinica, TAIWAN, and ³Taipei Medical University, TAIWAN
- T4-463.f CREATING AN *IN VITRO* LUNG MICROENVIRONMENT VIA DNA-DIRECTED PATTERNING TO INVESTIGATE THE ROLE OF EXTRACELLULAR VESICLES IN METASTASIS**
Sean E. Kitayama and Lydia L. Sohn
University of California, Berkeley, USA
- T4-464.f TUMOR-AGNOSTIC MICROFLUIDIC ISOLATION OF CIRCULATING TUMOR CELLS FROM LEUKAPHERESIS PRODUCTS**
Avanish Mishra^{1,2}, Taronish D. Dubash^{1,2}, Jon F. Edd¹, Michelle Jewett¹, Suhaas G. Garre¹, Nezihi Murat Karabacak^{1,3}, Daniel C. Rabe^{1,2}, Baris R. Mutlu^{1,2}, John R. Walsh¹, Ravi Kapur⁴, Shannon L. Stott^{1,2}, Shyamala Maheswaran^{1,2}, Daniel A. Haber^{1,2,5}, and Mehmet Toner^{1,2,3}
¹Massachusetts General Hospital, USA, ²Harvard Medical School, USA, ³Shriners Hospitals for Children, USA, ⁴MicroMedicine, Inc., USA, ⁵Howard Hughes Medical Institute, USA
- W5-562.f HIERARCHICAL HERRINGBONE MICROWELLS FOR HIGH-THROUGHPUT SINGLE CELL ENTRAPMENT**
Ayoub Glia^{1,2}, Pavithra Sukumar¹, Muhammedin Deliorman¹, and Mohammad A. Qasaimeh^{1,2}
¹New York University Abu Dhabi, UAE and ²New York University, USA
- W5-563.f WHOLE GENOME SEQUENCING OF SINGLE CIRCULATING TUMOR CELLS AFTER THEIR SIZE-BASED ENRICHMENT**
Wooseok Lee, Amos Chungwon Lee, Yongju Lee, Ahyoun Choi, Sudeok Kim, and Sunghoon Kwon
Seoul National University, KOREA

W6-663.f MICRODISSECTED TUMOR TISSUE HAS LOWER HYPOXIA, APOPTOSIS, AND NECROSIS, AND HIGHER PROLIFERATION THAN TUMOR SLICES CULTURED UNDER SIMILAR CONDITIONS

Dina Dorrigiv^{1,3}, Kayla Simeone^{1,2}, Benjamin Péant^{1,2}, Euridice Carmona¹, Jennifer K. Dupont¹, Anne-Marie Mes-Masson^{1,2}, and Thomas Gervais^{1,3}

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Th7-762.f MICROFLUIDIC MODELS FOR NATURAL KILLER/CANCER CELL INTERACTIONS IN METASTASIS

Heather E. Bomberger, Behiye Kodal, Martin Felices, and David K. Wood
University of Minnesota, USA

Th8-862.f PARALLELIZED MICROFLUIDIC THIN CELL TRAPPERS FOR EFFECTIVELY SELECTING BLOOD CIRCULATING TUMOR CELLS

Natsumi Shimmyo, Makoto Furuhashi, Masumi Yamada, Rie Utoh, and Minoru Seki
Chiba University, JAPAN

f - Diagnostics, Drug Testing & Personalized Medicine

Neurobiology/Neuroscience

W6-664.f SPATIALLY RESOLVED MICROFLUIDICS FOR STIMULATING LOCAL ISCHEMIA IN BRAIN TISSUE

Michael T. Cryan, Yuxin Li, and Ashley E. Ross
University of Cincinnati, USA

Th7-763.f WIRELESS BIORESORBABLE NERVE STIMULATORS WITH SOFT CUFF ELECTRODE

Kyung Su Kim, Seunghun Han, and Jahyun Koo
Korea University, KOREA

f - Diagnostics, Drug Testing & Personalized Medicine

Clinical Chemistry

M1-164.f POINT-OF-CARE DETECTION OF CIRCULATING HISTONES FOR INTERNAL TRAUMA DIAGNOSIS

Micaela L. Everitt and Ian M. White
University of Maryland, College Park, USA

Th8-863.f FINGER-DRIVEN PUMP ASSISTED MICROFLUIDIC PLATFORM FOR COLORIMETRIC DETECTION OF LITHIUM

Angelo Traina¹, Han Gardeniers², and Burcu Gumuscu^{2,3}

¹University of Roma "La Sapienza", ITALY, ²University of Twente, THE NETHERLANDS, and ³Eindhoven University of Technology, THE NETHERLANDS

f - Diagnostics, Drug Testing & Personalized Medicine

Personalized Medicine

- M1-165.f POINT-OF-CARE SOLUTION FOR THERAPEUTIC DRUG MONITORING ENABLED BY INTEGRATING FO-SPR READOUT INTO A SELF-POWERED MICROFLUIDIC PLATFORM**
Henry Ordotowski, Jiahuan Qu, Ruben Verbruggen, Francesco Dal Dosso, Saba Safdar, Nick Geukens, Debby Thomas, Dragana Spasic, and Jeroen Lammertyn
KU Leuven, BELGIUM
- M2-264.f A MICROFLUIDIC 3-PART DIFFERENTIAL SORTER**
Mohammad Aghaamoo, Ruoyu Jiang, Braulio Cardenas Benitez, and Abraham P. Lee
University of California, Irvine, USA
- M2-265.f WHOLE BLOOD PROFILING REVEALS BIOPHYSICAL IMMUNE RESPONSE SIGNATURES FOR CLINICAL TRIAGE**
Kerwin Kwek Zeming¹, Rohan Vernekar², Mui Teng Chua^{3,4}, Kai Yun Quek¹, Greg Sutton², Timm Krueger², Win Sen Kuan^{3,4}, and Jongyoon Han^{1,5}
¹*Singapore-MIT Alliance for Research and Technology (SMART) Centre, SINGAPORE,*
²*University of Edinburgh, UK,* ³*National University of Singapore, SINGAPORE,*
⁴*National University Health System, SINGAPORE,* and ⁵*Massachusetts Institute of Technology, USA*
- T3-365.f A SENSOR SURFACE ENGINEERING METHODOLOGY FOR NONINVASIVE WEARABLE ELECTROACTIVE DRUG MONITORING**
Shuyu Lin, Wenzhuo Yu, Bo Wang, Yichao Zhao, Ke En, Jialun Zhu, and Sam Emaminejad
University of California, Los Angeles, USA
- T4-465.f A WEARABLE MICROFLUIDIC SYSTEM FOR HIGH SIGNAL-TO-NOISE RATIO SWEAT RATE SENSING VIA PROGRAMMABLE MICROBUBBLE GENERATION AND TRACKING**
Haisong Lin, Shuyu Lin, Jorge Emiliano De Dios Suarez, Harish Athavan, Yibo Wang, Wenzhuo Yu, and Sam Emaminejad
University of California, Los Angeles, USA
- W5-564.f AN EX VIVO TUMOR-DERIVED MODEL TO STUDY THE EFFECT OF THERAPEUTIC AGENTS USED FOR THE TREATMENT OF CANCER PATIENTS**
Kayla Simeone¹, Benjamin Péant¹, Euridice Carmona¹, Diane Provencher¹, Fred Saad¹, Thomas Gervais^{1,2}, and Anne-Marie Mes-Masson¹
¹*Université de Montréal, CANADA* and ²*Polytechnique de Montréal, CANADA*
- W6-665.f INDEX MATCHED MICROFLUIDIC DEVICES FOR PRECISE MEASUREMENT OF SINGLE CELL MASS**
Edward R. Polanco, Justin Griffin, and Thomas A. Zangle
University of Utah, USA
- Th7-764.f MECHANICAL PROPERTIES OF HYDROGEL MICRONEEDLES FOR INTERSTITIAL FLUID SAMPLING**
Emilee Madsen and Jacqueline C. Linnes
Purdue University, USA
- Th8-864.f MICROPHYSIOLOGICAL DRUG-SCREENING PLATFORM FOR PERSONALIZED LEUKEMIA TREATMENT**
Furkan Gökçe¹, Mario M. Modena¹, Beat C. Bornhauser², and Andreas Hierlemann¹
¹*ETH Zürich, Basel, SWITZERLAND* and ²*University Children's Hospital Zürich, SWITZERLAND*

f - Diagnostics, Drug Testing & Personalized Medicine

Pathogen Detection & Antibiotics

- M1-166.f** **MINIATURIZED DEVICE FOR PERFORMING PCR, INTEGRATED WITH AN ELECTROCHEMICAL DNA BIOSENSOR FOR DETECTION OF *CORYNEBACTERIUM DIPHTHERIAE***
Kasper Marchlewicz^{1,2,3}, Iga Ostrowska¹, Zuzanna Iwón¹, Robert Ziółkowski¹, Kamil Żukowski³, Elżbieta Jastrzębska¹, Zbigniew Brzózka¹, and Elżbieta Malinowska^{1,3}
¹Warsaw University of Technology, POLAND, ²University of Warsaw, POLAND, and ³Centre of Advanced Materials and Technologies CEZAMAT, POLAND
- M1-167.f** **VIRUS IDENTIFICATION BY EASY TO FABRICATE NANOPORE-CHIP USING ULTRATHIN GLASS-FILM AND OPTICAL BONDING**
Takatoshi Yamamoto
Tokyo Institute of Technology, JAPAN
- M2-266.f** **PORTABLE MICROSCALE PLATFORM FOR MALARIA AND ANTIMALARIAL RESISTANCE SCREENING IN RESOURCE-LIMITED SETTINGS**
Shreya Deshmukh¹, Oswald Byaruhanga², Patrick Tumwebaze², Bryan Greenhouse³, Elizabeth Egan¹, and Utkan Demirci¹
¹Stanford University, USA, ²Infectious Diseases Research Collaboration, UGANDA, and ³University of California, San Francisco, USA
- T3-366.f** **A MULTIPLEX GENETIC DIAGNOSTIC DEVICE INTEGRATED WITH VERTICAL PHASEGUIDES CAPABLE OF AUTONOMOUS DISPENSING FOR THE DETECTION OF ARBOVIRUS INFECTIONS**
Daigo Natsuhara¹, Kisuken Tanaka¹, Hiroka Aonuma², Tatsuya Sakurai², Moeto Nagai¹, Hirotaka Kanuka², and Takayuki Shibata¹
¹Toyohashi University of Technology, JAPAN and ²Jikei University School of Medicine, JAPAN
- T3-367.f** **QUANTIFYING BACTERIAL SPORE GERMINATION BY IMPEDANCE CYTOMETRY FOR ASSESSING HOST MICROBIOTA SUSCEPTIBILITY**
John Moore, Armita Salahi, Carlos Honrado, Christopher Warburton, Cirle Warren, and Nathan S. Swami
University of Virginia, USA
- T4-466.f** **NANO/MICROFLUIDIC DEVICE FOR EFFICIENT BACTERIA CAPTURE**
Tamer Abdelfattah¹, Mahsa Jalali¹, Roozbeh Siavash Moakhar¹, Sahar Sadat Mahshid², and Sara Mahshid¹
¹McGill University, CANADA and ²University of Toronto, CANADA
- T4-467.f** **RAPID AMPLIFICATION OF FEMTOGRAMS OF DNA WITH HIGH PURITY IN DIGITAL MICROFLUIDICS FOR SEQUENCING**
Yuguang Liu, Patricio Jeraldo, Helena Mendes-Soares, Thao Masters, Heidi Nelson, Robin Patel, Nicholas Chia, and Marina Walther-Antonio
Mayo Clinic, USA
- W5-565.f** **AN AUTOMATED MICROFLUIDIC DIAGNOSTICS PIPELINE FOR INFECTIOUS DISEASE DETECTION IN LOW RESOURCE SETTINGS**
Miren Urrutia Iturriza¹, Giulia Gaudenzi^{1,2}, Ahamad Saleem Akhtar¹, Inês Fernandes Pinto¹, Noa Lapins¹, Aman Russom¹, and Håkan Jönsson¹
¹KTH Royal Institute of Technology, SWEDEN and ²Karolinska Institute, SWEDEN
- W5-566.f** **RAPID BACTERIA ENRICHMENT AND DIAGNOSIS OF ANTIBIOTIC RESISTANCE FROM URINE SAMPLE**
Yuetao Li¹, Andrew Glidle¹, Julien Reboud¹, Jing Zhang¹, Yuanshuai Zhu¹, Jonathan M. Cooper¹, Wei Huang², and Huabing Yin¹
¹University of Glasgow, UK and ²University of Oxford, UK

- W6-666.f CELL-FREE, CRISPR/CAS-BASED PAPER DIAGNOSTICS FOR FOOD AND WATERBORNE PATHOGEN DETECTION**
Helena de Puig Guixe¹, Michael S. Wiederoder², Shannon K. McGraw², and James J. Collins¹
¹Wyss Institute for Biologically Inspired Engineering, USA and ²US Army CCDC - Soldier Center, USA
- W6-667.f RESPIDISK: A POINT-OF-CARE PLATFORM FOR FULLY AUTOMATED DETECTION OF RESPIRATORY TRACT INFECTION PATHOGENS IN CLINICAL SAMPLES**
Markus Rombach¹, Sebastian Hin¹, Mara Specht¹, Benita Johannsen¹, Jan Lüddecke¹, Nils Paust¹, Roland Zengerle¹, and Konstantinos Mitsakakis²
¹Hahn-Schickard, GERMANY and ²University of Freiburg, GERMANY
- Th7-765.f DIRECT ISOLATION AND DETECTION OF PATHOGENIC BACTERIA USING A NANOGAP DEVICE**
Jung Y. Han, Michael Yeh, and Don L. DeVoe
University of Maryland, College Park, USA
- Th7-766.f RNA/DNA AMPLIFICATION METHODS FOR THE DETECTION OF BACTERIA AND VIRUS THROUGH AN OPTOELECTRONIC LAB-ON-CHIP**
Francesca Costantini¹, Nicola Lovecchio², Lorenzo Iannascoli², Valeria Scala¹, Francesco Faggioli¹, Nicoletta Pucci¹, Stefania Loreti¹, Giampiero deCesare², Augusto Nascetti², and Domenico Caputo²
¹CREA-DC Research Centre for Plant Protection and Certification, ITALY and ²Sapienza University of Rome, ITALY
- Th8-865.f HIGH EFFICIENT AND SELECTABLE CONCENTRATION OF BACTEREMIA AND RAPID BACTERIAL ANTIBIOTIC SUSCEPTIBILITY TEST THROUGH ELECTROKINETIC CONCENTRATION MICRODEVICE**
Kuan-Hung Chen¹, Shih-Han Lee¹, Chun-Wei Lee¹, Tseren-Onolt Ishdorj², and Fan-Gang Tseng^{1,3}
¹National Tsing Hua University, TAIWAN, ²Mongolian University of Science and Technology, MONGOLIA, and ³Academia Sinica, TAIWAN
- Th8-866.f SURFACE-ENHANCED RAMAN SPECTROSCOPY BASED DETECTION OF β -LACTAMASE ACTIVITY IN SMALL SAMPLES OF RESISTANT *E. COLI***
Shannon H. Hilton, Martha David, Connor Hall, and Ian M. White
University of Maryland, College Park, USA

f - Diagnostics, Drug Testing & Personalized Medicine

Testing for COVID-19, Rapid Virus Testing, Pandemic Management

- M1-168.f LAMP BASED DETECTION OF SARS-COV-2 WITH LOW-COST OFF-THE-SHELF COMPONENTS**
Kamalalayam Rajan Sreejith, Muhammad Umer, Narshone Soda, Surasak Kasetsirikul, Muhammad J.A. Shiddiky, and Nam-Trung Nguyen
Griffith University, AUSTRALIA
- M2-267.f 3D-PRINTED CAPILLARIC CHIP FOR INSTRUMENTATION-FREE, RAPID, AND QUANTITATIVE COVID-19 SEROLOGICAL TESTING USING SALIVA**
Oriol Ymbern, Ahmad Sohrabi, Azim Parandakh, Vahid Karamzadeh, Johan Renault, Marziye Mirbagheri, Zijie Jin, Justin Lessard-Wajcer, Jay Pimprikar, Molly Shen, Lorenna Oliveira, Yiannis Paschalidis, Andy Ng, and David Juncker
McGill University, CANADA
- M2-268.f LATERAL FLOW ASSAY FOR THE DETECTION OF NOROVIRUS USING PEPTIDE-COATED GOLD NANOPARTICLES**
Taeyeong You, Woojin Jeong, Sun Min Kim, and Tae-Joon Jeon
Inha University, KOREA

- T3-368.f A MICROFLUIDIC APPROACH TO RAPID CRISPR-BASED DETECTION OF SARS-COV-2 RNA**
Ashwin Ramachandran, Diego A. Huyke, Eesha Sharma, Malaya K. Sahoo, Niaz Banaei, Benjamin A. Pinsky, and Juan G. Santiago
Stanford University, USA
- T3-369.f MICRO-RAPID AUTONOMOUS ANALYTICAL DEVICE FOR SARS-COV-2 DETECTION**
Jacqueline C. Linnes, Navaporn (Amy) Sritong, Ashlee Colbert, and Karin F.K. Ejendal
Purdue University, USA
- T4-468.f AN ADAPTABLE, MASS PRODUCTION CAPABLE, MICROFLUIDIC MIXER FOR POINT OF CARE SAMPLE PREP**
Priscilla Delgado, Pranav Dorbala, Abhijit Ravindran, and David Myers
Emory University, USA
- W5-567.f DETECTION OF AVIAN INFLUENZA VIRUS AND ITS ANTIBODY BY FLUORESCENCE POLARIZATION IMMUNOASSAY**
Keine Nishiyama¹, Yohei Takeda², Masatoshi Maeki¹, Akihiko Ishida¹, Hirofumi Tani¹, Koji Shigemura³, Akihide Hibara⁴, Haruko Ogawa², and Manabu Tokeshi¹
¹*Hokkaido University, JAPAN*, ²*Obihiro University of Agriculture and Veterinary Medicine, JAPAN*, ³*Tianma Japan, Ltd., JAPAN*, and ⁴*Tohoku University, JAPAN*
- W6-668.f ELECTROCHEMICAL CAPILLARY-FLOW IMMUNOASSAY FOR THE DETECTION OF ANTI-SARS-COV-2 ANTIBODIES**
Isabelle C. Samper¹, Ana Sánchez-Cano^{1,2}, Wisarut Khamcharoen^{1,3}, Ilhoon Jang¹, Brian J. Geiss¹, David S. Dandy¹, and Charles S. Henry¹
¹*Colorado State University, USA*, ²*Universitat Autònoma de Barcelona, SPAIN*, and ³*Srinakharinwirot University, THAILAND*
- Th7-767.f HANDHELD LIGHTWEIGHT BATTERY-OPERATED REAL-TIME PCR DEVICE FOR COVID-19 DIAGNOSIS**
Geoffrey Mulberry, Matthew Moench, and Brian N. Kim
University of Central Florida, USA
- Th8-867.f HIGHLY PERFORMING POINT-OF-CARE MOLECULAR TESTING FOR SARS-COV-2 WITH RNA EXTRACTION AND ISOTHERMAL AMPLIFICATION.**
Etienne Coz¹, Pierre Garneret¹, Elian Martin¹, Jean-Claude Manuguerra², Elodie Brient-Litzler², Vincent Enouf², Daniel Felipe Gonzalez Obando², Jean Christophe Olivo-Marin², Fabrice Monti¹, Sylvie Van der Werf², and Patrick Tabeling²
¹*ESPCI, FRANCE* and ²*Institut Pasteur, FRANCE*

f - Diagnostics, Drug Testing & Personalized Medicine

Drug Screening and Development

- M1-169.f MICROFLUIDIC GRADIENT GENERATOR FOR DRUG SCREENING APPLICATIONS**
Arian Jaber¹, Amir Monemian Esfahani¹, Ali Tamayol^{1,2}, and Ruiguo Yang¹
¹*University of Nebraska, Lincoln, USA* and ²*University of Connecticut, USA*
- M2-269.f MICROFLUIDIC IMMOBILIZED ENZYME REACTOR FOR DETERMINING THE ELIMINATION OF ENVIRONMENTAL DRUG RESIDUES IN FISH**
Vera Kouhi, Tea Pihlaja, Elisa Ollikainen, and Tiina Sikanen
University of Helsinki, FINLAND
- T4-469.f "CUBOIDS" FOR MULTIPLEXED MICROFLUIDIC DRUG TESTING OF INTACT TISSUES**
Adán Rodríguez, Lisa Horowitz, and Albert Folch
University of Washington, USA

- W5-568.f ARTIFICIAL BRAIN "CELLS-ON-A-CHIP" FOR DRUG PERMEABILITY PREDICTION**
Jaime L. Korner and Katherine S. Elvira
University of Victoria, CANADA
- W6-669.f DROPLET-BASED APPROACH TO HIGH SPEED DRUG DISCOVERY**
Stacey Markovic¹, Ryan A. Dubay^{1,2}, Peter Hsi¹, Nerses J. Haroutunian¹, Cassie M. Bryan¹,
Kettner Griswold Jr.¹, Eric M. Darling², Andrew P. Magyar¹, and Vishal Tandon¹
¹*Draper Laboratory, USA and* ²*Brown University, USA*
- Th7-768.f ESTABLISHMENT OF AN AUTOMATIZED MICROFLUIDIC PLATFORM FOR SCREENING OF NOVEL HBV CAPSID ASSEMBLY MODULATORS (CAMS)**
Tamás Vermes^{1,2}, Thomas Henkel³, Helmut Buschmann¹, Miquel A. Pericàs², Esther Alza², Thomas Goldner¹,
and Andreas Urban¹
¹*AiCuris Anti-infective Cures GmbH, GERMANY,* ²*Institute of Chemical Research of Catalonia (ICIQ), SPAIN,*
and ³*Leibniz Institute of Photonic Technology (IPHT), GERMANY*
- Th8-868.f HIGH-THROUGHPUT GENERATION OF UNIFORM CEREBRAL BRAIN ORGANOID**
Kyungwon Park¹, Yong Hun Jung¹, and Seok Chung^{1,2}
¹*Korea University, KOREA and* ²*Korea Institute of Science and Technology (KIST), KOREA*

f - Diagnostics, Drug Testing & Personalized Medicine

Drug Delivery

- T3-370.f 2D AND 3D TUMOR MODELS ON-A-CHIP TO EVALUATE EFFECTIVENESS OF PHOTODYNAMIC THERAPY (PDT) WITH GRAPHENE OXIDE CONJUGATES**
Agnieszka Zuchowska, Bartłomiej Dabrowski, Artur Kasprzak, Ksenia Kaminska, Magdalena Poplawska,
and Zbigniew Brzozka
Warsaw University of Technology, POLAND
- T4-470.f A NOVEL MICROSYSTEM FOR STUDYING THE EFFECTIVENESS OF ELECTROCHEMOTHERAPY AND CHEMOTHERAPY PROCEDURES**
Sandra Skorupska, Ilona Grabowska-Jadach, Malgorzata Pieta, Artur Dybko, and Zbigniew Brzozka
Warsaw University of Technology, POLAND
- W5-569.f DRUG LOADING INTO EXTRACELLULAR VESICLE VIA TONICITY CONTROL**
Chaeun Lee^{1,2}, Sumit Kumar², Juhee Park², Junyoung Kim^{1,2}, and Yoon-Kyoung Cho^{1,2}
¹*Ulsan National Institute of Science and Technology (UNIST), KOREA and*
²*Institute for Basic Science (IBS), KOREA*
- W6-670.f HIGH-THROUGHPUT MICROFLUIDICS FOR EVALUATING MICROBUBBLE ENHANCED DELIVERY OF CANCER THERAPEUTICS IN SPHEROID CULTURES**
Matthew D. Bourn^{1,2}, Damien V.B. Batchelor¹, Nicola Ingram², James McLaughlan^{1,2}, P. Louise Coletta²,
Stephen D. Evans¹, and Sally A. Peyman^{1,2}
¹*University of Leeds, UK and* ²*St James' University Hospital, UK*
- Th7-769.f MASSIVELY PARALLEL INTRACELLULAR DELIVERY USING TITANIUM OXIDE NANOTUBES**
Loganathan Mohan¹, Srabani Kar², Ren Hattori¹, Miho Ishii-Teshima¹, Kavitha Illath², Anuj Tiwari¹,
Tuhin Subhra Santra³, Takayuki Shibata¹, and Moeto Nagai¹
¹*Toyohashi University of Technology, JAPAN,* ²*University of Cambridge, UK, and*
³*Indian Institute of Technology Madras, INDIA*

f - Diagnostics, Drug Testing & Personalized Medicine

Others

- M1-170.f** **INSTANT LABELING OF THERAPEUTIC STEM CELLS WITH MICROFLUIDICS FOR IN VIVO TRACKING**
Todd Sulchek¹, Hossein Nejadnik², Kyung Oh Jung², Ashok J. Theruvath², Anna Liu², Wei Wu², Louise Kiru², Guillem Pratx², and Heike E. Daldrup-Link²
¹Georgia Institute of Technology, USA and ²Stanford University, USA
- M2-270.f** **USING RBC SHAPES TO DISTINGUISH BETWEEN SICKLE CELL DISEASE AND TRAIT SAMPLES**
Riddha Manna, Oshin Sharma, Anish Mahto, Srushti Singh, and Debjani Paul
Indian Institute of Technology, Bombay, INDIA
- T3-371.f** **PORTABLE AND AUTOMATED ANALYZER FOR RAPID AND HIGH PRECISION IN VITRO DISSOLUTION OF DRUGS**
Zhongmei Chi¹, Yunxiang Feng², and Li Yang¹
¹Northeast Normal University, CHINA and ²Jingke-Oude Science and Education Instruments Co., Ltd., CHINA
- Th8-869.f** **DEVELOPMENT OF A METHOD FOR CELL DELIVERY INTO THE SUBRETINAL SPACE USING BIODEGRADABLE NANOSHEETS**
Kazuya Yamashita, Hideto Kojima, Nobuhiro Nagai, Toshiaki Abe, and Hirokazu Kaji
Tohoku University, JAPAN

f - Diagnostics, Drug Testing & Personalized Medicine

Industrial Benefactor

- Th7-782.f** **MICROFLUIDIC METHODS OF AUTOMATED LIPOSOME LIBRARY GENERATION**
Valentina Nappo, Gurinder Vinner, Ben Knappett, Damiano Rossi, Richard H. Gray
Dolomite Microfluidics, UK

f - Diagnostics, Drug Testing & Personalized Medicine

Late News

- M1-181.f** **AN EASY-TO-USE MICROFLUIDIC CHIP WITH ISOTHERMAL NUCLEIC ACID AMPLIFICATION FOR RAPID COVID-19 DETECTION**
Dan Liu¹, Haicong Shen², Yuqian Zhang¹, and Chaoyong Yang²
¹Huaqiao University, CHINA and ²Xiamen University, CHINA
- M2-280.f** **3D NANO-PATTERNED FLUIDIC INTERFACE ENABLES ULTRASENSITIVE DETECTION OF CIRCULATING EXOSOMES FOR IMMUNOTHERAPY RESPONSE PREDICTION**
Lingling Wu¹, Jiafeng Gao¹, and Chaoyong Yang^{1,2}
¹Shanghai Jiao Tong University, CHINA and ²Xiamen University, CHINA
- M2-281.f** **ELECTROCHEMICAL IMPEDANCE-BASED DETECTOR FOR SARS-COV-2 ANTIBODIES**
Mohamed Z. Rashed¹, Jonathan A. Kopechek¹, Mariah C. Priddy¹, Krystal T. Hamorsky¹, Kenneth E. Palmer¹, Nikhil Mittal², Joseph Valdez², and Stuart J. Williams¹
¹University of Louisville, USA and ²Agilent Technologies Inc, USA
- T3-381.f** **AT-HOME BLOOD COLLECTION AND RNA STABILIZATION USING A CAPILLARY PRESSURE BASED DEVICE**
Amanda J. Haack, Fang Yun Lim, Dakota S. Kennedy, Jing J. Lee, Erwin Berthier, and Ashleigh B. Theberge
University of Washington, USA

- T3-382.f IFAST AND RT-LAMP: AN APPROACH FOR ON-CHIP DETECTION OF SARS-CoV-2 RNA FOR RESOURCE-LIMITED SETTINGS**
Pablo Rodriguez-Mateos¹, Bongkot Ngamsom¹, Cheryl Walter¹, Charlotte E. Dyer¹, Jesse Gitaka², Alexander Iles¹, and Nicole Pamme¹
¹University of Hull, UK and ²Mount Kenya University, KENYA
- T4-481.f HIERARCHICAL MULTIVALENT APTAMERS-PRINTED MICROFLUIDIC DEVICE FOR ISOLATING CIRCULATING FETAL CELLS**
Huimin Zhang¹, Xiyuan Yu¹, Yilong Liu², Bingqian Lin², Yidi Wang², Yanling Song², Zhi Zhu², and Chaoyong Yang^{1,2}
¹Shanghai Jiao Tong University School of Medicine, CHINA and ²Xiamen University, CHINA
- T4-482.f HIGH THROUGHPUT GLOMERULUS EXPERIMENTAL MODEL DEVICE WITH MECHANICAL FILTRATION FOR DRUG DISCOVERY RESEARCH**
Kotaro Doi¹, Hiroshi Kimura², Masaomi Nangaku¹, and Teruo Fujii¹
¹University of Tokyo, JAPAN and ²Tokai University, JAPAN
- W5-580.f AN ULTRASENSITIVE DETECTION OF AGGREGATED α -SYNUCLEIN AS A BIOMARKER MOLECULE FOR PARKINSON DISEASE BY LIPOSOME-IMMOBILIZED CANTILEVER BIOSENSOR USING SELF-TEMPLATING PHENOMENA OF PRIONOID PROTEIN**
Ryoko Kobayashi¹, Masanori Sawamura², Hodaka Yamakado², Masayuki Sohgewa³, and Minoru Noda¹
¹Kyoto Institute of Technology, JAPAN, ²Kyoto University, JAPAN, and ³Niigata University, JAPAN
- W5-581.f MICRO-IMPLANTS WIRELESS DEVICE FOR DEEP TISSUE PHOTO THERAPEUTICS**
Sophie Wan Mei Lian¹, Jin Yunxia², John S. Ho^{1,2}, and Chia-Hung Chen³
¹National University of Singapore, SINGAPORE, ²Institute for Health Innovation and Technology (iHealthtech) and ³City University of Hong Kong, HONG KONG
- W6-681.f ELECTROMECHANICAL LAB-ON-A-CHIP PLATFORM FOR CREATININE ANALYSIS USING AUTOMATED ELISA PROTOCOLS**
Betul Karakuzu, E. Alperay Tarim, Cemre Oksuz, and H. Cumhuri Tekin
Izmir Institute of Technology, TURKEY
- W6-682.f HUMAN NEUTROPHIL CHEMOTAX THROUGH TAPERED CHANNELS IN RESPONSE TO COMPLEMENT ACTIVATION AND INHIBITION**
Sinan Muldur and Daniel Irimia
Massachusetts General Hospital, Harvard Medical, Shriners Hospital for Children, USA
- Th7-780.f PERSONALIZED ANTIBIOTHERAPY VIA "FINGER PRICK" BLOOD TEST**
H. Ceren Ates, Nils Schneider, Hasti Mohsenin, Wilfried Weber, Gerald Urban, and Can Dincer
University of Freiburg, GERMANY
- Th8-878.f MICROFLUIDIC ASSAYS MEASURING NEUTROPHIL RESPONSES TO BORRELIA BURGDORFERI IDENTIFY COMPLEMENT COMPONENT C5A AS A KEY MEDIATOR**
Felix Ellett, Sinan Mulder, Anika L. Marand, Charles Marvil, John Branda, Jacob E. LeMieux, Adam B. Raff, Klemen Strle, and Daniel Irimia
Massachusetts General Hospital, Harvard Medical, Shriners Hospital for Children, USA

g - Other Applications of Microfluidics

Artificial Intelligence and Microfluidics

- T4-471.g AI-ASSISTED MICROFLUIDIC STIFFNESS GRADIENT FOR ANALYSIS OF 3D CELL CULTURES IN HYDROGEL BEADS**
Vasileios Anagnostidis, Dalia Al-Saadi, and Fabrice Gielen
University of Exeter, UK
- W5-570.g AI-GUIDED MICROFLUIDIC SYNTHESIS OF COLLOIDAL LEAD HALIDE PEROVSKITE QUANTUM DOTS**
Robert W. Epps¹, Amanda A. Volk¹, Kameel Abdel-Latif¹, Kristofer G. Reyes², and Milad Abolhasani¹
¹*North Carolina State University, USA and* ²*University of Buffalo, USA*
- W6-671.g DEEP LEARNING CLASSIFICATION OF PARTICLE DEPTH FOR DEFOCUSING 3D-3C micro-PTV**
Evan Lammertse¹, Martin Sauzade¹, Hongxiao Li², Jun Kong², and Eric Brouzes¹
¹*Stony Brook University, USA and* ²*Georgia State University, USA*
- Th7-770.g FLOW FOCUS-FREE IMAGE FLOW CYTOMETRY BY IMAGE PROCESSING AND DATA ESTIMATION**
Arpith Vedhanayagam and Amar S. Basu
Wayne State University, USA
- Th8-870.g INTELLIGENT ON-CHIP ANALYSIS OF THROMBOSIS IN ECMO WITH A GOAT MODEL**
Yuqi Zhou¹, Atsushi Yasumoto^{1,2}, Masako Nishikawa¹, Yuya Nobori¹, Yi Wang¹, Masaki Anraku^{1,3}, Yutaka Yatomi¹, and Keisuke Goda^{1,4,5}
¹*University of Tokyo, JAPAN,* ²*Hokkaido University Hospital, JAPAN,*
³*Tokyo Metropolitan Geriatric Hospital and Institute of Gerontology, JAPAN,* ⁴*Wuhan University, CHINA, and* ⁵*University of California, Los Angeles, USA*

g - Other Applications of Microfluidics

Fuel Cells & Energy

- M1-171.g COTTON-BASED MICROFLUIDIC EVAPORATOR TO ENHANCE THE PERFORMANCE OF A THERMOELECTRIC DEVICE**
Liang Jun Zheng, Dong Hee Kang, Na Kyong Kim, and Hyun Wook Kang
Chonnam National University, KOREA
- M2-271.g FLUORESCENT VISUALIZATION OF OIL DISPLACEMENT IN A MICROFLUIDIC DEVICE FOR ENHANCED OIL RECOVERY APPLICATIONS**
Khashayar R. Bajgiran, Hannah C. Hymel, Shayan Sombolestani, Nora Safa, Nathalie Dante, James A. Dorman, Dandina Rao, and Adam T. Melvin
Louisiana State University, USA
- T3-372.g UNDERSTANDING POLYMER RETENTION IN POROUS FORMATIONS USING MICROFLUIDICS**
Antonia Sugar, Maged F. Serag, Ulrich Buttner, Satoshi Habuchi, and Hussein Hoteit
King Abdullah University of Science & Technology (KAUST), SAUDI ARABIA

g - Other Applications of Microfluidics

Microfluidics for X-Ray and e-Beam Applications

T4-472.g THREE DIMENSIONAL HYDRODYNAMIC FOCUSING IN A MONOLITHIC FUSED SILICA MICROFLUIDIC DEVICE

Diego A. Huyke¹, Ashwin Ramachandran¹, Thomas Kroll², Daniel P. DePonte², and Juan G. Santiago¹
¹Stanford University, USA and ²SLAC National Accelerator Lab, USA

g - Other Applications of Microfluidics

Others

W5-571.g AEROSOLIZED DROPLETS AND OPEN MICROFLUIDICS FOR CAPTURING AT-HOME AIRBORNE EXPOSURES

Ulri N. Lee, Tammi L. van Neel, Fang Yun Lim, Jean Berthier, Erwin Berthier, and Ashleigh B. Theberge
University of Washington, USA

W6-672.g REPROGRAMMABLE FERROMAGNETIC DOMAINS FOR RECONFIGURABLE SOFT MAGNETIC ACTUATORS

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Th7-771.g TOWARDS ASTROBIOLOGICAL NANOSATELLITE MISSION – LOC INSTRUMENTATION FOR CELL CULTIVATION RESEARCH IN SPACE

Agnieszka Podwin¹, Patrycja Śniadek¹, Adrianna Graja^{1,2}, Bartosz Kawa¹, Marcin Bialas¹, Wojciech Kubicki¹, Marta Jurga³, Agata Kaczmarek³, Krzysztof Matkowski³, Rafal Walczak¹, and Jan Dziuban¹
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g - Industrial Benefactor

W5-572.g A COMPARISON OF CYCLO OLEFIN POLYMER WITH GLASS AND OTHER PLASTICS FOR THE CONSTRUCTION OF MOLECULAR DIAGNOSTIC CONSUMABLE DEVICES

Tachi Sawaguchi, Shotaro Suzuki, Hiro Fujiki, Toshiro Katayama, and Larry Atupem
Zeon Specialty Materials Inc., USA

g - Other Applications of Microfluidics

Late News

Th7-781.g A KINETIC MATCHING APPROACH ON MICROFLUIDIC PAPER-BASED ANALYTICAL DEVICES FOR RAPID ASSESSMENT OF TOTAL POLYPHENOL CONTENT IN TEA

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