

14th International Conference on Miniaturized Systems for Chemistry and Life Sciences 2010

(MicroTAS 2010)

**Groningen, The Netherlands
3-7 October 2010**

Volume 1 of 3

Editors:

**Sabeth Verpoorte
Jenny Emneus**

**Helen Andersson-Svahn
Nicole Pamme**

ISBN: 978-1-61839-062-2

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2010) by the Chemical and Biological Microsystems Society
All rights reserved.

Printed by Curran Associates, Inc. (2011)

For permission requests, please contact the Chemical and Biological Microsystems Society
at the address below.

Chemical and Biological Microsystems Society
c/o Preferred Meeting Management, Inc.
307 Laurel Street
San Diego, California 92101-1630

Phone: (619) 232-9499

Fax: (619) 232-0799

info@cbmsociety.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Day 1 - Monday, 4 October 2010

Plenary Presentation I

FROM EVOLUTION TO REVOLUTION IN WATER QUALITY MONITORING: ARE STIMULUS-RESPONSIVE MATERIALS THE KEY TO THE ANALYTICAL PLATFORMS OF THE FUTURE? 1

D. Diamond¹, S. Anastasova-Ivanova¹, A. Radu¹, R. Byrne¹, F.B. Lopez¹, U. Mattinen², J. Bobacka², and A. Lewenstam²

¹Dublin City University, IRELAND and ²Åbo Akademi University, FINLAND

Plenary Presentation II

LABS ON A CHIP FOR HEALTH CARE APPLICATIONS 4

A. van den Berg

MESA+, University of Twente, THE NETHERLANDS

Session 1A1 - Stem Cell Growth and Stimulation

MICROFLUIDIC SPATIAL CONTROL OF STEM CELL DIFFERENTIATION 7

J. Kawada^{1,3}, H. Kimura^{1,3}, H. Akutsu^{2,3}, Y. Sakai^{1,3}, and T. Fujii^{1,3}

¹University of Tokyo, JAPAN, ²National Research Institute for Child Health and Development, JAPAN, and ³Japan Science and Technology Agency (JST), JAPAN

MULTIPLEX MICROFLUIDIC PERFUSION IDENTIFIES SHEAR STRESS MECHANOSENSING MEDIATORS IN MOUSE EMBRYONIC STEM CELLS 10

Y.C. Toh and J. Voldman

Massachusetts Institute of Technology, USA

A MICROFLUIDIC DEVICE FOR CHEMICAL AND MECHANICAL STIMULATION OF MESENCHYMAL STEM CELLS 13

H.W. Wu¹, C.C. Lin¹, S.M. Hwang², and G.B. Lee¹

¹National Cheng Kung University, TAIWAN and ²Food Industry Research and Development Institute, TAIWAN

Session 1B1 - DNA Analysis

BIO-CHEMICAL REACTION ENHANCEMENT USING MAGNETIC AXIS CONTROLLED SPINNING MICROPARTICLES WITH STRUCTURAL COLOR BARCODE 16

H. Lee, H. Kim, J. Kim, J. Kim, and S. Kwon

Seoul National University, SOUTH KOREA

ON-CHIP CONTINUOUS FLOW INTERACTION STUDIES OF DNA AND PROTEIN COMPLEXED DNA 19

M. Everwand, D. Anselmetti, and J. Regtmeier

Bielefeld University, GERMANY

A NEW SIGNAL-ON ELECTROCHEMISTRY-BASED DETECTION PLATFORM FOR DNA AND POLYMERASE ENZYME ON A MICROCHIP WITHOUT PROBE IMMOBILIZATION CHEMISTRY 22

X. Luo and I.-M. Hsing

Hong Kong University of Science and Technology, HONG KONG

Session 1C1 - Point-of-Care Diagnostics

IMMUNOASSAY ON COTTON YARN FOR LOW-COST DIAGNOSTICS	25
G.Z. Zhou, R. Safaviah, X. Mao, and D. Juncker <i>McGill University, CANADA</i>	
IMMUNOASSAY DEVICE INTEGRATING PLASTIC FLOW-CHANNEL REACTOR AND RFID SENSOR CHIP	28
Y. Yazawa ¹ , A. Shiratori ¹ , S. Funaoka ² , and M. Fukushima ² ¹ <i>Hitachi, Ltd., JAPAN</i> and ² <i>Sumitomo Bakelite Co., Ltd., JAPAN</i>	
SENSING SWEAT IN REAL-TIME USING WEARABLE MICRO-FLUIDICS	31
F. Benito-Lopez, S. Coyle, R. Byrne, and D. Diamond <i>Dublin City University, IRELAND</i>	

Session 1D1 - Applications of Advanced/Smart Materials

A FLUIDIC μ-TRANSFORMER WITH PRE-PROGRAMMED VACUUM ACTUATION FUNCTIONS FOR DISPOSABLE LAB-ON-A-CHIPS	34
C.-C. Hong and J.-C. Chen <i>National Tsing Hua University, TAIWAN</i>	
SHAPE MEMORY MAGNETIC NANOCOMPOSITE ACTUATORS WITH IN-SITU PROGRAMMED MAGNETIC AXES	37
J. Kim, S.E. Chung, H. Lee, S.-E. Choi, and S. Kwon <i>Seoul National University, SOUTH KOREA</i>	

Session 1A2 - Neurons

DIRECTED GROWTH OF RAT HIPPOCAMPAL NEURONS IN MICROFLUIDIC CULTURE WITHOUT SURFACE PATTERNING OR CHEMICAL GRADIENTS	40
A.C. Barbat ¹ , C. Fang ² , G.A. Banker ² , and B.J. Kirby ¹ ¹ <i>Cornell University, USA</i> and ² <i>Oregon Health and Sciences University, USA</i>	
RECONSTRUCTION OF MULTICOMPARTMENT ORIENTED NEURONAL NETWORKS FOR THE STUDY OF NEURODEGENERATIVE DISEASES	43
M. Vignes ^{1,2} , B. Deleglise ¹ , P. Gougis ² , L. Saias ² , S. Magnifico ¹ , L. Malaquin ² , B. Brugg ¹ , J.L. Viovy ² , and J.M. Peyrin ¹ ¹ <i>Université Pierre et Marie Curie, FRANCE</i> and ² <i>Curie Institute, FRANCE</i>	
NEURON AGGREGATE CULTURE PLATFORM FOR IN VITRO CNS MYELINATION STUDY	46
J. Park, H. Koito, J. Li, and A. Han <i>Texas A&M University, USA</i>	

Session 1B2 - Gene Analysis

DROPLET-BASED MICROFLUIDICS FOR QUANTITATIVE CELL-BASED REPORTER GENE ASSAYS	49
J.-C. Baret, Y. Beck, I. Billas-Massobrio, D. Moras, and A.D. Griffiths <i>Centre National de la Recherche Scientifique (CNRS), FRANCE</i>	
COMPLETE SAMPLE-TO-ANSWER GENETIC ANALYSIS OF INFLUENZA H1N1 VIA THE MAGNETIC INTEGRATED MICROFLUIDIC ELECTROCHEMICAL DETECTOR (MIMED)	52
B.S. Ferguson ¹ , S.F. Buchsbaum ¹ , T.-T. Wu ² , K. Hsieh ¹ , R. Sun ² , and H.T. Soh ^{1,2} ¹ <i>University of California, Santa Barbara, USA</i> and ² <i>University of California, Los Angeles, USA</i>	
INEXPENSIVE AND PORTABLE SAMPLE-IN-ANSWER-OUT GENETIC ANALYSIS SYSTEMS FOR POINT OF CARE APPLICATIONS	55
M. Behnam, A. Olanrewaju, J. Martinez-Quijada, F. Hejazi, G. Banting, A. Bidulock, S. Groendahl, R.W. Johnstone, D.M. Glerum, and C.J. Backhouse <i>University of Alberta, CANADA</i>	

Session 1C2 - Progress in On-Chip Biomolecular Detection

Invited Presentation

DROPLET-BASED MICROFLUIDICS FOR THE QUANTITATIVE DETECTION OF RARE MUTATIONS	58
D. Pekin ¹ , Y. Skhiri ¹ , J.-C. Baret ^{1,3} , D. Le Corre ² , L. Mazutis ¹ , C. Ben Salem ¹ , A. El Abed ² , J.B. Hutchison ⁴ , D.R. Link ⁴ , A. Griffiths ¹ , P. Laurent-Puig ² , and V. Taly ¹	
¹ Université de Strasbourg, CNRS, FRANCE, ² University Paris Descartes, FRANCE, ³ Max-Planck-Institute for Dynamics and Self-Organization, GERMANY, and ⁴ RainDance Technologies, USA	
PINWHEEL ASSAY: A VISUAL AND LABEL-FREE METHOD FOR DNA QUANTITATION	61
J. Li, D.C. Leslie, D.M. Haverstick, K.A. Kelly, N.S. Barker, and J.P. Landers University of Virginia, USA	
LABEL-FREE DETECTION OF PROTEIN BINDING SPECTRA WITH MULTISINE SPR MICROCHIPS	64
T. Ghosh ¹ , L. Williams ¹ , F. Azizi ² , and C.H. Mastrangelo ¹ ¹ University of Utah, USA and ² Purdue University Calumet, USA	

Session 1D2 - New Materials

NOVEL HYDROPHILIC MICROFLUIDICS WITH DURABILITY VIA DIRECT MOLDING AND UNIQUE CAPILLARY FLOW PERFORMANCE	67
T.-H. Yoon and D.-P. Kim Chungnam National University, SOUTH KOREA	
BEYOND PDMS: OFF-STOICHIOMETRY THIOL-ENE BASED SOFT LITHOGRAPHY FOR RAPID PROTOTYPING OF MICROFLUIDIC DEVICES	70
C.F. Carlborg, T. Haraldsson, K. Öberg, M. Malkoch, and W. van der Wijngaart Royal Institute of Technology (KTH), SWEDEN	
TEMPLATE SYNTHESIS IN HYDRODYNAMICALLY-ALIGNED SUPRAMOLECULAR NANO-CHANNELS	73
D. Kiriya ¹ , H. Onoe ¹ , M. Ikeda ² , I. Hamachi ² , and S. Takeuchi ¹ ¹ University of Tokyo, JAPAN and ² Kyoto University, JAPAN	

Poster Session Life Science Applications - Genomics & Proteomics

M1A A CD-LIKE MICROREACTOR ARRAY AND ITS APPLICATION IN PROTEIN CRYSTALLIZATION	76
Q. Chen, G. Li, and J. Zhao Chinese Academy of Sciences, CHINA	
M2A CENTRIFUGAL FLUIDIC SYSTEM FOR ENHANCED MIXING AND REDUCING INCUBATION TIMES DURING PROTEIN MICROARRAY PROCESSING	79
Z. Noroozi ¹ , H. Kido ^{1,2} , R. Peytavi ³ , R. Sasaki ¹ , A. Jasinskas ¹ , P. Felgner ¹ , and M. Madou ^{1,4} ¹ University of California, Irvine, USA, ² RotoPrep Inc., USA, ³ Université Laval, CANADA, and ⁴ World Class University, SOUTH KOREA	
M3A EXTENSION, IMMOBILIZATION AND CHEMICAL MODIFICATION OF DOUBLE-STRANDED DNA ON A SOLID SURFACE - TOWARD DIRECT SEQUENCING WITH MICROSCOPY -	82
K. Nishikawa ¹ , M. Kataoka ² , R. Nagata ² , A. Kitayama ³ , R. Tero ⁴ , M. Washizu ¹ , and H. Oana ¹ ¹ University of Tokyo, JAPAN, ² National Institute for Natural Sciences, JAPAN, ³ TerABase Inc., JAPAN, and ⁴ Institute for Molecular Science, JAPAN	
M4A MECHANICAL CELL LYSIS DEVICE	85
L.J.A. Beckers, M. Baragona, S. Shulepov, T. Vliegenhart, and A.R. van Doorn Philips Applied Technologies, THE NETHERLANDS	
M5A PARALLEL DNA AMPLIFICATION USING LOCALIZED MICROWAVE HEATING IN STANDARD-MICROTUBES	88
W. Hilber ¹ , I. Tiemann-Boege ¹ , C. Diskus ¹ , T. Lederer ¹ , B. Jakoby ¹ , and J. Boulanger ² ¹ Johannes Kepler University Linz, AUSTRIA and ² Academy of Sciences, AUSTRIA	

M6A	TECHICAL REFINEMENTS OF THE MICROFLUIDIC INTEGRATED SELECTIVE ENRICHMENT TARGET FOR IMPROVED SOLID-PHASE EXTRACTION	91
	B. Adler, L. Wallman, G. Marko-Varga, J. Nilsson, T. Laurell, and S. Ekström <i>Lund University, SWEDEN</i>	

Poster Session Life Science Applications - Clinical Diagnostics

M7A	A MAGNETIC-BEAD-BASED IMMUNOASSAY FOR RAPID PURIFICATION AND DETECTION OF INFLUENZA VIRUSES UTILIZING SUCTION-TYPE MICROFLUIDIC SYSTEMS	94
	K.-Y. Lien, L.-Y. Hung, H.-Y. Lei, and G.-B. Lee <i>National Cheng Kung University, TAIWAN</i>	
M8A	SUCTION-TYPE MICROFLUIDIC IMMUNOSENSING SYSTEMS FOR RAPID DETECTION OF DENGUE FEVER	97
	C.H. Weng, T.B. Huang, C.C. Huang, C.S. Yeh, H.Y. Lei, and G.B. Lee <i>National Cheng Kung University, TAIWAN</i>	
M9A	AUTOMATING SAMPLE PREPARATION IN MICROFLOW CYTOMETRY	100
	C.M. Puleo ¹ , L. Zhu ¹ , K. Shaikh ¹ , H. Zeng ¹ , C. Zhan ¹ , J. Erickson ² , F. Ligler ² , and J. Xie ¹ ¹ GE Global Research, USA and ² U.S. Naval Research Lab, USA	
M10A	DIFFERENTIAL WHITE CELL COUNT BY CENTRIFUGAL MICROFLUIDICS	103
	U.Y. Schaff, A.M. Tentori, and G.J. Sommer <i>Sandia National Laboratories, USA</i>	
M11A	HIGH-PERFORMANCE FLOW-THROUGH DNA PURIFICATION ON A MICROFLUIDIC CHIP	106
	M. Karle ¹ , G. Czilwik ¹ , J. Miwa ² , N. Paust ^{1,2} , G. Roth ^{1,2} , R. Zengerle ^{1,2} , and F. von Stetten ^{1,2} ¹ Institute for Micromachining and Information Technology (HSG-IMIT), GERMANY and ² University of Freiburg - IMTEK, GERMANY	
M12A	INTEGRATING PERFORMANCE EVALUATION SYSTEMS INTO THE DEVELOPMENT OF RAPID NUCLEIC ACID POINT-OF-CARE DIAGNOSTIC PLATFORMS	109
	G.J. Nixon, C.E. Donald, J.F. Huggett, and C.A. Foy <i>LGC Ltd, UK</i>	
M13A	MICROFLUIDIC DEVICES FOR THE DETECTION OF SEXUALLY TRANSMITTED INFECTIOUS AGENTS IN A URINE-BASED MATRIX	112
	C. Kemp ¹ , C. Birch ¹ , K.J. Shaw ¹ , G. Nixon ² , P.T. Docker ¹ , J. Greenman ¹ , J.F. Huggett ² , S.J. Haswell ¹ , C. Foy ¹ , and C.E. Dyer ¹ ¹ University of Hull, UK and ² LGC Ltd., UK	
M14A	NON-CONTACT HEAT MANAGEMENT FOR NUCLEIC ACID HYBRIDIZATION IN SAMPLE-TO-ANSWER CENTRIFUGAL MICROFLUIDICS	115
	R.A. Gorkin ^{1,3} , K. Abi-Samra ^{1,3} , F. Begin ² , G. Stewart ² , M. Bergeron ² , H. Kido ¹ , and M. Madou ^{1,3} ¹ University of California, Irvine, USA, ² Université Laval, CANADA, and ³ Ulsan National Institute of Science and Technology (UNIST), SOUTH KOREA	
M15A	PULSATING GATE BIAS IN MICROFLUIDIC LIQUID-GATED FIELD-EFFECT TRANSISTOR BASED ON CARBON NANOTUBES: EXTENDING OPERATING WINDOW, AMPLIFYING SIGNAL, AND IMPROVING DETECTION TO ATTO-MOLAR LEVEL	118
	I.P.M. Wijaya ¹ , T.J. Nie ² , I. Rodriguez ¹ , and S.G. Mhaisalkar ² ¹ Agency for Science, Technology and Research (A*STAR), SINGAPORE and ² Nanyang Technical University, SINGAPORE	
M16A	FLUORESCENCE-INTENSITY MULTIPLEXING USING FLUORESCENT SILICA NANOPARTICLES IN A SHEATHLESS MICROCHIP FLOW CYTOMETER	121
	H. Yun ¹ , H. Bang ¹ , W.G. Lee ² , J. Min ¹ , T.G. Park ¹ , C. Chung ³ and D.-C. Han ¹ ¹ Seoul National University, SOUTH KOREA, ² Kyung Hee University, SOUTH KOREA, and ³ NanoEnTek, Inc., SOUTH KOREA	

Poster Session Life Science Applications - Point-of-Care Testing

- M17A A MICROFLUIDIC SYSTEM FOR THE DETECTION OF ENDOTHELIAL PROGENITOR CELLS IN BLOOD SPECIMENS USING ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY** 124
L.T.-H. Kao¹, S.Y. Ng¹, H.Y.J. Liaw¹, K.Y. Wang¹, J.Z.J. Tan², K.C. Tang¹, J. Reboud¹, and Y. Chen¹
¹Agency for Science, Technology and Research (A*STAR), SINGAPORE and
²Nanyang Technological University, SINGAPORE
- M18A DEVELOPMENT OF A POINT-OF-CARE BOVINE LIVE STOCK HEALTH CONTROL SYSTEM USING ACOUSTOPHORESIS** 127
C. Grenvall¹, P. Augustsson¹, J. Riis Folkenberg², and T. Laurell¹
¹Lund University, SWEDEN and ²FOSS A/S, DENMARK
- M19A ELECTROKINETIC SAMPLE PREPARATION FOR ELECTROCHEMICAL ASSAYS: TOWARDS POINT-OF-CARE DIAGNOSIS OF URINARY TRACT INFECTIONS** 130
M.L.Y. Sin¹, V. Gau², J.C. Liao³, and P.K. Wong¹
¹University of Arizona, USA, ²GeneFluidics Inc, USA, and ³Stanford University, USA
- M20A HIGHLY EFFICIENT ON-CHIP PLASMA/SERUM GENERATION FOR DISPOSABLE POINT-OF-CARE DEVICES** 133
H. Becker¹, R. Klemm¹, C. Carstens², and C. Gärtner¹
¹Microfluidic Chipshop, GERMANY and ²Laborgemeinschaft Elbracht und Carstens, GERMANY
- M21A INTEGRATED POLYMERASE CHAIN REACTION-CAPILLARY ELECTROPHORESIS MICRODEVICE FOR HANWOO ALLELE-SPECIFIC GENOTYPING** 136
J.Y. Choi¹, S.J. Choi¹, Y. Chen¹, H.W. Kim², S.A. You², H.-K. Myeong², and T.S. Seo¹
¹Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA and
²Solgent Co., Ltd., SOUTH KOREA
- M22A MICROFLUIDIC ELISA FOR OCULAR DIAGNOSTICS** 139
J.V. Green¹, D. Sun^{2,4}, A. Hafezi-Moghadam^{2,4}, K. Lashkari³, and S.K. Murthy¹
¹Northeastern University, USA, ²Massachusetts Eye and Ear Infirmary,
³Schepens Eye Research, USA, and ⁴Harvard Medical School, USA
- M23A MINIATURIZED PCR DEVICE FOR RAPID DETECTION OF INFECTIOUS AGENTS** 142
T. Yotoriyama¹, K. Watanabe², T. Anaguchi¹, M. Miyachi¹, T. Abe¹, H. Watanabe¹, J. Kajihara¹,
S. Kai¹, T. Watanabe¹, I. Ichimura¹, Y. Segawa¹, N. Shimizu², and A. Yasuda¹
¹Sony Corporation, JAPAN and ²Tokyo Medical and Dental University, JAPAN
- M24A RAPID ON-CHIP BLOOD/PLASMA SEPARATOR USING HETERO-PACKED BEADS AT THE INLET OF MICROCHANNEL** 145
J.S. Shim and C.H. Ahn
University of Cincinnati, USA
- M25A ULTRA-FAST AND HIGHLY-EFFICIENT FLOW-THROUGH PCR MICROFLUIDICS USING VAPOR PRESSURE AND ITS APPLICATION TO RAPID FIELD DETECTION** 148
Y. Fuchiwaki¹, M. Saito², S. Wakida¹, E. Tamiya², and H. Nagai¹
¹Advanced Industrial Science and Technology (AIST), JAPAN and ²Osaka University, JAPAN

Poster Session Life Science Applications - Drug Development

- M26A A WHOLE EMBRYO "LAB-ON-CHIP" MICROFLUIDIC DEVICE FOR DEVELOPMENT OF ZEBRAFISH, FLOUR BEETLE AND FRESH WATER SNAIL EMBRYOS** 151
E.M. Wielhouwer¹, S. Ali¹, A. Al-Afandi¹, M.T. Blom², M.B. Olde Riekerink², C. Poelma³,
J. Chicken⁴, J. Oonk², E.X. Vrouwe², W. Buesink², R. van 't Oever², and M.K. Richardson¹
¹Leiden University, THE NETHERLANDS, ²Micronit Microfluidics BV, THE NETHERLANDS,
³Delft University of Technology, THE NETHERLANDS, and ⁴FLIR Systems Ltd., UK
- M27A DRUG SCREENING ON FAST KINETICS LIGAND GATED ION-CHANNELS** 152
F. Pettersson¹, D. Granfeldt¹, J. Newall², J. Owen², C. Johansson¹, A. Wylde², J. Sinclair³,
Y. Tanaka⁴, M.A. Dabrowski⁵, and M. Karlsson¹
¹Celllectricon, SWEDEN, ²Automation Partnership, UK, ³iNovacia, SWEDEN, ⁴Tecella, USA, and
⁵Astra Zeneca, SWEDEN

M28A	MICROFLUIDIC PLATFORMS FOR THE SCREENING OF SOLID FORMS OF CANDIDATE DRUGS	154
	M.R. Thorson ¹ , S. Goyal ¹ , Y. Gong ² , G.G.Z. Zhang ² , C.F. Zukoski ¹ , and P.J.A. Kenis ¹ <i>¹University of Illinois, Urbana-Champaign, USA and ²Abbott Laboratories, USA</i>	
M29A	PERFORMANCE OF BIOTRANSFORMATION OF HUMAN PRIMARY HEPATOCYTES EXPOSED TO A PHARMACOLOGICAL COCKTAIL INSIDE A LIVER MICROCHIP	157
	J.-M. Prot ¹ , O. Videau ² , C. Legallais ¹ , H. Benech ² , and E. Leclerc ¹ <i>¹University of Technology, Compiègne, FRANCE and ²Commissariat à l'Energie Atomique (CEA), FRANCE</i>	
M30A	TRANSPORT, LOCALIZATION AND SEPARATION OF CAENORHABDITIS ELEGANS USING ELECTROTAXIS FOR MOVEMENT BASED BEHAVIORAL ASSAYS IN DRUG DISCOVERY	160
	P. Rezai, S. Salam, P.R. Selvaganapathy, and B.P. Gupta <i>McMaster University, CANADA</i>	
 Poster Session Life Science Applications - Cell Culture		
M31A	DYNAMIC CELL PATTERNING WITH MICROPARTICLE SELF-ASSEMBLY	163
	W. Dai, K.N. Ren, Y.Z. Zheng, and H.K. Wu <i>Hong Kong University of Science and Technology, HONG KONG</i>	
M32A	A USER-FRIENDLY, SELF-CONTAINED, PROGRAMMABLE MICROFLUIDIC CELL CULTURE SYSTEM FOR HIGH QUALITY MICROSCOPY	166
	P. Skafte-Pedersen, D. Sabourin, M. Hemmingsen, P.F. Østergaard, F.S. Blaga, and M. Dufva <i>Technical University of Denmark, DENMARK</i>	
M33A	CHARACTERIZATION OF A HYDROSTATICALLY DRIVEN CELL SEEDING PROCEDURE USING POLYMER MICROSPHERES	169
	P.P.M.F.A. Mulder and E. Verpoorte <i>University of Groningen, THE NETHERLANDS</i>	
M34A	CULTURE, DETECTION, AND RECOVERY OF THE ANTIBIOTIC-TOLERANT PERSISTENT BACTERIA IN THE DIRECTLY ACCESSIBLE MICROCHAMBER ARRAY	172
	R. Ino, K. Hayama, S. Sakakihara, and H. Noji <i>Osaka University, JAPAN</i>	
M35A	GEL SHEET BASED SKELETAL MUSCLE CELL CULTURE SYSTEM INTEGRATED WITH THE MICROELECTRODE ARRAY DEVICE	175
	K. Nagamine ^{1,2} , H. Kaji ^{1,2} , M. Kanzaki ^{1,2} , and M. Nishizawa ^{1,2} <i>¹Tohoku University, JAPAN and ²Japan Science and Technology Agency (JST), JAPAN</i>	
M36A	HIGH-THROUGHPUT CELL CULTURE CONDITION SCREENING BY MICROENVIRONMENT ARRAY	178
	K. Hattori, S. Sugiura, and T. Kanamori <i>National Institute of Advanced Industrial Science and Technology (AIST), JAPAN</i>	
M37A	INFLUENCE OF NANOSTRUCTURE ON PROLIFERATION AND DIFFERENTIATION PROCESSES OF STEM CELL	181
	K. Kubo ¹ , Y. Okamoto ¹ , M. Yamamoto ² , N. Kaji ¹ , M. Tokeshi ¹ , Y. Tabata ² , and Y. Baba ^{1,3} <i>¹Nagoya University, JAPAN, ²Kyoto University, JAPAN, and ³National Institute of Advanced Industrial Science and Technology (AIST), JAPAN</i>	
M38A	MICROFLUIDIC FLUID SHEAR DELIVERY SYSTEM FOR IN VITRO BONE MECHANOREGULATION	184
	S.A. Al-Dujaili, L. You, and A. Guenther <i>University of Toronto, CANADA</i>	
M39A	NEURITE GUIDANCE THROUGH 3D HYDROGEL LAYERS IN A MICROFLUIDIC ENVIRONMENT	187
	A. Kunze, R. Meissner, and P. Renaud <i>École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND</i>	

M40A	TEMPERATURE GRADIENT STIMULATION FOR CELL DIVISION IN C. ELEGANS EMBRYOS ON CHIP	190
	S. Baranek ¹ , A. Bezler ² , C. Adamczyk ¹ , P. Gönczy ² , and P. Renaud ¹ ¹ <i>École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND and</i> ² <i>Swiss Institute for Experimental Cancer Research (ISREC), SWITZERLAND</i>	

Poster Session Life Science Applications - Cell Handling & Sorting

M41A	A CONTINUOUS LATERAL DIELECTROPHORETIC MICROSEPARATOR BASED ON LATERAL DISPLACEMENT AS A FUNCTION OF PARTICLE SIZE	193
	S.-I. Han, S. Kim, Y.-D. Joo, W.-S. Lee, S.-M. Lee, and K.-H. Han <i>Inje University, SOUTH KOREA</i>	
M42A	A NEW MICROFLUIDIC DEVICE FOR CELL SHAPE CONFINEMENT	196
	G. Velve Casquillas ¹ , M. Le Berre ¹ , and P.T. Tran ^{1,2} ¹ <i>Institut Curie, FRANCE and</i> ² <i>University of Pennsylvania, USA</i>	
M43A	A NOVEL PARTICLE SEPARATION METHOD USING MULTI-STAGE MULTI-ORIFICE FLOW FRACTIONATION (MS-MOFF)	199
	K. Kwon ¹ , T.S. Sim ² , H.-S. Moon ¹ , J.-G. Lee ² , J.C. Park ² , and H.-I. Jung ¹ ¹ <i>Yonsei University, SOUTH KOREA and</i> ² <i>Samsung Advanced Institute of Technology, SOUTH KOREA</i>	
M44A	A SELF-ASSEMBLED MONOLAYER CELLS ARRAY FOR RAPID TARGETED CELLS IDENTIFICATION	202
	Y.-Y. Lin ¹ , T.-J. Chen ¹ , D.-J. Yao ¹ , and F.-G. Tseng ^{1,2} ¹ <i>National Tsing Hua University, TAIWAN and</i> ² <i>Academia Sinica, TAIWAN</i>	
M45A	ADJUSTABLE PASSBAND PARTICLE SEPARATION DEVICE	205
	J.D. Adams and H.T. Soh <i>University of California, Santa Barbara, USA</i>	
M46A	CELL CYCLE SYNCHRONIZATION OF STEM CELLS USING INERTIAL MICROFLUIDICS	208
	W.C. Lee ^{1,2} , A.A.S. Bhagat ¹ , S. Huang ² , K.J. Van Vliet ^{1,2} , J. Han ^{1,2} , and C.T. Lim ^{1,2} ¹ <i>Singapore-MIT Alliance for Research and Technology (SMART) Centre, SINGAPORE,</i> ² <i>Massachusetts Institute of Technology, USA, and</i> ³ <i>National University of Singapore, SINGAPORE</i>	
M47A	CENTRIFUGE-ON-A-CHIP: SELECTIVE CELL TRAPPING WITH RAPID SOLUTION EXCHANGE IN MICROVORTICES	211
	A.J. Mach, J.H. Kim, S.C. Hur, and D. Di Carlo <i>University of California, Los Angeles, USA</i>	
M48A	DETECTION AND COLLECTION SYSTEM OF TARGET SINGLE CELL BASED ON RESPIRATION ACTIVITY	214
	M. Suzuki, A. Murata, H. Tanaka, and Y. Iribe <i>University of Toyama, JAPAN</i>	
M49A	DIRECT INTRODUCTION OF PLASMID INTO NUCLEUS USING ON-CHIP ELECTROPORATION	217
	O. Kurosawa ^{1,2} , Y. Sumita ¹ , M. Gel ^{1,2} , H. Oana ^{1,2} , H. Kotera ^{2,3} , T. Kato ³ , J. Toguchida ³ , and M. Washizu ^{1,2} ¹ <i>University of Tokyo, JAPAN,</i> ² <i>Japan Science and Technology Agency (JST), JAPAN and</i> ³ <i>Kyoto University, JAPAN</i>	
M50A	FLAGELLA-DRIVEN LIPOSOMES: LIPOSOMES ACTUATED BY ATTACHED FLAGELLA ...	220
	T. Kurakazu ¹ , M. Takinoue ¹ , K. Kuribayashi-Shigetomi ¹ , and S. Takeuchi ^{1,2} ¹ <i>University of Tokyo, JAPAN and</i> ² <i>Kanagawa Academy of Science and Technology, JAPAN</i>	
M51A	HYDRODYNAMICS AND MAGNETOPHORESIS BASED HYBRID BLOOD CELL SORTER FOR HIGH THROUGHPUT SEPARATION	223
	H.K. Seo, H.O. Kim, and Y.J. Kim <i>Yonsei University, SOUTH KOREA</i>	

M52A	ISOLATING CELLS FROM BLOOD USING BUOYANCY ACTIVATED CELL SORTING (BACS) WITH GLASS MICROBUBBLES	226
	C.H. Hsu ^{1,3} , C.C. Chen ^{2,3} , D. Irimia ³ , and M. Toner ³ <i>¹National Health Research Institutes, TAIWAN, ²National Tsing Hua University, TAIWAN, and ³Massachusetts General Hospital, Shriners Hospital for Children and Harvard Medical School, USA</i>	
M53A	MAGNETIC MICROPALLETS FOR SINGLE ADHERENT CELL RECOVERY AND ANALYSIS	229
	N.M Gunn, T. Westerhof, R. Chang, G.P. Li, E.L. Nelson, and M. Bachman <i>University of California, Irvine, USA</i>	
M54A	MICROFLUIDIC ACOUSTIC PLATELETEPHERESIS	232
	J.D. Adams ¹ , P. Thévoz ¹ , H. Bruus ² , and H.T. Soh ¹ <i>¹University of California, Santa Barbara, USA and ²Technical University of Denmark, DENMARK</i>	
M55A	MICROFLUIDIC PLATFORM WITH CIRCULAR MICROCHANNELS FOR FACILE CELL TRAPPING AND SINGLE CELL ANALYSIS	235
	M. Abdelgawad, W.-Y. Chien, T.-K. Liang, and Y. Sun <i>University of Toronto, CANADA</i>	
M56A	ON-CHIP DUAL ARM MICROROBOT FOR CELL MANIPULATIONS BY MAGNETICALLY DRIVEN MICROTOOLS	238
	M. Hagiwara ¹ , T. Kawahara ¹ , Y. Yamanishi ² , and F. Arai ¹ <i>¹Nagoya University, JAPAN and ²Japan Science and Technology Agency (JST), JAPAN</i>	
M57A	SEPARATION AND ENRICHMENT OF MESENCHYMAL STEM CELLS ON A CHIP	241
	Z. Geng ^{1,3} , J. Du ² , L. Zhang ¹ , C. Yang ² , W. Wang ¹ , and Z. Li ¹ <i>¹Peking University, CHINA, ²Tsinghua University, CHINA, and ³Minzu University, CHINA</i>	
M58A	ULTIMATE HYDROGEL THERMAL-TRANSITION BASED FLOW CONTROL SYSTEM FOR USER-FRIENDLY PARTICLE AND CELL SORTING	244
	H. Sugino ¹ , K. Ozaki ² , Y. Shirasaki ³ , T. Aoki ² , T. Arakawa ⁴ , D.H. Yoon ² , S. Shoji ² , and T. Funatsu ¹ <i>¹University of Tokyo, JAPAN, ²Waseda University, JAPAN, ³RIKEN RCAI, JAPAN and ⁴Tokyo Medical and Dental University, JAPAN</i>	
Poster Session Life Science Applications - Cell Analysis		
M59A	A Ca²⁺ ION-SELECTIVE ELECTRODE BIOSENSOR IN MICROFLUIDICS TO MONITOR HEPATOCYTE'S ACTIVITIES	247
	J. Park ¹ , R. Meissner ² , O. Ducloux ¹ , H.V. Lintel ² , P. Renaud ² , and H. Fujita ¹ <i>¹University of Tokyo, JAPAN and ²Ecole Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND</i>	
M60A	A HIGH THROUGHPUT AND HIGH CONTENT ANALYSIS OF CELL DEATH PROCESSES USING MICROFLUIDIC IMAGE CYTOMETRY (μFIC)	250
	H.J. Yoo ¹ , J.H. Park ¹ , M.J. Kim ¹ , K.H. Lim ¹ , H.W. Nho ¹ , S.W. Rhee ² , and T.H. Yoon ¹ <i>¹Hanyang University, SOUTH KOREA and ²Kongju National University, SOUTH KOREA</i>	
M61A	A MICRO-ASPIRATOR CHIP USING VACUUM EXPANDED MICROCHANNELS FOR HIGH-THROUGHPUT MECHANICAL CHARACTERIZATION OF BIOLOGICAL CELLS	253
	W. Kim and A. Han <i>Texas A&M University, USA</i>	
M62A	A NOVEL CYTOMETRIC TOOL FOR STUDYING KINETICS OF NANOPARTICLE UPTAKE INTO CELLS	256
	J. Wang ¹ and C. Lu ² <i>¹Purdue University, USA and ²Virginia Polytechnic Institute and State University, USA</i>	
M63A	APPLYING A MICROFLUIDIC 'DEFORMABILITY CYTOMETRY' TO MEASURE STIFFNESS OF MALARIA-INFECTED RED BLOOD CELLS AT BODY AND FEBRILE TEMPERATURES	259
	S. Huang, H. Bow, M. Diez-Silva, S. Suresh, and J. Han <i>Massachusetts Institute of Technology, USA</i>	

M64A	DIELECTROPHORETIC PRESSING OF BIOLOGICAL CELLS INTO CONTACT WITH SURFACES: A MECHANISM FOR BIOPHYSICAL FLOW CYTOMETRY	262
	G.A. Ferrier ¹ , M. Nikolic-Jaric ¹ , S. Rzeszowski ¹ , T. Cabel ¹ , S. Nandagopal ¹ , F. Lin ¹ , M. Butler ¹ , G.E. Bridges ¹ , D.J. Thomson ¹ , and M.R. Freeman ² <i>¹University of Manitoba, CANADA and ²University of Alberta, CANADA</i>	
M65A	ELECTROPHYSIOLOGICAL RECORDINGS USING SPATIALLY ARRANGED MICROELECTRODE PROBES EMBEDDED INTO 3-D NEURONAL CULTURES	265
	W. Tonomura ¹ , K. Shimizu ² , and S. Konishi ¹ <i>¹Ritsumeikan University, JAPAN and ²Kyoto University, JAPAN</i>	
M66A	HIGH-THROUGHPUT SCREENING PLATFORM FOR THE SIMULTANEOUS CHEMICAL STIMULATION AND OPTICAL IMAGING OF DISSOCIATED CELLS	268
	A.K. Au, W.C. Watt, D.R. Storm, and A. Folch <i>University of Washington, USA</i>	
M67A	INTRACELLULAR CALCIUM-EXPRESSION DISPLAY OPERATED BY COMPRESSIVE STRESS	271
	J.H. Jeon, T.K. Kim, and O.C. Jeong <i>Inje University, SOUTH KOREA</i>	
M68A	LABEL-FREE MONITORING OF THE NEUTROPHIL DIFFERENTIATION PROGRESS OF HL60 CELLS USING MICROCAPILLARY ELECTROPHORESIS CHIPS	274
	T. Akagi, R. Matsuhashi, K. Kawabata, K. Miyazono, and T. Ichiki <i>University of Tokyo, JAPAN</i>	
M69A	MICROFLUIDIC ASSAY TO COMPARE SECRETION VS CONTACT BASED CELL-CELL INTERACTIONS USING DYNAMIC ISOLATION CONTROL	277
	P. Ingram ¹ , Y.-J. Kim ^{1,2} , T. Bersano-Begey ¹ , X. Lou ¹ , A. Asakura ³ , and E. Yoon ¹ <i>¹University of Michigan, USA, ²Samsung, SOUTH KOREA, and ³University of Minnesota, USA</i>	
M70A	NEW INSIGHTS INTO CELL MOTILITY AND NANOMECHANICS IN CONFINED MICRO-ENVIRONMENTS USING A MICROFLUIDIC DEVICE	280
	K.A. Wilson, A. LeWalle, T. Duke, and G.T. Charras <i>University College London, UK</i>	
M71A	PHOTONIC LAB ON A CHIP ON POLYDIMETHYLSILOXANE SEGMENTED WAVEGUIDES FOR LOCAL MEASUREMENT OF OPTICAL DENSITY	283
	J. Vila-Planas ¹ , S. Demming ² , A. Llobera ^{1,2} , S. Aliasghar Zadeh ² , A. Edlich ² , E. Franco-Lara ² , R. Radespiel ² , and S. Büttgenbach ² <i>¹Centro Nacional de Microelectrónica (CNM), SPAIN and ²Technische Universität Braunschweig, GERMANY</i>	
M72A	SORTING AND CONCENTRATION OF MOTILE MICROBES USING CHEMOTAXIS ASSAY	286
	S.H. Kim, M. Kim, S. Park, S.K. Lee, and T. Kim <i>Ulsan National Institute of Science & Technology (UNIST), SOUTH KOREA</i>	
M73A	THE DETECTION OF ANTIBODIES SECRETED BY MICROFLUIDICALLY TRAPPED BIOLOGICAL CELLS VIA EXTRAORDINARY OPTICAL DETECTION BASED NANOSCALE IMMUNOBIOSENSING ARRAYS	289
	S.F. Romanuik ¹ , S.M. Grist ¹ , B.L. Gray ¹ , N. Gulzar ¹ , J.K. Scott ¹ , D. Hohertz ¹ , K.L. Kavanagh ¹ , R. Nirwan ² , C. Hui ² , A.G. Brolo ² , and R. Gordon ² <i>¹Simon Fraser University, CANADA and ²University of Victoria, CANADA</i>	
M74A	USING A MICROFABRICATED HYDROGEL TO STUDY THE EFFECT OF EXTRINSIC FACTORS ON DRUG RESPONSE	292
	M. Håkanson ¹ , S. Kobel ² , M. Charnley ¹ , M. Lutolf ² , and M. Textor ¹ <i>¹ETH Zürich, SWITZERLAND and ²Ecole Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND</i>	

Poster Session Life Science Applications - Others

- M75A A HIGH-THROUGHPUT MICROFLUIDIC LIGHT CONTROLLING PLATFORM FOR BIOFUEL PRODUCING PHOTOSYNTHETIC MICROALGAE ANALYSIS** 295
H.S. Kim, T.L. Weiss, T.P. Devarenne, and A. Han
Texas A&M University, USA
- M76A ASSESSMENT OF NANOPARTICLE CYTOTOXICITY WITH ON-CHIP SUSPENDED BILAYERS** 298
S. Aghdaei, T. Heslington, N. Rogers, H. Morgan, and M.R.R. de Planque
University of Southampton, UK
- M77A FEASIBILITY STUDY OF CELL CULTURE MICRODEVICE ACTUATED BY PIEZOELECTRIC THIN FILM FOR ON-CHIP REGULATION OF CELL FUNCTIONS** 301
T. Kawashima¹, T. Shibata¹, M. Nagai¹, T. Masuzawa², T. Kimura³, and A. Kishida³
¹*Toyohashi University of Technology, JAPAN,* ²*Ibaraki University, JAPAN, and* ³*Tokyo Medical and Dental University, JAPAN*
- M78A INSTANTANEOUS TRAPPING AND LONG TERM CELL SURVIVAL UNDER DIELECTROPHORETIC CONDITIONS USING A HYBRID CELL ADHESIVE SURFACE** 304
D.R. Reyes, J.S. Hong, J.T. Elliott, and M. Gaitan
National Institute of Standards and Technology (NIST), USA
- M79A MICROFLUIDIC COMPARTMENTALIZED DIRECTED EVOLUTION** 307
B.M. Paegel and G.F. Joyce
Scripps Research Institute, USA
- M80A MICROFLUIDIC-BASED ASSAY PLATFORM FOR STUDYING POLARIZATION MECHANISM OF BUDDING YEAST UNDER GRADIENT OF MATING PHEROMONE** 309
S.S. Lee¹, J.W. Park², S. Pelet¹, B. Hegemann¹, N.L. Jeon², and M. Peter¹
¹*ETH Zürich, SWITZERLAND and* ²*Seoul National University, SOUTH KOREA*
- M81A MOUSE EMBRYO ELECTROPORATION AND CULTURE IN DEVICES MADE BY SOFT LITHOGRAPHY** 312
E. Mazari¹, J. Laniel¹, G. Dubois¹, S. Griffon¹, F. Marty², A. Perea-Gomez³, and C. Gosse¹
¹*Centre National de la Recherche Scientifique (CNRS), FRANCE,* ²*Laboratoire ESYCOM, FRANCE, and* ³*Université Paris, FRANCE*
- M82A SPATIOTEMPORAL DYNAMICS OF VASOCONSTRICTION IN SMALL ARTERIES** 315
S. Yasotharan¹, S. Pinto¹, J. Yang¹, J. Voigtlaender-Bolz², S.-S. Bolz¹, and A. Günther¹
¹*University of Toronto, CANADA and* ²*St. Michael's Hospital, CANADA*

Poster Session Microreaction Applications - Flow Chemistry / Synthesis

- M1B A ROBUST PLATINUM-BASED ELECTROCHEMICAL MICRO FLOW CELL FOR DRYING OF ¹⁸F] FLUORIDE FOR PET TRACER SYNTHESIS** 318
S. Sadeghi¹, J. Ly¹, Y. Deng^{1,2}, and R.M. van Dam¹
¹*University of California, Los Angeles, USA and* ²*Wuhan University, CHINA*
- M2B EFFECTIVE CARBON DIOXIDE REDUCTION INTO CARBON MONOXIDE USING MILLICHANNEL EMBEDDED IN-LINE DIELECTRIC BARRIER DISCHARGE REACTOR** 321
K. Jun and J.M. Jacobson
Massachusetts Institute of Technology, USA
- M3B MICRO-GAS ANALYZING PROTOTYPE SYSTEM FOR SENSITIVE AND CONTINUOUS ANALYSIS** 324
S. Hiki¹, M. Saito¹, I. Tanaka², K. Mawatari¹, and T. Kitamori¹
¹*University of Tokyo, JAPAN and* ²*Shimizu Corp., JAPAN*
- M4B ONE-STEP PREPARATION OF MICROCELLULAR STYRENE-BUTYL ACRYLATE COPOLYMER BEADS USING A MICROFLUIDIC DEVICE** 327
K.W. Wang¹, K.G. Lee¹, J. Choe², J.-H. Seo², and D.H. Kim¹
¹*Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA and* ²*LG Chem. Ltd, SOUTH KOREA*

Poster Session Microreaction Applications - In-Line Analysis / Process Control

- M5B DROP KINETIC ANALYSIS IN REAL TIME BY OPTICAL SPECTROSCOPY** 330
J. Davies¹, C. Rushworth², C. Vallance², and J.T. Cabral¹
¹Imperial College London, UK and ²Oxford University, UK

Poster Session Microreaction Applications - Integrated Synthesis & Work-up

- M6B LARGE VOLUME SAMPLE-PRETREATMENT MICRODEVICE BASED ON SOL-GEL 3D MATRIX** 333
J.H. Jung, C.J. Lee, M.-A. Woo, M.I. Kim, H.G. Park, and T.S. Seo
Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA

Poster Session Microreaction Applications - Others

- M7B ENHANCED MOBILE HYBRIDIZATION OF GOLD NANOPARTICLES DECORATED WITH OLIGONUCLEOTIDE IN MICROCHANNEL DEVICES** 336
M.-H. Hsu¹, W.-F. Fang¹, Y.-H. Lai¹, J.-T. Yang¹, T.-L. Tsai², and D.-B. Shieh²
¹National Taiwan University, TAIWAN and ²National Cheng Kung University, TAIWAN

Poster Session Other Applications - Environment

- M1C A BRIEFCASE-SIZED SYSTEM FOR TOXIN DETECTION USING PLANAR PATCH CLAMP** 339
A. Boussaoud, I. Fonteille, F. Kermarrec, C. Arnoult, and N. Picollet-D'Hahan
CEA Grenoble, FRANCE
- M2C ALGAL BIOTOXICITY ASSAY USING μ FLOW CYTOMETER FOR ENVIRONMENTAL MONITORING** 342
W. Shi and Y.-C. Tai
California Institute of Technology, USA
- M3C HIGH-SENSITIVE DETECTION OF POLYCHLORINATED BIPHENYL ON THREE-DIMENSIONAL LAB-ON-A-CD** 345
Y. Ukita¹, T. Azeta², S. Kondo², C. Kataoka³, S. Yusa², M. Takeo², Y. Takamura¹, and Y. Utsumi²
¹Japan Advanced Institute of Science and Technology (JAIST), JAPAN,
²University of Hyogo, JAPAN, and ³Carbuncle bio-scientech LLC., JAPAN

Poster Session Other Applications - Separation Science

- M4C ELECTROKINETIC FILTERING ON MAGNETIC FLUID NANO-PILLAR FOR HIGHLY SENSITIVE MICROCHIP ELECTROPHORESIS** 348
F. Kitagawa, T. Samukawa, K. Sueyoshi, and K. Otsuka
Kyoto University, JAPAN
- M5C FREE-FLOW ELECTROPHORESIS WITH ELECTRODE-LESS INJECTION MOULDED CHIPS** 351
S. Köhler¹, H. Becker², V. Beushausen³, E. Beckert⁴, S. Howitz⁵, and D. Belder¹
¹University of Leipzig, GERMANY, ²microfluidic ChipShop GmbH, GERMANY,
³Laser Laboratorium Göttingen e.V., GERMANY, ⁴Fraunhofer IOF Jena, GERMANY, and
⁵GeSiM, GERMANY
- M6C MICROCHIP ELECTROPHORESIS OF OLIGOSACCHARIDES IN 'SINGLE' STRAIGHT CHANNEL** 354
T. Kawai, K. Sueyoshi, F. Kitagawa, and K. Otsuka
Kyoto University, JAPAN
- M7C ON-CHIP MICROSCALE DISTILLATION FOR ACETONE-WATER SEPARATION** 357
K.F. Lam, E. Sorensen, and A. Gavriilidis
University College London, UK

M8C	STRONGLY CONVERGENT CHANNELS FOR HIGH SENSITIVITY LABEL-FREE CHEMICAL DETECTION USING ISOTACHOPHORESIS	360
	S.S. Bahga, G.V. Kaigala, M. Bercovici, and J.G. Santiago <i>Stanford University, USA</i>	

Poster Session Other Applications - Fuel Cells

M9C	AN ABIOTICALLY CATALYZED GLUCOSE FUEL CELL BASED ON DECORATED BUCKYPAPER	363
	L. Hussein and G. Urban <i>University of Freiburg - IMTEK, GERMANY</i>	

Poster Session Other Applications - Others

M10C	iMICROFLUIDICS: SMARTPHONE CONTROLLED HANDHELD MICROFLUIDIC PLATFORM	366
	J.L. Prieto, R. Lin, M.V. Patel, and A.P. Lee <i>University of California, Irvine, USA</i>	

Poster Session Microfluidics - Fluid Mechanics & Modeling

M1D	CHARACTERIZATION OF TWO APERTURES MICROFLUIDIC PROBE	369
	M. Safavieh, M.A. Qasaimeh, R. Safavieh, and D. Juncker <i>McGill University, CANADA</i>	

M2D	FORCE MEASUREMENT AND MODELING FOR MOTOR PROTEINS BETWEEN MICROSPHERE AND MICROFLUIDIC CHANNEL SURFACE	372
	R. Yokokawa ^{1,2} , Y. Sakai ¹ , A. Okonogi ¹ , I. Kanno ¹ , and H. Kotera ¹ ¹ <i>Kyoto University, JAPAN</i> and ² <i>Japan Science and Technology Agency (JST), JAPAN</i>	

M3D	INTRINSIC BIOPARTICLE-INDUCED SOLUTION TRANSFER FOR ON-CHIP MIXING AND SAMPLE PREPARATION	375
	H. Amini, E. Sollier, and D. Di Carlo <i>University of California, Los Angeles, USA</i>	

M4D	NUMERICAL ESTIMATION OF PLASMA LAYER THICKNESS IN BRANCHED MICROCHANNEL USING A MULTI-LAYER MODEL OF BLOOD FLOW	378
	K. Morimoto, D. Kato, and S. Konishi <i>Ritsumeikan University, JAPAN</i>	

M5D	ORIGINS OF REDUCTION IN EFFICIENCY IN MICROFLUIDIC PARTICLE SEPARATION	381
	W. Lee ¹ , H. Amini ¹ , H.A. Stone ² , and D. Di Carlo ¹ ¹ <i>University of California, Los Angeles, USA</i> and ² <i>Princeton University, USA</i>	

M6D	SURFACE CHARGE STABILIZATION IN MICROFLUIDIC CHIPS: A HYSTERESIS BASED METHOD	384
	A. Pallandre ¹ , I. le Potier ¹ , B. Xiong ¹ , M. Taverna ¹ , A. Plecis ² , C. Roblin ² , and A.-M. Haghiri-Gosnet ² ¹ <i>Université Paris Sud, CNRS, FRANCE</i> and ² <i>Centre National de la Recherche Scientifique (CNRS), FRANCE</i>	

Poster Session Microfluidics - Micro Liquid Handling

M7D	A PROGRAMMABLE MICROFLUIDIC SYSTEM FOR SELECTIVE RNA OR DNA EXTRACTION FROM VARIOUS RAW BIOLOGICAL SAMPLES	387
	M. Johnson ¹ , J. Kim ¹ , A. Williams ² , and B. Gale ¹ ¹ <i>University of Utah, USA</i> and ² <i>Integrated Exploration, CANADA</i>	

M8D	ACTIVE MICRO FLOW-RATE REGULATION TECHNIQUE BASED ON SOFT MEMBRANE DEFORMATION USING MINIATURIZED ELECTROOSMOTIC PUMPS	390
	H. Kinoshita, T. Atsumi, T. Fukuba, and T. Fujii <i>University of Tokyo, JAPAN</i>	

M9D	BIDIRECTIONAL DROPLET TRANSPORTATION USING EWOD-INDUCED WETTABILITY GRADIENT	393
	T. Yasuda and K. Imamura <i>Kyushu Institute of Technology, JAPAN</i>	
M10D	ENCODED DROPLET MICROCARRIER FOR FORMATION AND ISOLATION OF DROPLET IN A MICROFLUIDIC DEVICE	396
	W. Park, S. Han, H. Lee, A.J. Heinz, and S. Kwon <i>Seoul National University, SOUTH KOREA</i>	
M11D	LAB-IN-A-SUITCASE FOR DRUG SCREENING AND PROTEOMICS APPLICATIONS	399
	M. Odijk, H.L. de Boer, W. Olthuis, and A. van den Berg <i>University of Twente, THE NETHERLANDS</i>	
M12D	MAGNETIC BEAD BASED DNA PURIFICATION ON A DISPOSABLE CENTRIFUGAL MICROFLUIDIC FOIL CARTRIDGE	402
	O. Strohmeier ¹ , A. Emperle ¹ , M. Focke ¹ , G. Roth ^{1,2} , D. Mark ² , R. Zengerle ^{1,2} , and F. von Stetten ^{1,2} ¹ <i>University of Freiburg - IMTEK, GERMANY</i> and ² <i>Institute for Micromachining and Information Technology (HSG-IMIT), GERMANY</i>	
M13D	ON THE WAY TO A FULLY INTEGRATED DNA-PURIFICATION SYSTEM ON A STANDARD LABORATORY CENTRIFUGE	405
	M. Mueller ^{1,2} , D. Mark ² , M. Rombach ^{1,2} , G. Roth ^{1,2} , J. Hoffmann ¹ , R. Zengerle ^{1,2} , and F. von Stetten ^{1,2} ¹ <i>University of Freiburg - IMTEK, GERMANY</i> and ² <i>Institute for Micromachining and Information Technology (HSG-IMIT), GERMANY</i>	
M14D	T-JUNCTION SPLITTING OF DROPLETS FROM NANOLITER TO FEMTOLITER AND MANIPULATION OF SINGLE NANOPARTICLES ON MICROFLUIDIC CHIPS	408
	X. Feng, Y. Yi, D.-W. Pang, and Z.-L. Zhang <i>Wuhan University, CHINA</i>	
M15D	WIRELESS MULTI-OPERATING MICROVALVE SYSTEM BY INDUCTION HEATING	411
	S.-K. Baek ¹ , Y.-K. Yoon ² , and J.-H. Park ¹ ¹ <i>Kyungwon University, SOUTH KOREA</i> and ² <i>University of Florida, USA</i>	
Poster Session Microfluidics - Multi-Phase and Digital Microfluidics		
M16D	A RANDOM-ACCESS, DROPLET STORAGE ARRAY FOR PROGRAMMABLE REACTION SCREENING	414
	Y.M. Tseng, C.C. Wang, and Y.C. Su <i>National Tsing Hua University, TAIWAN</i>	
M17D	CHIP BASED UNILAMELLAR VESICLE FORMATION AND DISPENSING USING DIELECTROPHORESIS	417
	R. Prakash and K.V.I.S. Kaler <i>University of Calgary, CANADA</i>	
M18D	DIGITAL NUCLEIC ACID AMPLIFICATION ON A SLIPCHIP	420
	F. Shen, E.K. Davydova, and R.F. Ismagilov <i>University of Chicago, USA</i>	
M19D	DYNAMICS OF A MICRO DROPLET COLLIDER TO EXTEND MICROFLUIDIC APPLICATIONS	422
	K. Takahashi ^{1,2} , Y. Sugii ^{1,3} , K. Mawatari ^{1,3} , and T. Kitamori ^{1,3} ¹ <i>University of Tokyo, JAPAN</i> , ² <i>SHARP Corporation, JAPAN</i> , and ³ <i>Japan Science and Technology Agency (JST), JAPAN</i>	
M20D	HIGH-THROUGHPUT MONODISPERSE ALGINATE GEL BEAD FORMATION USING MICROFLUIDIC PSEUDO-CHECK VALVE	425
	C.W. Beh ¹ , D. Kraitchman ² , H.-Q. Mao ¹ , and T.-H. Wang ¹ ¹ <i>Johns Hopkins University, USA</i> and ² <i>Johns Hopkins Medical Institutions, USA</i>	

M21D	MICROCAPILLARY-ASSISTED FABRICATION OF BI-CONCAVE MICROLENSES FROM TERNARY EMULSION DROPLETS	428
	T. Nisisako, T. Ando, and T. Hatsuzawa <i>Tokyo Institute of Technology, JAPAN</i>	
M22D	NOVEL FAST-MIXING SYSTEM UTILIZING MICRODROPLETS	431
	M. Fukuyama and A. Hibara <i>University of Tokyo, JAPAN</i>	
M23D	OPTO-ELECTROWETTING DEVICE FOR DNA AMPLIFICATION	434
	P. Ramesh, R. Maessen, and J. den Toonder <i>Philips Applied Technologies, THE NETHERLANDS</i>	
M24D	SHRUNK TO NANO: A NOVEL APPROACH FOR FEMTOLITER COMPARTMENTALIZATION USING W/O EMULSIONS	437
	T. Wu ¹ , H. Suzuki ^{1,2} , and T. Yomo ^{1,2} ¹ <i>Japan Science and Technology Agency (JST), JAPAN</i> and ² <i>Osaka University, JAPAN</i>	
M25D	THERMOCAPILLARY ACTUATION BY OPTIMIZED RESISTOR PATTERN	440
	B. Selva ^{1,3} , I. Cantat ² , and M.C. Jullien ³ ¹ <i>École Normale Supérieure (ENS), de Cachan, FRANCE</i> , ² <i>University of Rennes, FRANCE</i> , and ³ <i>Ecole Supérieure de Physique et de Chimie Industrielles (ESPCI), FRANCE</i>	

Poster Session Microfluidics - Multi-Scale / Integrative Microfluidics

M26D	AN INTEGRATED MICRO-NANOFLUIDIC SYSTEM FOR SAMPLE PREPARATION AND PRECONCENTRATION OF PROTEINS	443
	K. Anwar, T. Han, S. Yu, and S.M. Kim <i>Inha University, SOUTH KOREA</i>	
M27D	HYDRODYNAMIC FOCUSING FOR IMPROVED SENSITIVITY OF AN IMPEDANCE - BASED SENSOR FOR CELL DETECTION AND ANALYSIS	446
	M. Nasir, G. Justin, L.C. Shriver-Lake, J.P. Golden, and F.S. Ligler <i>Naval Research Laboratory, USA</i>	
M28D	MAGNETO-CAPILLARY VALVE FOR LAB-ON-A-CHIP SAMPLE PREPARATION	449
	R.C. den Dulk ^{1,2} , K.A. Schmidt ¹ , R. Gill ¹ , J.C.B. Jongen ^{1,2} , and M.W.J. Prins ^{1,2} ¹ <i>Philips Research, THE NETHERLANDS</i> and ² <i>Eindhoven University of Technology, THE NETHERLANDS</i>	
M29D	PAIRING BEADS WITH A MEANDER-SHAPED DYNAMIC MICROARRAY DEVICE	452
	T. Teshima ¹ , H. Ishihara ¹ , K. Iwai ¹ , A. Adachi ¹ , and S. Takeuchi ^{1,2} ¹ <i>University of Tokyo, JAPAN</i> and ² <i>Kanagawa Academy of Science and Technology, JAPAN</i>	
M30D	SIMULTANEOUS DETECTION OF PROTEIN AND DNA IN A MICROFLUIDIC DEVICE USING SPATIAL ADDRESSABLE MICROBEADS ON A GEL PAD ARRAY	455
	Q. Zhu and D. Trau <i>National University of Singapore, CHINA</i>	

Poster Session Microfluidics - Others

M31D	A BOND-LESS FABRICATION METHOD FOR HOMOGENEOUS POLYMER MICROCHANNEL BY CAPILLARY FORCE LITHOGRAPHY	458
	S.H. Lee, D.H. Kang, H.N. Kim, and K.Y. Suh <i>Seoul National University, SOUTH KOREA</i>	
M32D	AN INTEGRATED MICROFLUIDIC DEVICE FOR THE PREPARATION AND EVALUATION OF MAGNETO-RESPONSIVE COMPOSITE PARTICLES	461
	E. Rondeau, S. Holzapfel, P. Fischer, and E. Windhab <i>ETH Zürich, SWITZERLAND</i>	

M33D	MICROFLUIDIC GENERATION OF TEMPORALLY STABLE, FLOW-FREE PROFILES OF CHEMICAL CONCENTRATION GRADIENTS	464
	Y. Zhou and Q. Lin <i>Columbia University, USA</i>	

M34D	TOWARDS HIGHLY EFFICIENT NANOPOROUS ELECTROOSMOTIC PUMPS: EFFECTS OF CONCENTRATION POLARIZATION ZONES SOURCED FROM THE PUMP SUBSTRATE AND ELECTRODES	467
	M.E. Suss, A. Mani, T.A. Zangle, and J.G. Santiago <i>Stanford University, USA</i>	

Poster Session Nanotechnologies - Nanofluidics

M1E	A COMBINED NANOCOLLOID–NANOCHANNEL PLATFORM FOR SENSITIVE BIOMOLECULAR DETECTION	470
	G. Yossifon ^{1,2} , S. Basuray ² , P. Musenheim ² , T. Haggen ² , and H.-C. Chang ² , ¹ <i>Technion - Israel Institute of Technology, ISRAEL</i> and ² <i>University of Notre Dame, USA</i>	

Poster Session Nanotechnologies - Nanoengineering

M2E	LARGE-SCALE FABRICATION OF NANOSTRUCTURES USING PDMS-BASED PHASE SHIFT LITHOGRAPHY, AND THEIR APPLICATION TO NANOFUIDICS	473
	Y. Viero ^{1,2} , Q. He ^{1,2} , L. Mazenq ^{1,2} , D. Belharet ^{1,2} , and A. Bancaud ^{1,2} ¹ <i>Centre National de la Recherche Scientifique (CNRS)</i> and ² <i>Université de Toulouse, FRANCE</i>	

Poster Session Nanotechnologies - Nanobiotechnology

M3E	A NANOFUIDIC DEVICE FOR SELECTIVE CONCENTRATION AND LABEL-FREE SURFACE-ENHANCED RAMAN DETECTION OF PROTEIN AGGREGATES IMPLICATED IN NEURODEGENERATION	476
	I. Choi, Y.S. Huh, and D. Erickson <i>Cornell University, USA</i>	

M4E	CONTROLLING NEURONAL NETWORKS, AXO-DENDRITIC POLARITIES AND SYNAPSE FORMATION BY MICROCONTACT PRINTING AND MICROCHANNEL TECHNIQUES	479
	T. Shinoe ¹ , J. Shi ¹ , Y. Chen ^{1,2} , and A. Triller ¹ ¹ <i>École Normale Supérieure (ENS), FRANCE</i> and ² <i>Kyoto University, JAPAN</i>	

M5E	ELECTROCHEMICAL DETECTION OF ENZYME KINETICS USING A NANOFUIDIC THIN LAYER CELL DEVICE	482
	E.D. Goluch ¹ , N. Wongrajit ¹ , P.S. Singh ¹ , A.W.J.W. Tepper ² , H.A. Heering ² , G.W. Canters ² , and S.G. Lemay ³ ¹ <i>Delft University of Technology, THE NETHERLANDS</i> , ² <i>Leiden University, THE NETHERLANDS</i> , and ³ <i>University of Twente, THE NETHERLANDS</i>	

M6E	LABEL-FREE DETECTION OF BIOMOLECULES WITH NANOWALL ARRAYS	485
	T. Yasui ¹ , N. Kaji ¹ , Y. Okamoto ¹ , M. Tokeshi ¹ , Y. Horiike ² , and Y. Baba ^{1,3} ¹ <i>Nagoya University, JAPAN</i> , ² <i>National Institute for Materials Science, JAPAN</i> , and ³ <i>National Institute of Advanced Industrial Science and Technology (AIST), JAPAN</i>	

M7E	NANOPARTICLE ARRAYS WITH PORE SIZE GRADIENTS INCREASE PEAK CAPACITY IN DNA ELECTROPHORESIS	488
	W. Ye, L. Wang, N. Nazemifard, and D.J. Harrison <i>University of Alberta, CANADA</i>	

M8E	PRESSURE REGULATED BIOMOLECULE INJECTION INTO NIH 3T3 CELLS THROUGH INTEGRATED NANO/MESOPORES	491
	J. Shi ^{1,2} , F. Zhang ¹ , J. Liu ¹ , X. Li ¹ , J. Hu ¹ , D. Jung ² , N. Nakatsuji ² , and Y. Chen ^{1,2} ¹ <i>École Normale Supérieure (ENS), FRANCE</i> and ² <i>Kyoto University, JAPAN</i>	

M9E	SHORTENING THE DIFFUSION LENGTH: REAL-TIME SENSING WITH SINGLE-PIXEL RESOLVED KINETICS USING ROOM-TEMPERATURE BONDED BIOFUNCTIONAL NANOSLITS	494
	T. Leïchlé ^{1,2} , K.-T. Liao ¹ , and C.-F. Chou ¹	
	¹ Academia Sinica, TAIWAN and ² Université de Toulouse, FRANCE	

Poster Session Nanotechnologies - Nanostructured Materials

M10E	MICROFLUIDIC SYNTHESIS OF DESIGNED COLLOIDAL PARTICLES USING STRUCTURED ELASTOMERIC MEMBRANES	497
	J.Y. Sim, J.-H. Choi, J.-M. Lim, and S.-M. Yang	
	Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA	
M11E	NANOFIBER-BASED SURFACE MICROFLUIDIC STRUCTURES FOR CELL AND NANOPARTICLE PATTERNING	500
	H.Y. Mao, W.G. Wu, Q.H. Liu, Y.L. Zhang, and Y. Li	
	Peking University, CHINA	
M12E	SILICON NANOVELCRO TO ATTACH INORGANIC MICRODEVICES TO BIOLOGICAL MATERIAL	503
	S. Durán ¹ , S. Novo ² , M. Fernández-Regúlez ¹ , M. Duch ¹ , R. Gómez-Martínez ¹ , A. San Paulo ¹ , E. Ibáñez ¹ , J. Esteve ¹ , and J.A. Plaza ¹	
	¹ Centro Nacional de Microelectrónica (CNM), SPAIN and ² Universitat Autònoma de Barcelona, SPAIN	

Poster Session MEMS & NEMS Technologies - Micro- & Nanomachining

M1F	COMBINED PHOTOLITHOGRAPHY AND EMBOSsing FOR FABRICATION OF MULTILEVEL, FREE STANDING MICROFLUIDIC STRUCTURES	506
	S. Aura and S. Franssila	
	Aalto University, FINLAND	
M2F	EXTENDED TIMOSHENKO BEAM FORMULA FOR CELLULAR CONTRACTION FORCE CALCULATION	509
	P. Du ¹ , X. Zheng ¹ , I.K. Lin ¹ , H. Lu ² , and X. Zhang ¹	
	¹ Boston University, USA and ² University of Texas, Dallas, USA	
M3F	FABRICATION OF TRANSPARENT CARBON NANOTUBE FILM PIEZORESISTORS	512
	K. Lee ¹ , J.A. Lee ² , K.-C. Lee ² , and S.S. Lee ¹	
	¹ Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA and ² Korea Research Institute of Standards and Science (KRISS), SOUTH KOREA	
M4F	INKJET PRINTING OF MAGNETIC / NON-MAGNETIC POLYMER MICROFLUIDIC ACTUATORS	515
	D. Liu ¹ , K. Bastiaansen ¹ , D. Broer ¹ , P. Onck ² , and J. den Toonder ^{1,3}	
	¹ Eindhoven University of Technology, THE NETHERLANDS, ² University of Groningen, THE NETHERLANDS, and ³ Philips Applied Technologies, THE NETHERLANDS	
M5F	NOVEL APPROACH TO PRODUCE NANOPATTERNED TITANIUM IMPLANTS BY COMBINING NANOIMPRINT LITHOGRAPHY AND REACTIVE ION ETCHING	518
	M. Domanski ¹ , R. Luttge ¹ , E. Lamers ² , A.J.A. Winnubst ¹ , F.X. Walboomers ² , J.A. Jansen ² , and J.G.E. Gardeniers ¹	
	¹ MESA+, University of Twente, THE NETHERLANDS and ² Radboud University Nijmegen Medical Centre, THE NETHERLANDS	
M6F	QUANTITATIVE STUDIES OF LONG-TERM STABLE, TOP-DOWN FABRICATED SILICON NANOWIRE SENSOR	521
	S. Choi and A.P. Pisano	
	University of California, Berkeley, USA	

M7F	ZEOLITE-ENCLOSED MICRO-CAVITIES ON SILICON WAFER FOR CHEMICAL STORAGE	525
	K.F. Lam ^{1,2} , W.Y. Lai ¹ , N.W. Chan ¹ , and K.L. Yeung ¹ <i>¹Hong Kong University of Science and Technology, HONG KONG and ²University College London, UK</i>	

Poster Session MEMS & NEMS Technologies - Microfluidic Components/Packaging

M8F	A NOVEL PERISTALTIC MICROPUMP USING THREE WINGS WITH DIFFERENT WIDTHS FOR FLUID CIRCULATION	528
	B.P. Mun, C.J. Park, S.K. Yoo, and J.H. Lee <i>Gwangju Institute of Science and Technology (GIST), SOUTH KOREA</i>	
M9F	CONTINUOUS SIZE-BASED SEPARATION OF MICROPARTICLES IN STRAIGHT CHANNELS	531
	T.E. Kagalwala, J. Zhou, and I. Papautsky <i>University of Cincinnati, USA</i>	
M10F	GLASS MICROFLUIDIC CHIPS FOR LONG-TERM LIPID BILAYER FORMATION	534
	Y. Watanabe ^{1,3} and S. Takeuchi ^{1,2} <i>¹BEANS Project, JAPAN, ²University of Tokyo, JAPAN, and ³Olympus Co., JAPAN</i>	
M11F	MINIATURIZED ENDOTHERMIC COOLING MODULE FOR DENATURATION OF ON-CHIP PCR PRODUCT AND ITS ELECTRICAL DETECTION USING NANOWIRE BIOSENSOR	537
	T.G. Kang, S.P.M. Tan, H.M. Ji, M.Y.D. Ang, M.J. Huang, X. Zhang, G.-J. Zhang, and Y. Chen <i>Agency for Science, Technology and Research (A*STAR), SINGAPORE</i>	
M12F	SOLVENT-FREE BILAYER LIPID DOME DEVICE FOR CHANNEL PROTEIN RECORDINGS	540
	T. Osaki ¹ , R. Kawano ¹ , K. Kuribayashi-Shigetomi ² , H. Sasaki ¹ , and S. Takeuchi ² <i>¹Kanagawa Academy of Science and Technology (KAST), JAPAN and ²University of Tokyo, JAPAN</i>	

Poster Session MEMS & NEMS Technologies - Integration Strategies

M13F	DEVELOPMENT OF A BIOSENSOR CARTRIDGE INTEGRATING ACTIVE MICROFLUIDICS, MEMS SENSOR TECHNOLOGY AND DETECTION ELECTRONICS	543
	P. Ortiz ^{1,4} , N. Keegan ¹ , J. Spoor ¹ , R. Burnett ¹ , J. Hedley ¹ , A. Harris ¹ , J. Burdess ¹ , T. Velten ² , M. Biehl ² , W. Haberer ² , M. Solomon ³ , A. Campitelli ³ , and C. McNeil ¹ <i>¹Newcastle University, UK, ²Fraunhofer Institute for Biomedical Engineering (IBMT), GERMANY, ³MiniFAB Pty Ltd, AUSTRALIA, and ⁴Centro Nacional de Microelectrónica (CNM), SPAIN</i>	
M14F	IRREVERSIBLE INTEGRATION OF SU-8 MICROSTRUCTURES INTO PDMS DEVICES	546
	C.G. Sip and A. Folch <i>University of Washington, USA</i>	

Poster Session MEMS & NEMS Technologies - New Chip Materials

M15F	IMPRINTING AND BONDING OF THE FLOUROELASTOMER VITON FOR MICROFLUIDICS	548
	G. Sharma, L. Klintberg, and K. Hjort <i>Uppsala University, SWEDEN</i>	
M16F	ON-CHIP GAS CONCENTRATION GRADIENT FORMATION USING Poreflon™ AND Neoflon™ FOR IN VITRO OBSERVATION OF CANCER CELL	551
	Y. Harada, K. Kawai, and S. Shoji <i>Waseda University, JAPAN</i>	
M17F	SOFT-LITHOGRAPHY-BASED HIGH TEMPERATURE MOLDING METHOD TO FABRICATE WHOLE TEFLON MICROFLUIDIC CHIPS	554
	K.N. Ren, Y.Z. Zheng, W. Dai, D. Ryan, C.Y. Fung, and H.K. Wu <i>Hong Kong University of Science and Technology, HONG KONG</i>	

Poster Session MEMS & NEMS Technologies - Surface Modification

- M18F ELECTROCHEMICAL AGAROSE STAMP FOR ADDRESSABLE MICROPATTERNING** 557
S. Sekine¹, S. Nakanishi¹, T. Miyake^{1,2}, K. Nagamine^{1,2}, and M. Nishizawa^{1,2}
¹Tohoku University, JAPAN and ²Japan Science and Technology Agency (JST), JAPAN
- M19F LOW-FEMTOMOLAR DETECTION OF BIOMARKER PROTEIN BY POINT-OF-CARE IMMUNOASSAY ON A POWER-FREE MICROCHIP WITH COVALENTLY IMMOBILIZED ANTIBODY** 560
H. Okada, K. Hosokawa, and M. Maeda
RIKEN, JAPAN
- M20F SINGLE-STEP AND MULTIPLE BIOASSAY BASED ON COMBINABLE PDMS CAPILLARY (CPC) SENSOR ARRAY** 563
Y. Uchiyama, F. Okubo, K. Akai, Y. Fujii, T.G. Henares, K. Kawamura, T. Yao, and H. Hisamoto
Osaka Prefecture University, JAPAN

Poster Session MEMS & NEMS Technologies - Others

- M21F METAL ION DETECTION OF NOVEL CONJUGATED-POLYMER SENSOR FIBERS FABRICATED WITH 3-D HYDRODYNAMIC FOCUSING** 566
I. Yoo and S. Song
Hanyang University, SOUTH KOREA

Poster Session Imaging & Detection Technologies - Flow Visualization

- M1G MEASUREMENT OF THREE DIMENSIONAL FLOW STRUCTURE OF DROPLET FORMATION MECHANISM IN T-SHAPED JUNCTION USING PHASE-LOCKED CONFOCAL MICRO-PIV** 569
M. Oishi, H. Kinoshita, T. Fujii, and M. Oshima
University of Tokyo, JAPAN

Poster Session Imaging & Detection Technologies - Optical

- M2G AN IMPROVED SCANOMETRIC IMMUNOASSAY BASED ON DUAL ENLARGEMENT OF GOLD NANOPARTICLES FOR RAPID AND LOW COST PATHOGEN DETECTION** 572
C. Cao, L.L.T. Tram, A. Wolff, and D.D. Bang
Technical University of Denmark, DENMARK
- M3G CONCENTRATION DETERMINATION IN EXTENDED NANOCANNEL USING DIFFERENTIAL INTERFERENCE CONTRAST THERMAL LENS MICROSCOPE** 575
H. Shimizu, K. Mawatari, and T. Kitamori
University of Tokyo, JAPAN
- M4G FLUORESCENCE ENHANCEMENT FROM SINGLE DNA MOLECULES CONFINED IN SiO₂ NANOCANNELS** 578
F. Westerlund^{1,2}, F. Persson^{1,3}, A. Kristensen³, and J.O. Tegenfeldt^{1,4}
¹University of Gothenburg, SWEDEN, ²Chalmers University of Technology, SWEDEN, ³Technical University of Denmark, DENMARK, and ⁴Lund University, SWEDEN
- M5G INTEGRATED ELECTROKINETIC LAB-ON-A-CHIP BASED BIOSENSOR - A TOOL FOR DRUG SCREENING APPLICATIONS** 581
G. Krishnamoorthy, E.T. Carlen, R.B.M. Schasfoort, and A. van den Berg
MESA+, University of Twente, THE NETHERLANDS
- M6G LENSFREE TELEMEDICINE MICROSCOPE ON A WIRELESS PHONE** 584
D. Tseng, O. Mudanyali, C. Oztoprak, S.O. Isikman, I. Sencan, O. Yaglidere, and A. Ozcan
University of California, Los Angeles, USA

M7G	MULTIPLE-INTERNAL-REFLECTION POLY(DIMETHYLSILOXANE) SYSTEMS FOR ON-LINE pH MONITORING	587
	M.J. Lopez-Martinez ¹ , J. Vila-Planas ² , S. Demming ³ , P.P.M.F.A. Mulder ¹ , S. Büttgenbach ³ , A. Llobera ² , and E. Verpoorte ¹ ¹ University of Groningen, THE NETHERLANDS, ² Centro Nacional de Microelectrónica (CNM), SPAIN, and ³ Universität Braunschweig, GERMANY	
M8G	SMALL, COST-EFFICIENT STOPPED-FLOW DEVICE	590
	M. Ritzi-Lehnert ¹ , R. Bleul ¹ , J. Hoeth ¹ , N. Scharpfenecker ¹ , I. Frese ¹ , T.E. Hansen-Hagge ¹ , F.-J. Meyer-Almes ² , and K.S. Drese ¹ ¹ Institut fuer Mikrotechnik Mainz GmbH, GERMANY and ² Hochschule Darmstadt, GERMANY	
Poster Session Imaging & Detection Technologies - Electrochemical		
M9G	A MULTI-POINT DETECTION SYSTEM WITH ADDRESSABLE ELECTRODE ARRAY DEVICE INCORPORATED WITH IDA ELECTRODES	593
	K. Ino ¹ , W. Saito ¹ , M. Koide ² , T. Umemura ¹ , H. Shiku ¹ , and T. Matsue ¹ ¹ Tohoku University, JAPAN and ² National Institute for Environmental Studies, JAPAN	
M10G	MICROFLUIDIC REFERENCE ELECTRODE FOR APPLICATIONS IN BIOSENSING	596
	S. Safari-Mohsenabad, P.R. Selvaganapathy, and M.J. Deen McMaster University, CANADA	
M11G	SIMULTANEOUS DETECTION OF CATECHOLAMINE NEUROTRANSMITTERS UTILIZING A CYCLODEXTRIN-BASED MICRO ELECTRODE ARRAY	599
	J.-H. Yang, J.W. Park, and H. Kim University of Utah, USA	
Poster Session Imaging & Detection Technologies - Mass Spectrometry		
M12G	DESALINATION INTERFACE DEVICE FOR LC-MS USING TiO₂-COATED MAGNETIC MICROPARTICLES	602
	Y. Akiyama ¹ , Y. Takahashi ² , I. Akutagawa ¹ , A. Ono ¹ , K. Morishima ¹ , and K. Chiba ¹ ¹ Tokyo University of Agriculture and Technology, JAPAN and ² JEOL Ltd., JAPAN	
M13G	LOW-COST MICROFLUIDIC EMITTERS FOR NANO-ELECTROSPRAY IONIZATION-MASS SPECTROMETRY	605
	A.E. Kirby, M.J. Jebrail, H. Yang, and A.R. Wheeler University of Toronto, CANADA	
Poster Session Imaging & Detection Technologies - Optofluidics		
M14G	HIGH THROUGHPUT MELTING CURVE ANALYSIS IN MONOLITHIC SILICON-BASED MICROFLUIDIC DEVICE	608
	J.B.W. Soon ¹ , P. Neuzil ¹ , C. Fang ¹ , J. Reboud ¹ , C.C. Wong ² , and L.T. Kao ¹ ¹ Agency for Science, Technology and Research (A*STAR), SINGAPORE and ² Nanyang Technological University, SINGAPORE	
M15G	OPTICALLY RECONFIGURABLE MICROFLUIDICS	611
	M. Krishnan and D. Erickson Cornell University, USA	
Poster Session Imaging & Detection Technologies - Others		
M16G	A CRYO-COOLING MICROFLUIDIC CHANNEL DEVICE FOR MAGNETIC RESONANCE (MR) MICROSCOPY SYSTEM	614
	C. Koo, M.A. Carrillo, M.P. McDougall, S.M. Wright, and A. Han Texas A&M University, USA	
M17G	CODED ELECTRODES FOR LOW SIGNAL-NOISE RATIO SINGLE CELL DETECTION IN FLOW-THROUGH IMPEDANCE SPECTROSCOPY	617
	D. Polling, S.C. Deane, M.R. Burcher, C. Glasse, and C.H. Reccius Philips Research Laboratories, UK	

M18G	ELECTROHYDRODYNAMIC COULTER COUNTING	620
	Y. Zhao and C.-H. Chen <i>Duke University, USA</i>	
M19G	MEASUREMENT OF NONLINEAR BIOCHEMICAL REACTION IN MICRODROPLETS USING THE FRACTAL-SHAPED MICRO CHANNEL	623
	K. Hirata ¹ , T. Ichii ² , H. Suzuki ^{1,2} , T. Matsuura ^{1,2} , and T. Yomo ^{1,2} ¹ <i>Osaka University, JAPAN</i> and ² <i>Japan Science and Technology Agency (JST), JAPAN</i>	
M20G	SERS DETECTION USING SILVER NANOCLUSTER-EMBEDDED POROUS POLYMER MONOLITHS	626
	J. Liu, I. White, and D.L. DeVoe <i>University of Maryland, USA</i>	

Poster Session Special Focus Session - Tissue Engineering

M1H	CELL FIBERS: CONSTRUCTION OF CENTIMETER-SCALE 3D TISSUES BY WEAVING	629
	H. Onoe, R. Gojo, Y. Tsuda, D. Kiriya, M. Kato-Negishi, and S. Takeuchi <i>University of Tokyo, JAPAN</i>	
M2H	FABRICATION OF TRANSPLANTABLE 3D-NEURONAL NETWORK	632
	M. Kato-negishi, Y. Tsuda, H. Onoe, and S. Takeuchi <i>University of Tokyo, JAPAN</i>	
M3H	IN-VITRO HEPATOCYTE-ACTIVITY ENHANCEMENT VIA A LOBULE-MIMETIC ENGINEERED LIVER TISSUE LAB CHIP	635
	C.-K. Chin, R.-J. Chen, C.-Y. Fu, H.-Y. Chang, and C.-H. Liu <i>National Tsing Hua University, TAIWAN</i>	
M4H	MICROFLUIDIC PLATFORM FOR THE SIMULTANEOUS GENERATION OF FOUR INDEPENDENT GRADIENTS: TOWARDS THE HIGH THROUGHPUT SCREENING OF TRACE ELEMENTS FOR BONE TISSUE ENGINEERING	638
	B. Harink, S. Le Gac, C. van Blitterswijk, and P. Habibovic <i>University of Twente, THE NETHERLANDS</i>	
M5H	SOFT TAPERED STENCIL MASK FOR COMBINATORIAL 3D CLUSTER FORMATION OF STEM CELLS	641
	M. Ikeuchi ¹ , K. Oishi ¹ , H. Noguchi ² , S. Hayashi ¹ , and K. Ikuta ³ ¹ <i>Nagoya University, JAPAN</i> , ² <i>Baylor Research Institute, USA</i> , and ³ <i>University of Tokyo, JAPAN</i>	

Poster Special Focus Session - Electrowetting-Driven Digital Microfluidics

M6H	A HIGH FUNDAMENTAL FREQUENCY QUARTZ CRYSTAL BIOSENSOR INTEGRATED INTO AN ELECTRO-WETTING-ON-DIELECTRICS BASED LAB-ON-A-CHIP	644
	T. Lederer, B.P. Stehrer, B. Jakoby, S. Bauer, and W. Hilber <i>Johannes Kepler University, AUSTRIA</i>	
M7H	EWOD LAB-ON-CHIP FOR MASS SPECTROMETRY AND FLUORESCENCE ANALYSIS	647
	F. Lapierre ¹ , G. Piret ¹ , H. Drobecq ² , O. Melnyk ² , Y. Coffinier ¹ , V. Thomy ¹ , and R. Boukherroub ¹ ¹ <i>Université de Lille, FRANCE</i> and ² <i>Institut de Biologie de Lille, FRANCE</i>	

Session 1A3 - Membrane-Transport Assays

	A MICROFLUIDIC MODEL TO STUDY THE METASTATIC CASCADE: FROM ADHESION TO MIGRATION	650
	W.A. Velema ¹ , P.P.M.F.A. Mulder ¹ , L.P. Lee ² , and E. Verpoorte ¹ ¹ <i>University of Groningen, THE NETHERLANDS</i> and ² <i>University of California, Berkeley, USA</i>	
	DOUBLE-SIDED LIPID-BILAYER MICROCHAMBERS	653
	T. Tonooka ¹ , M. Takinoue ¹ , and S. Takeuchi ^{1,2} ¹ <i>University of Tokyo, JAPAN</i> and ² <i>Kanagawa Academy of Science and Technology, JAPAN</i>	

INDUCTION OF QUORUM SENSING IN MICRODROPLETS BY TRANSPORTING SMALL MOLECULES THROUGH PDMS	656
J.-U. Shim, S.N. Patil, J.T. Hodgkinson, S.D. Bowden, D.R. Spring, M. Welch, W.T.S. Huck, F. Hollfelder, and C. Abell <i>University of Cambridge, UK</i>	

Session 1B3 - Sample Preparation for Nucleic Acids

ABSOLUTE QUANTIFICATION OF MICRORNA FROM HUMAN AND MOUSE TISSUE RNA USING HIGHLY SELECTIVE ISOTACHOPHORETIC FOCUSING	659
A. Persat ¹ , R.R. Chivukula ² , J.T. Mendell ² , and J.G. Santiago ¹ ¹ Stanford University, USA and ² Johns Hopkins University, USA	

HIGH-SPEED RNA MICROEXTRACTION TECHNOLOGY USING MAGNETIC OLIGO-dT BEADS AND LATERAL MAGNETOPHORESIS	662
H. Lee, J. Jung, S.-I. Han, and K.-H. Han <i>Inje University, SOUTH KOREA</i>	

RAPID NUCLEIC ACID PURIFICATION VIA MICROCHANNEL IMMISCIBLE PHASE FILTRATION	665
S.M. Berry and D.J. Beebe <i>University of Wisconsin, USA</i>	

Session 1C3 - Sensing

OPTIMIZATION OF RADIOSYNTHESIS OF MOLECULAR TRACERS IN EWOD MICROFLUIDIC CHIP	668
P.Y. Keng, S. Chen, H.-J. Ding, S. Sadeghi, M.E. Phelps, N. Satymurthy, C.-J. Kim, and R.M. van Dam <i>University of California, Los Angeles, USA</i>	

ARTIFICIAL GLAND FOR PRECISE RELEASE OF SEMIOCHEMICALS FOR CHEMICAL COMMUNICATION	671
W.P. Bula ¹ , N.G. Dimov ¹ , L. Munoz ² , A. Guerrero ² , and J.G.E. Gardeniers ¹ ¹ MESA+, University of Twente, THE NETHERLANDS and ² Spanish National Research Council (CSIC), SPAIN	

HYBRID CHEMICAL AND ELECTRICAL CONTROL OVER INSECT CYBORG AIR VEHICLES	674
B. Cordovez, A.J. Chung, X.T. Huang, N. Jasuja, and D. Erickson <i>Cornell University, USA</i>	

Session 1D3 - Fuel Cells

A MICROFLUIDIC MICROBIAL FUEL CELL ARRAY FOR ELECTROCHEMICALLY-ACTIVE MICROBE SCREENING AND ANALYSIS	677
H. Hou, C.U. Ceylan, L. Li, P. de Figueiredo, and A. Han <i>Texas A&M University, USA</i>	

MICROFLUIDIC ANALYTICAL PLATFORM FOR CATALYST AND ELECTRODE CHARACTERIZATION AND OPTIMIZATION	680
F.R. Brushett, M.S. Naughton, H.R.M. Jhong, and P.J.A. Kenis <i>University of Illinois, Urbana-Champaign, USA</i>	

Day 2 - Tuesday, 5 October 2010

Plenary Presentation III

- SLIPCHIP, CHEMISTRODE, AND DROPLET-BASED MICROFLUIDIC TECHNOLOGIES:
FROM BASIC SCIENCE TO APPLICATIONS** 683
W. Du, L. Li, F. Shen, W. Liu, K.P. Nichols, and **R.F. Ismagilov**
University of Chicago, USA

Session 2A1 - Cell Pairing

- PAIRING AND FUSION OF HETEROTYPIC CELLS IN A MICROCHANNEL** 687
N. Sasaki, J.S. Gong, K. Hosokawa, M. Maeda, and Y. Ito
RIKEN, JAPAN
- A MICROFLUIDIC ARRAY WITH CELLULAR VALVING FOR CO-CULTURING
SINGLE CELL COUPLES** 690
J.-P. Frimat, M. Becker, Y.-Y. Chiang, D. Janasek, J.G. Hengstler, J. Franzke, and J. West
Institute for Analytical Sciences (ISAS), GERMANY
- SIZE-INDEPENDENT ELECTRO CELL FUSION WITH MASSIVE PARALLELISM** 693
Y. Kimura^{1,2}, Y. Nishigaichi¹, Y. Nakada¹, Y. Mori^{1,2}, H. Iwanari¹, M. Gel^{1,2}, O. Kurosawa^{1,2},
H. Oana^{1,2}, T. Hamakubo¹, H. Kotera^{2,3}, and M. Washizu^{1,2}
¹University of Tokyo, JAPAN, ²Japan Science and Technology Agency (JST), JAPAN, and
³Kyoto University, JAPAN

Session 2B1 - Fixed Cells and Tissue

- A NOVEL METHOD TO INVESTIGATE PROTEOMIC PROFILING OF CANCERS USING
A MICROFLUIDIC IMMUNOHISTOCHEMISTRY SYSTEM** 696
M.S. Kim^{1,2}, S. Kwon¹, E.S. Lee³, and J.-K. Park¹
¹Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA,
²Samsung Advanced Institute of Technology (SAIT), SOUTH KOREA, and
³Korea University, SOUTH KOREA
- FAST IMMUNOHISTOCHEMICAL BIOMARKER DETECTION DEVICE FOR
CANCER TISSUE SLICES** 699
A.T. Ciftlik¹, B. Song¹, C. Vandevyver¹, J.C. Bünzli¹, H.-A. Lehr², and M.A.M. Gijs¹
¹École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND and
²Université de Lausanne, SWITZERLAND
- A HIGH-THROUGHPUT FISH MICROCHIP FOR CLINICAL GENETICS** 702
H. Suzuki¹, D. Hiramaru², K. Terao¹, H. Takao¹, F. Oohira¹, H. Kotera², and T. Suzuki¹
¹Kagawa University, JAPAN and ²Kyoto University, JAPAN

Session 2C1 - Nucleic Acid Amplification

- Invited Presentation*
- CHALLENGES AND OPPORTUNITIES IN PERSONALIZED MEDICINE** 705
H.R. Stapert¹ and **R. Pauwels**²
¹Biocartis BV, THE NETHERLANDS and ²Biocartis SA, SWITZERLAND
- RAPID, MULTISTEP DNA HYBRIDISATION IN CONTINUOUS FLOW** 707
M. Vojtišek, A. Iles, and N. Pamme
University of Hull, UK
- AGAROSE DROPLET MICROFLUIDICS FOR HIGHLY PARALLEL AND
EFFICIENT EMULSION PCR** 710
C.J. Yang, X. Leng, and W. Zhang
Xiamen University, CHINA

Session 2D1 - Drug Screening

- MICROFLUIDIC CHAMBER ARRAYS FOR WHOLE-ORGANISM HIGH-THROUGHPUT COMBINATORIAL CHEMICAL SCREENING BASED ON BEHAVIORAL RESPONSES** 713
K. Chung¹, E. Gong¹, J. Srinivasan², P.W. Sternberg², and H. Lu¹
¹Georgia Institute of Technology, USA and ²California Institute of Technology, USA
- ON-CHIP PRE-CLINICAL CARDIAC TOXICITY: TESTING COMPOUNDS BEYOND hERG AND QT USING hES/hiPS CARDIOMYOCYTE RE-ENTRY CELL NETWORK MODEL ON A CHIP** 716
K. Yasuda, T. Kaneko, and F. Nomura
Tokyo Medical and Dental University, JAPAN
- HIGH-THROUGHPUT OF PHOTODYNAMIC THERAPY (PDT) SCREENING FROM MULTIPLE PARAMETER ASSAYS OF 1,000 DIFFERENT CONDITIONS IN A SINGLE CHIP** 719
X. Lou, G. Kim, Y. Koo, R. Kopelman, and E. Yoon
University of Michigan, USA

Session 2A2 - Intrinsic Cell Separation

- MICROFLUIDIC COUNTERFLOW CENTRIFUGAL ELUTRIATION FOR CELL SEPARATION USING DENSITY-GRADIENT MEDIA** 722
T. Morijiri, T. Hikida, M. Yamada, and M. Seki
Chiba University, JAPAN
- GENOME-WIDE ANALYSIS OF ELECTRICAL PHENOTYPE USING ISODIELECTRIC SEPARATION** 725
M.D. Vahey¹, J.P. Svensson², L. Quiros-Pesudo¹, L.D. Samson¹, and J. Voldman¹
¹Massachusetts Institute of Technology, USA and ²Karolinska Institutet, SWEDEN
- TEMPERATURE-CONTROLLED HIGH-THROUGHPUT (1 L/H) ACOUSTOPHORETIC PARTICLE SEPARATION IN MICROCHANNELS** 728
C.L. Ebbesen¹, J.D. Adams², R. Barnkob¹, H.T. Soh², and H. Bruus¹
¹Technical University of Denmark, DENMARK and ²University of California, Santa Barbara, USA

Session 2B2 - Protein Analysis

- ON-CHIP MULTI-ANALYTE NATIVE WESTERN BLOTTING IN TWO MINUTES** 731
S.Q. Tia, M. He, D. Kim, and A.E. Herr
University of California, Berkeley, USA
- KILO-TO-GIGA DNA MICROARRAY FOR CONVERSION HIGH-DENSITY PROTEIN MICROARRAY ON-DEMAND** 734
M. Biyani^{1,2}, S. Sato¹, T. Fujita¹, T. Akagi¹, and T. Ichiki^{1,2}
¹University of Tokyo, JAPAN and ²Japan Science and Technology Agency (JST), JAPAN
- MICROSCALE ISOELECTRIC FRACTIONATION USING IMMOBILIZED pH-SPECIFIC MEMBRANES FOR MULTI-DIMENSIONAL ANALYSIS** 737
J. Mai, G.J. Sommer, and A.V. Hatch
Sandia National Laboratories, USA

Session 2C2 - Two-Phase Flow

- HYDRODYNAMIC PARTICLE CONCENTRATION INSIDE A MICROFLUIDIC PLUG** 740
G.K. Kurup and A.S. Basu
Wayne State University, USA
- ADVANCED FLUIDIC HANDLING AND USE OF TWO-PHASE FLOW FOR HIGH THROUGHPUT STRUCTURAL INVESTIGATION OF PROTEINS ON A MICROFLUIDIC SAMPLE PREPARATION PLATFORM** 743
J.P. Laffleur¹, D. Snakenborg¹, S.S. Nielsen^{1,2}, M. Møller², K.N. Toft², J.K. Jacobsen³, B. Vestergaard², L. Arleth², and J.P. Kutter¹
¹Technical University of Denmark, DENMARK, ²Copenhagen University, DENMARK, and ³Novo Nordisk A/S, DENMARK

3D LIQUID-LIQUID WAVEGUIDES USING TWO FLOW STREAMS BY CENTRIFUGAL FORCE	746
Y. Yang, C.D. Ohl, H.S. Yoon, and A.Q. Liu <i>Nanyang Technological University, SINGAPORE</i>	

Session 2D2 - *In-Vivo* Assays

A SKIN-CONTACT-ACTUATED DISPENSER/PUMP FOR TRANSDERMAL DRUG DELIVERY	749
C. Mousoulis ¹ , M. Ochoa ¹ , D. Papageorgiou ² , and B. Ziaie ¹ ¹ <i>Purdue University, USA</i> and ² <i>Solid-State Research, Inc., USA</i>	

GENERATION OF TEMPORAL LOGARITHMIC CONCENTRATION FOR DOSE-RESPONSE ASSAYS ON ION CHANNELS	752
C.-Y. Chen, T.-Y. Tu, D.-S. Jong, and A.M. Wo <i>National Taiwan University, TAIWAN</i>	

APPLICATION OF AN ENZYMATIC MICROREACTOR COUPLED WITH MICRODIALYSIS FOR CONTINUOUS MONITORING OF SUBCUTANEOUS GLUCOSE IN RATS	755
B.-U. Moon ¹ , M.G. de Vries ¹ , C.A. Cordeiro ² , A.J.M. Schoonen ¹ , B.H.C. Westerink ¹ , and E. Verpoorte ¹ ¹ <i>University of Groningen, THE NETHERLANDS</i> and ² <i>Brains-on-Line B.V., THE NETHERLANDS</i>	

Plenary Presentation IV

FLASH CHEMISTRY: FAST CHEMICAL SYNTHESIS IN FLOW MICROREACTORS	758
J.-I. Yoshida <i>Kyoto University, JAPAN</i>	

Poster Session Life Science Applications - Genomics & Proteomics

T1A A FLUID ARRAY DEVICE FOR HIGH-THROUGHPUT PROTEIN SYNTHESIS	761
Z.H. Fan, R. Khnouf, Q. Mei, and S. Jin <i>University of Florida, USA</i>	

T2A DEVELOPMENT OF SPECIFIC SINGLE-CELL GENE ANALYSIS SYSTEM ON A MICROCHIP	764
J. Wakabayashi ¹ , Y. Tanaka ^{1,2} , K. Sato ^{2,3} , K. Mawatari ^{1,3} , Y. Tanaka ⁴ , M. Nilsson ⁴ , and T. Kitamori ^{1,2} ¹ <i>University of Tokyo, JAPAN</i> , ² <i>Japan Science and Technology Agency (JST), JAPAN</i> , ³ <i>Japan Women's University, JAPAN</i> , and ⁴ <i>Uppsala University, SWEDEN</i>	

T3A HIGH-THROUGHPUT GENE EXPRESSION ANALYSIS OF SINGLE CELLS USING DIGITAL MICROFLUIDICS	767
N. Bois ^{1,3} , L. Mahmoudian ¹ , L. Dauphinot ¹ , P. Mary ² , F. Monti ² , J.-L. Viovy ³ , P. Tabeling ² , and M.-C. Potier ¹ ¹ <i>Hôpital Pitié-Salpêtrière, FRANCE</i> , ² <i>Ecole Supérieure de Physique et de Chimie Industrielles (ESPCI), FRANCE</i> and ³ <i>Curie Institute, FRANCE</i>	

T4A MICROFLUIDIC VOLUME REDUCTION SOLID PHASE EXTRACTION OF COMPROMISED AND LOW DNA TEMPLATE FORENSIC SAMPLES	770
C.R. Reedy, J.J. Higginson, and J.P. Landers <i>University of Virginia, USA</i>	

T5A TOWARDS AN INTEGRATED MICRODEVICE FOR LIQUID DNA EXTRACTION AND AMPLIFICATION APPLICABLE TO FORENSIC DNA ANALYSIS	773
J.A. Lounsbury ¹ , N. Coult ¹ , P. Kinnon ² , D. Saul ² , and J.P. Landers ¹ ¹ <i>University of Virginia, USA</i> and ² <i>ZyGEM Corporation, NEW ZEALAND</i>	

Poster Session Life Science Applications - Clinical Diagnostics

T6A A NEW IMMUNOASSAY PLATFORM ON A MICROCHIP UTILIZING YEAST SURFACE DISPLAY AND IMPEDANCE FLOW CYTOMETRY	776
J. Wang, Y. Guo, K.-L. Chan, and I.-M. Hsing <i>Hong Kong University of Science and Technology, CHINA</i>	

T7A	AN ULTRA-SENSITIVE MICROFLUIDIC IMMUNOASSAY USING LIVING RADICAL POLYMERIZATION AND POROUS POLYMER MONOLITHS	779
	V.V. Abhyankar, A.K. Singh, and A.V. Hatch <i>Sandia National Laboratories, USA</i>	
T8A	BIOASSAY CHIP FOR EVALUATION OF MITOCHONDRIAL MEMBRANE POTENTIAL WITH INTEGRATED ION-SELECTIVE MICROSENSORS	782
	T.-S. Lim, A. Dávila, D.C. Wallace, and P. Burke <i>University of California, Irvine, USA</i>	
T9A	FISH IN CHIPS: MOLECULAR TYPING OF HER-2 BIOMARKER FOR RAPID AND LOW COST CANCER DIAGNOSIS AND TREATMENT SELECTION	785
	K. Perez-Toralla, I. Draskovic, F.-D. Delapierre, S. Miserere, L. Malaquin, J.-L. Viovy, and G. Mottet <i>Institut Curie, FRANCE</i>	
T10A	HIGH-THROUGHPUT SIZE BASED RARE CELL ISOLATION USING MICROSCALE VORTICES	788
	S.C. Hur, A.J. Mach, and D. Di Carlo <i>University of California, Los Angeles, USA</i>	
T11A	ADHESION-BASED MICROFLUIDIC ENDOTHELIAL PROGENITOR CELL CAPTURE TECHNOLOGY FOR CARDIOVASCULAR MEDICINE	791
	B.D. Plouffe ¹ , A. Hatch ¹ , G. Hansmann ² , and S.K. Murthy ¹ ¹ <i>Northeastern University, USA and</i> ² <i>Children's Hospital Boston, USA</i>	
T12A	PAPER MEMS CHIP FOR INK-JET PRINTER-LIKE CLINICAL AUTO ANALYZER	794
	R. Miyake, S. Okabe, K. Sakamoto, Y. Murakami, and T. Ishikawa <i>Hiroshima University, JAPAN</i>	
T13A	RAPID AND HIGH SENSITIVITY DETECTION OF URINARY TRACT INFECTIONS USING ISOTACHOPHORESIS	797
	M. Bercovici, G.V. Kaigala, J.C. Liao, and J.G. Santiago <i>Stanford University, USA</i>	
T14A	SOL-GEL INTEGRATED PROTEIN MICROARRAY FOR HIGH-RESOLUTION SIGNAL READOUT OF PSA (PROSTATE SPECIFIC ANTIGEN) IN CLINICAL SAMPLES	800
	S.W. Lee ¹ , J.Y. Ahn ² , K. Järås ¹ , H. Lilja ¹ , M.J. Jo ² , C.Y. Jung ² , O.C. Jeong ³ , S.Y. Kim ² , and T. Laurell ¹ ¹ <i>Lund University, SWEDEN,</i> ² <i>Dongguk University, SOUTH KOREA,</i> and ³ <i>Inje University, SOUTH KOREA</i>	
Poster Session Life Science Applications - Point-of-Care Testing		
T15A	BLOOD COAGULATION STUDY USING LIGHT-TRANSMISSION METHOD	803
	H. Lim, J. Nam, Y. Lee, S. Xue, S. Chung, and S. Shin <i>Korea University, SOUTH KOREA</i>	
T16A	DEVELOPMENT OF THREE-STEP CONSOLIDATING MICROCHIP FOR THERAPEUTIC DRUG MONITORING	806
	K. Sugiura ¹ , N. Kaji ¹ , Y. Okamoto ¹ , M. Tokeshi ¹ , and Y. Baba ^{1,2} ¹ <i>Nagoya University, JAPAN and</i> ² <i>National Institute of Advanced Industrial Science and Technology (AIST), JAPAN</i>	
T17A	EXTENDED DYNAMIC RANGE CAPILLARY-DRIVEN MICROFLUIDICS	809
	L. Gervais and E. Delamarche <i>IBM Research GmbH, SWITZERLAND</i>	
T18A	INTEGRATED MICROFLUIDIC LOOP-MEDIATED-ISOTHERMAL-AMPLIFICATION SYSTEM FOR RAPID DIAGNOSIS OF AQUACULTURE VIRUS	812
	C.-H. Wang, K.-Y. Lien, T.-Y. Wang, T.-Y. Chen, and G.-B. Lee <i>National Cheng Kung University, TAIWAN</i>	

T19A	LARGE-VOLUME CENTRIFUGAL MICROFLUIDIC DEVICE FOR WHOLE BLOOD SAMPLE PREPARATION	815
	M. Amasia ¹ , J. Siegrist ¹ , and M. Madou ^{1,2} ¹ University of California, Irvine, USA and ² Ulsan National Institute of Science and Technology, SOUTH KOREA	
T20A	MICROFLUIDIC LAB-ON-A-CHIP SYSTEM WITH INTEGRATED SAMPLE PREPARATION FOR PROCESSING IMMUNOASSAYS	818
	G. Welte ¹ , S. Lutz ² , B. Cleven ³ , H. Brahm ⁴ , C. Gärtner ⁵ , G. Roth ¹ , D. Mark ² , R. Zengerle ^{1,2} , and F. von Stetten ^{1,2} ¹ University of Freiburg - IMTEK, GERMANY, ² Institute for Micromachining and Information Technology (HSG-IMIT), GERMANY, ³ Vulkan Technic Maschinen-Konstruktions GmbH, GERMANY, ⁴ DRG Instruments GmbH, GERMANY, and ⁵ Microfluidic ChipShop GmbH, GERMANY	
T21A	ONE-STEP MICRO-ELISA FOR HIGHLY SENSITIVE DETERMINATION OF TSH	821
	T. Ohashi ¹ , O. Fukahori ¹ , H. Tazawa ¹ , A. Harano ¹ , T. Ebata ¹ , K. Mawatari ² , and T. Kitamori ^{1,2} ¹ Institute of Micro Chemical Technology, JAPAN and ² University of Tokyo, JAPAN	
T22A	SINGLE CHIP INTEGRATED VIRAL RNA EXTRACTION AND RT-PCR FOR INFECTIOUS DISEASE IDENTIFICATION FROM BLOOD SAMPLE	824
	T.G. Kang, H.M. Ji, L. Zhang, M.Y.D. Ang, S.R.B. Mohamed Rafei, G.K.I. Tay, K.C. Tang, and Y. Chen Agency for Science, Technology and Research (A*STAR), SINGAPORE	

Poster Session Life Science Applications - Drug Development

T23A	A MICRODEVICE WITH CHAOTIC MIXER TO CONSTRUCT MULTIFUNCTIONAL ENVELOPE-TYPE NANODEVICE FOR DELIVERY SYSTEM	827
	K. Kitazoe ¹ , Y. Okamoto ¹ , N. Kaji ¹ , M. Tokeshi ¹ , K. Kogure ² , H. Harashima ³ , and Y. Baba ^{1,4} ¹ Nagoya University, JAPAN, ² Kyoto Pharmaceutical University, JAPAN, ³ Hokkaido University, JAPAN, and ⁴ National Institute of Advanced Industrial Science and Technology (AIST), JAPAN	
T24A	BLM EXPERIMENTATION AND OPTO-ELECTRICAL CHARACTERIZATION IN MICROCHIPS. TOWARDS AN INTEGRATED PLATFORM FOR DRUG SCREENING ON MEMBRANE PROTEINS	830
	V.C. Stimberg, I. van Uitert, S. Le Gac, and A. van den Berg MESA+, University of Twente, THE NETHERLANDS	
T25A	LIVER-KIDNEY MICROFLUIDIC BIOREACTOR FOR CELL CO-CULTURE IN DRUG STUDIES	833
	L. Choucha-Snoubert ¹ , L. Griscom ² , P.E. Polini ¹ , F. Razan ² , C. Brochot ³ , C. Aninat ⁴ , A. Corlu ⁴ , C. Legallais ¹ , and E. Leclerc ¹ ¹ Université de Technologie de Compiègne, FRANCE, ² Ecole Normale Supérieure de Cachan (ENS), FRANCE, ³ INERIS, FRANCE, and ⁴ Université de Rennes 1, FRANCE	
T26A	NOVEL HIGH-THROUGHPUT SCREENING SYSTEM FOR CANCER THERAPY WITH SIMULTANEOUS COMBINATION TREATMENTS	836
	J.Y. Kim ¹ , D. Taylor ² , K. Rege ² , H.S. Kim ¹ , A.R. Han ¹ , and A. Jayaraman ¹ ¹ Texas A&M University, USA and ² Arizona State University, USA	
T27A	SELECTION OF PHAGE DISPLAYED PEPTIDES ON LIVE ADHERENT CELLS IN MICROFLUIDIC CHANNELS	839
	J. Wang ¹ , Y. Liu ¹ , T. Teesalu ² , K.N. Sugahara ² , J.D. Adams ¹ , E. Ruoslahti ² , Y. Xiao ¹ , and H.T. Soh ¹ ¹ University of California, Santa Barbara, USA and ² Sanford-Burnham Medical Research Institute, USA	
T28A	TRANSPORTERS ON A CHIP: A FLUORESCENCE ANALYSIS OF AN ATP-BINDING CASSETTE (ABC)-TRANSPORTER	842
	H. Sasaki ¹ , H. Onoe ² , T. Osaki ¹ , R. Kawano ¹ , and S. Takeuchi ^{1,2} ¹ Kanagawa Academy of Science and Technology (KAST), JAPAN and ² University of Tokyo, JAPAN	

Poster Session Life Science Applications - Cell Culture

- T29A A PUMPLESS CELL CULTURE CHIP WITH THE CONSTANT MEDIUM PERFUSION-RATE MAINTAINED BY BALANCED DROPLET DISPENSING** 845
T. Kim and Y.-H. Cho
Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA
- T30A AN AUTOMATED AND MULTIPLEXED MICROFLUIDIC BIOREACTOR PLATFORM WITH TIME-LAPSE IMAGING FOR CULTIVATION OF EMBRYONIC STEM CELLS AND ON-LINE ASSESSMENT OF MORPHOLOGY AND PLURIPOTENCY MARKERS** 848
M. Reichen, F.S. Veraitch, and N. Szita
University College London, UK
- T31A COMPOSITE MATERIAL DIAPHRAGM ARRAYS FOR MECHANOBIOLOGICAL STIMULATION OF CULTURED CELLS** 851
C. Moraes, C.J. Lam, B.M. Beca, Y. Sun, and C.A. Simmons
University of Toronto, CANADA
- T32A DEVELOPMENT OF SIMPLE MICROFLUIDIC CELL CULTURING SYSTEM TOWARD OBSERVATION OF CELL-TO-CELL COMMUNICATION** 854
A. Okonogi¹, K. Terao², T. Okitsu¹, T. Suzuki², R. Yokokawa¹, M. Ohoka¹, and H. Kotera¹
¹Kyoto University, JAPAN and ²Kagawa University, JAPAN
- T33A GRAVITY-ORIENTED MICROFLUIDIC DEVICE FOR CELL SPHEROID FORMATION** 857
K. Lee¹, C. Kim², J. Bang², Y. Kim², S. Lee², B. Ahn¹, J.Y. Kang², and K.W. Oh¹
¹University at Buffalo, The State University of New York, USA and ²Korea Institute of Science and Technology (KIST), SOUTH KOREA
- T34A HIGH-THROUGHPUT COMPARTMENTALIZED CNS NEURON CULTURE PLATFORM FOR AXON DEGENERATION/REGENERATION STUDY** 860
J. Park, H. Koito, J. Li, and A. Han
Texas A&M University, USA
- T35A INTEGRATED MICROFLUIDIC CELL CULTURE AND ANALYSIS OF RETROVIRAL shRNA PRODUCTION** 863
A. Poehler, G. Wan, Z. Lihan, H.-P. Too, and S.A. Khan
National University of Singapore, SINGAPORE
- T36A MICROFLUIDIC SYNTHESIS OF COMPLEX ALGINATE FIBERS FOR THE DIRECTION CONTROL OF CELL GROWTH** 866
M. Yamada, S. Sugaya, and M. Seki
Chiba University, JAPAN
- T37A OPEN-CHAMBER FOCAL STIMULATION DEVICE FOR BIOMIMETIC STUDY OF THE NEUROMUSCULAR JUNCTION** 869
T. Chang, N. Bhattacharjee, and A. Folch
University of Washington, USA

Poster Session Life Science Applications - Cell Handling & Sorting

- T38A A MEMBRANELESS CONTINUOUS-FLOW FILTER FOR HIGH-THROUGHPUT SEPARATION AND ENRICHMENT OF PARTICLES AND CELLS** 872
J.-H. Huang and V.M. Ugaz
Texas A&M University, USA
- T39A A RELEASABLE CELL SEPARATION PLATFORM USING TEMPERATURE-RESPONSIVE POLYMERS** 875
L.-I. Wang¹, Y.-S. Chen¹, J.M. Obliosca¹, P.-C. Wang¹, G.-H. Hsiue¹, and F.-G. Tseng^{1,2}
¹National Tsing Hua University, TAIWAN and ²Academia Sinica, TAIWAN
- T40A A SINGLE-CELL TRAPPING MICROARRAY AND AUTOMATED TRACKING OF CLONAL EXPANSION** 878
A.J.E. Rettie, T. Chang, W.C. Watt, and A. Folch
University of Washington, USA

T41A	AUTOMATED DIELECTROPHORETIC CHARACTERIZATION FOR MICROFLUIDIC CELL SEPARATION DEVICES	881
	C. Huang, B.G. Hawkins, S. Arasanipalai, and B.J. Kirby <i>Cornell University, USA</i>	
T42A	CELL SORTING BY DIELECTROPHORESIS FOR EVALUATION OF LYSIS EFFICIENCY IN CONTINUOUS FLOW	884
	G. Mernier ¹ , N. Piacentini ^{1,2} , and P. Renaud ¹ ¹ <i>École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND</i> and ² <i>Politecnico di Torino, ITALY</i>	
T43A	CONTINUOUS-FLOW BIOMOLECULE CONCENTRATOR BY ION CONCENTRATION POLARIZATION	887
	R. Kwak, S.J. Kim, and J. Han <i>Massachusetts Institute of Technology, USA</i>	
T44A	DIELECTROPHORETIC SEPARATION OF HETEROGENEOUS STEM CELL POPULATIONS	890
	J.L. Prieto, J. Nourse, J. Lu, L. Flanagan, and A.P. Lee <i>University of California, Irvine, USA</i>	
T45A	ELECTROPHYSIOLOGICAL SORTING OF PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES IN A MICROFLUIDIC PLATFORM	893
	F.B. Myers ¹ , O.J. Abilez ² , C.K. Zarins ² , and L.P. Lee ¹ ¹ <i>University of California, Berkeley, USA</i> and ² <i>Stanford University, USA</i>	
T46A	HIGH THROUGHPUT CELL SEPARATION AND FOCUS VIA DIELECTROPHORESIS BASED ON PARTICLES CHARACTERIZATION	896
	N.D. Dinh, R.J. Chen, L.Y. Ke, and C.H. Liu <i>National Tsing Hua University, TAIWAN</i>	
T47A	HYDROGEL EMBEDDING OF PRECISION-CUT LIVER SLICES IN A MICROFLUIDIC DEVICE IMPROVES METABOLIC STABILITY	899
	P.M. van Midwoud, G.M.M. Groothuis, M.T. Merema, and E. Verpoorte <i>University of Groningen, THE NETHERLANDS</i>	
T48A	LABEL-FREE LATERAL MAGNETO-DIELECTROPHORETIC MICROSEPARATION METHOD FOR SEPARATING NUCLEATED CELLS FROM PERIPHERAL BLOOD	902
	J. Jung, S.-I. Han, H. Lee, M. Yoo, and K.-H. Han <i>Inje University, SOUTH KOREA</i>	
T49A	MAGNETICALLY DRIVEN MICRO-MOVABLE ELECTRODE FOR CELL COUPLING	905
	Y. Yamanishi ¹ , T. Kawahara ² , T. Iyanagi ³ , M. Hagiwara ² , and F. Arai ² ¹ <i>Japan Science and Technology Agency (JST), JAPAN</i> , ² <i>Nagoya University, JAPAN</i> , and ³ <i>Tohoku University, JAPAN</i>	
T50A	MICROFLUIDIC CHIP FOR ACTIVE AND AUTONOMOUS SINGLE-CELL ISOLATION BY USING DIELECTROPHORESIS AND IMPEDANCE MEASUREMENT	908
	H. Park, D. Kim, and K.-S. Yun <i>Sogang University, SOUTH KOREA</i>	
T51A	NANOCOMPOSITE CARBON-PDMS THICK ELECTRODES FOR ELECTROKINETIC MANIPULATION DURING CELL FUSION	911
	M. Brun ¹ , A.L. Deman ¹ , J.F. Chateaux ¹ , M. Frenea-Robin ² , N. Haddour ² , and R. Ferrigno ¹ ¹ <i>Université de Lyon, FRANCE</i> and ² <i>Ecole Centrale de Lyon, FRANCE</i>	
T52A	PARTICLE TRANSPORTATION BY USING RECTIFIED AC ELECTROOSMOTIC FLOWS IN OPEN MICROFLUIDIC CHANNELS	914
	W.I. Wu, P.R. Selvaganapathy, and C.Y. Ching <i>McMaster University, CANADA</i>	
T53A	SEPARATION OF NEURAL CELLS USING TWO-STEP SEPARATION BY COMBINATION OF SOFT INERTIAL MICROFLUIDICS AND PINCHED FLOW FRACTIONATION	917
	Z. Wu ¹ , G. Wicher ¹ , Å. Fex Svenningsen ² , and K. Hjort ¹ ¹ <i>Uppsala University, SWEDEN</i> and ² <i>University of Southern Denmark, DENMARK</i>	

T54A REUSABLE MICROFLUIDIC CHIP FOR CELL CAPTURE AND RELEASE USING SURFACE-IMMOBILIZED APTAMERS 920
J. Zhu, T.H. Nguyen, R. Pei, M. Stojanovic, and Q. Lin
Columbia University, USA

T55A VISION SENSING AND POSITION CONTROL OF 2DOF MAGNETICALLY DRIVEN MICROTOOL FOR REMOVING OF ZONA PELLUCIDA OF OOCYTE 923
T. Kawahara¹, M. Hagiwara¹, Y. Yamanishi², and F. Arai¹
¹*Nagoya University, JAPAN* and ²*Japan Science and Technology Agency (JST), JAPAN*

Poster Session Life Science Applications - Cell Analysis

T56A A CANCER-SPECIFIC RESPONSE TO SUBEROYLANILIDE HYDROXAMIC ACID (SAHA) DISTINGUISHES MDA-MB-231 AND MCF10A HUMAN BREAST CELLS IN THREE-DIMENSIONAL (3-D) SILICON MICROSTRUCTURE ARRAYS 926
J.S. Strobl, M. Nikkhah, and M. Agah
Virginia Polytechnic Institute and State University, USA

T57A A LAB-USE MICROFLUIDIC PLANAR PATCH-CLAMP SYSTEM 929
T.-Y. Tu, C.-Y. Chen, D.-S. Jong, and A.M. Wo
National Taiwan University, TAIWAN

T58A A MULTI-PURPOSE MICROFLUIDIC PIPETTE FOR SINGLE-CELL ANALYSIS 932
A. Ainla, E.T. Jansson, N. Stepanyants, O. Orwar, and A. Jesorka
Chalmers University of Technology, SWEDEN

T59A A PEPTIDE APTAMER-COATED SURFACE FOR SELECTIVE ADHESION OF CANCER CELLS IN BLOOD CELLS SUSPENSION 935
S. Kaneda^{1,3}, T. Minamisawa^{2,3}, K. Shiba^{2,3}, and T. Fujii^{1,3}
¹*University of Tokyo, JAPAN*, ²*Cancer Institute of Japanese Foundation of Cancer Research, JAPAN*, and ³*Japan Science and Technology Agency (JST), JAPAN*

T60A CARCINOMA CELL-BASED 5-FLUOROURACIL EVALUATION IN MICROFLUIDIC SYSTEM 938
E. Jedrych¹, K. Sofinska¹, S. Flis², Z. Jastrzebski², M. Chudy¹, and Z. Brzozka¹
¹*Warsaw University of Technology, POLAND* and ²*National Institute of Public Health, POLAND*

T61A DISPOSABLE MULTIPLE INTERNAL REFLECTION SYSTEMS FOR PHOTONIC CELL SCREENING 941
B. Ibarlucea¹, J. Vila-Planas¹, E. Fernández-Rosas^{1,2}, S. Demming³, C. Nogues², J.A. Plaza¹, S. Büttgenbach³, and A. Llobera¹
¹*Centre Nacional de Microelectrónica (CNM), SPAIN*, ²*Universitat Autònoma de Barcelona, SPAIN*, and ³*Technische Universität Braunschweig, GERMANY*

T62A IN VITRO 3D COLLECTIVE ANGIOGENIC RESPONSE UNDER OCHESTRATED MULTIPLE CHEMICAL GRADIENTS 944
J.S. Jeon¹, Y. Shin², J. Nam², S. Lee², G.S. Jung², S. Shin², S.H. Lee², R.D. Kamm¹, and S. Chung²
¹*Massachusetts Institute of Technology, USA* and ²*Korea University, SOUTH KOREA*

T63A ISOLATION OF CELL NUCLEUS BY SHORT-TIME CHEMICAL TREATMENT IN CARRIER-MEDIUM EXCHANGE MICROCHANNELS 947
K. Toyama, M. Yamada, and M. Seki
Chiba University, JAPAN

T64A LIVE-CELL IMAGING OF NATURAL KILLER CELL MEDIATED TUMOR REJECTION IN ARRAYS OF MICROWELLS 950
T. Frisk¹, K. Guldevall², B. Vanherbergen², H. Brismar^{1,2}, and B. Önfelt^{1,2}
¹*Karolinska Institute, SWEDEN* and ²*Kungliga Tekniska Högskolan, SWEDEN*

T65A MICROFLUIDIC SYSTEM FOR 3D CELL INVASION STUDY 953
Y. Shin¹, H. Kim¹, J.S. Jeon³, G.-Y. Kim², J. Nam¹, S. Lee¹, S. Shin¹, J.-H. Kim¹, and S. Chung¹
¹*Korea University, SOUTH KOREA*, ²*Rochester Institute of Technology, USA*, and ³*Massachusetts Institute of Technology, USA*

T66A	MICRO ORIFICE BASED HIGH YIELD CELL-CELL FUSION: ON-CHIP ANALYSIS OF POST-FUSION PHENOMENA	956
	M. Gel ¹ , Y. Kimura ³ , S. Suzuki ¹ , O. Kurosawa ³ , H. Oana ¹ , H. Kotera ² , and M. Washizu ¹ <i>¹University of Tokyo, JAPAN, ²Kyoto University, JAPAN, and ³Japan Science and Technology Agency (JST), JAPAN</i>	
T67A	QUALITY AND VIABILITY ASSESSMENT OF OOCYTES/EMBRYOS OF ANIMALS BY OPTICAL CHARACTERIZATION IN LAB-ON-A-CHIP DEVICE	959
	P. Szczepańska ¹ , R. Walczak ¹ , J. Dziuban ¹ , B. Kempisty ² , A. Chelmonska-Soyta ³ , J. Kluger ³ , M. Jackowska ⁴ , and J. Jaskowski ⁴ <i>¹Wroclaw University of Technology, POLAND, ²University of Medical Sciences, POLAND, ³Polish Academy of Sciences, POLAND, and ⁴Poznan University of Life Sciences, POLAND</i>	
T68A	STUDY OF TEMPERATURE EFFECT ON SINGLE-CELL FLUID-PHASE ENDOCYTOSIS USING MICRO CELL CHIPS AND THERMOELECTRIC DEVICES	962
	R. Lin, D.C. Chang, and Y.-K. Lee <i>Hong Kong University of Science and Technology, HONG KONG</i>	
T69A	TOWARDS AUTOMATED HIGH CONTENT SCREENING ON A 672-MICROWELL SLIDE	965
	E. Weibull ¹ , S. Lindström ^{2,3} , A. Segerman ⁴ , and H. Andersson-Svahn ^{1,2} <i>¹Royal Institute of Technology (KTH), SWEDEN, ²Picovitro, SWEDEN, ³Karolinska Institute, SWEDEN, and ⁴Rudbeck Laboratory, SWEDEN</i>	
T70A	μSWIMMING POOLS FOR CILIATES	968
	D. van Noort <i>National University of Singapore, SINGAPORE</i>	
Poster Session Life Science Applications - Others		
T71A	A NOVEL ADVANCED ELECTRICAL CMOS BIOSENSOR TECHNOLOGY FOR MEASURING BIOLOGICAL AFFINITY REACTIONS	971
	F. Frederix ¹ , B. Cobelens ² , R.J.O.M. Hoofman ¹ , F. Jedema ² , T. Merelle ¹ , A. Sedzin ² , E. Sterckx ¹ , H. Suy ² , C. Tak ² , J. Ueberfeld ¹ , R. van der Werf ² , D. van Steenwinkel ¹ , K. Verheyden ¹ , and F. Widdershoven ² <i>¹NXP Semiconductors, BELGIUM and ²NXP Semiconductors, THE NETHERLANDS</i>	
T72A	ATTOMOLAR SENSITIVE FUNCTIONAL PROTEOMIC ASSAY FOR BIOMARKER DETECTION AND DRUG SCREENING	974
	M. Javanmard, J. Mok, M. Mindrinos, and R.W. Davis <i>Stanford University, USA</i>	
T73A	HEAT-SHOCK PROTEIN SYNTHESIS IN ANIMAL CELLS INDUCED BY GOLD MICROHEATERS	977
	P. Ginet, K. Montagne, S. Akiyama, Y. Sakai, T. Fujii, D. Fourmy, S. Voltz, and B.J. Kim <i>University of Tokyo, JAPAN</i>	
T74A	INTEGRATED MICROFLUIDIC PLATFORM FOR DIRECTED EVOLUTION OF BIOCATALYSTS FOR BIOFUEL CELL APPLICATIONS	980
	Y. Skhiri ¹ , T. Beneyton ¹ , L. Mazutis ¹ , J.C. Baret ² , A. El Harrak ¹ , E. Mayot ¹ , A.D. Griffiths ¹ , and V. Taly ¹ <i>¹University of Strasbourg, FRANCE and ²Max-Planck-Institute for Dynamics and Self-Organization, FRANCE</i>	
T75A	MICROFLUIDIC DEVICE TO STUDY THE INTERPLAY OF LIVER AND INTESTINE IN THE REGULATION OF BILE ACID SYNTHESIS	983
	P.M. van Midwoud, M.T. Merema, E. Verpoorte, and G.M.M. Groothuis <i>University of Groningen, THE NETHERLANDS</i>	
T76A	MICROFLUIDICS FOR BIOMINERALIZATION AND BIOMIMICKING SYNTHESIS	986
	H. Yin, B. Ji, M. Cusack, A. Freer, P.S. Dobson, N. Gardeggard, and J. Jiang <i>University of Glasgow, UK</i>	

T77A	OVERFLOW MICROFLUIDIC NETWORKS	989
	R.D. Lovchik ¹ , F. Bianco ² , N. Tonna ² , A. Ruiz ^{3,4} , M. Matteoli ^{3,4} , and E. Delamarche ² ¹ IBM Research, Zurich, SWITZERLAND, ² Neuro-Zone s.r.l., ITALY, ³ Fondazione Filarete, ITALY, and ⁴ University of Milano, ITALY	

Poster Session Microreaction Applications - Flow Chemistry/Synthesis

T1B	3D HYDRODYNAMIC FOCUSING FOR CONFINED PRECIPITATION OF NANOPARTICLES WITHIN MICROFLUIDIC CHANNELS	992
	M. Rhee ^{1,2} , P.M. Valencia ¹ , M.I. Rodriguez ¹ , R.S. Langer ¹ , O.C. Farokhzad ^{1,2} , and R. Karnik ¹ ¹ Massachusetts Institute of Technology, USA and ² Brigham and Women's Hospital, USA	
T2B	FAST SCALE UP USING MICROREACTORS: FROM MICROSCALE TO PRODUCTION	995
	P.J. Nieuwland ¹ , K. Koch ¹ , R. Becker ¹ , J.C.M. van Hest ² , and F.P.J.T. Rutjes ² ¹ FutureChemistry, THE NETHERLANDS and ² Radboud University Nijmegen, THE NETHERLANDS	
T3B	MICROCHEMICAL SYSTEM WITH CONTINUOUS RECOVERY AND RECIRCULATION OF CATALYST-IMMOBILIZED MAGNETIC PARTICLES	998
	C.P. Park and D.-P. Kim Chungnam National University, SOUTH KOREA	
T4B	PREPARATION OF PLATINUM DOPED SILICA CATALYTIC MICROSPHERES THROUGH MICROFLUIDIC SYNTHESIS ROUTE	1001
	V. Chokkalingam ^{1,2} , B. Weidenhof ¹ , W.F. Maier ² , and R. Seemann ^{1,2} ¹ Saarland University, GERMANY and ² Max Planck Institute, GERMANY	

Poster Session Microreaction Applications - In-Line Analysis/Process Control

T5B	MICROWAVE RESONANT SENSOR FOR REAL-TIME CONTINUOUS-FLOW MEASUREMENTS OF MICROFLUIDIC SYSTEMS	1004
	D.J. Rowe, J. Naylor, A. Porch, D.A. Barrow, and C.J. Allender Cardiff University, UK	

Poster Session Microreaction Applications - Others

T6B	APPLICATION OF INKJET-FABRICATED CRYSTALLINE C₆₀ PARTICLES GENERATING REACTIVE OXYGEN SPECIES UNDER VISIBLE LIGHT IRRADIATION TO MICROARRAY CHIPS	1007
	F. Sasaki and M. Ban Nippon Institute of Technology, JAPAN	
T7B	PDMS EVAPORATION CHIP TO CONCENTRATE [¹⁸F] FLUORIDE FOR SYNTHESIS OF PET TRACERS IN MICROFLUIDICS	1010
	W.-Y. Tseng, J. Cho, X. Ma, K. Mahal, A. Chatziioannou, and R.M. van Dam University of California, Los Angeles, USA	

Poster Session Other Applications - Environment

T1C	A MICROFLUIDIC CONCENTRATOR ARRAY FOR STUDYING PREDATORY BACTERIA	1013
	S. Park, D. Kim, R.J. Mitchell, and T. Kim Ulsan National Institute of Science & Technology (UNIST), SOUTH KOREA	
T2C	AUTONOMOUS MICROFLUIDIC SENSORS FOR NUTRIENT DETECTION: APPLIED TO NITRITE, NITRATE, PHOSPHATE, MANGANESE AND IRON	1016
	V.J. Sieben ¹ , A.D. Beaton ² , C.F.A. Floquet ² , S. Abi Kaed Bey ² , I.R.G. Ogilvie ² , E.M. Waugh ² , J.K.C. Ang ¹ , M.C. Mowlem ² , and H. Morgan ¹ ¹ Nanoscale Systems Integration Group, UK and ² National Oceanography Centre Southampton, UK	
T3C	INTERFACING HYDRODYNAMIC FLOW WITH MICROCHIP CAPILLARY ELECTROPHORESIS TO ACHIEVE REAL-TIME ANALYSIS OF ATMOSPHERIC AEROSOLS	1019
	M.M. Mentele, S.D. Noblitt, J.L. Collett, and C.S. Henry Colorado State University, USA	

- T4C THE INTEGRATION AND EVALUATION OF A PROTOTYPE REAL-TIME MICRO GAS ANALYZER EMPLOYING MEMS BASED KEY COMPONENTS** 1022
 R.-S. Jian and C.-J. Lu
National Taiwan Normal University, TAIWAN

Poster Session Other Applications - Separation Science

- T5C CONTROLLED ELECTROPHORETIC FILTERING OF BIO SAMPLES USING PI FLOW FETS** ... 1025
 A. Plecis¹, A. Pallandre², J. Gamby³, I. Le Potier², Y. Chen⁴, and A.M. Haghiri-Gosnet³
¹DGA-Maîtrise NRBC, FRANCE, ²University Paris Sud, FRANCE,
³Centre National de la Recherche Scientifique (CNRS), FRANCE, and
⁴École Normale Supérieure (ENS), FRANCE
- T6C DNA SEPARATION IN A PLASMA-THINNED NANOPOST ARRAY** 1028
 J. Ou and K.D. Dorfman
University of Minnesota, USA
- T7C ENHANCED RESOLUTION IN MICROCHIP DNA ELECTROPHORESIS BY TAILORING HYDROGEL NANOSTRUCTURE TO EXPLOIT ENTROPIC TRAPPING** 1031
 N. Shi, and V.M. Ugaz
Texas A&M University, USA
- T8C FREELY SELECTABLE DIRECTION OF SEPARATION FOR DIFFERENT PARTICLE SPECIES WITH A NEW MICROFLUIDIC SEPARATION DEVICE** 1034
 L. Bogunovic¹, R. Eichhorn², P. Reimann¹, J. Regtmeier¹, and D. Anselmetti¹
¹University of Bielefeld, GERMANY and ²Nordic Institute for Theoretical Physics (NORDITA), SWEDEN
- T9C ON-LINE PRECONCENTRATION USING DENATURATION OF PROTEINS ON A HEATER INTEGRATED ELECTROPHORESIS MICROCHIP** 1037
 K. Tanigawa, K. Sueyoshi, F. Kitagawa, and K. Otsuka
Kyoto University, JAPAN
- T10C REAGENT-RELEASE CAPILLARY ARRAY-ISOELECTRIC FOCUSING DEVICE FOR RAPID SCREENING OF PROTEIN ANALYSIS CONDITIONS** 1040
 M. Kataoka, H. Yokoyama, T.G. Henares, K. Kawamura, T. Yao, and H. Hisamoto
Osaka Prefecture University, JAPAN

Poster Session Other Applications - Food & Nutrition

- T11C INTEGRATED CASSETTE FOR COUNTING LOW-CONCENTRATION LIVE BACTERIA IN FOODS USING 3D STAINING TECHNOLOGY** 1043
 K. Takenaka¹, Y. Sasaki¹, H. Inami¹, H. Nakamoto¹, Y. Watanabe¹, M. Kurihara¹, K. Takei¹,
 J. Ishikawa¹, and R. Miyake²
¹Hitachi, Ltd., JAPAN and ²Hiroshima University, JAPAN

Poster Session Other Applications - Fuel Cells

- T12C LOW TEMPERATURE POM MICRO-REFORMER WITH SILICON NANO-WIRE SUPPORTED NANO CATALYSTS** 1046
 S.-P. Lai¹, K.-Y. Huang¹, H.-C. Peng¹, Y.-J. Huang¹, and F.-G. Tseng^{1,2}
¹National Tsing Hua University, TAIWAN and ²Academia Sinica, TAIWAN

Poster Session Other Applications - Others

- T13C SEQUENTIAL POWER GENERATION FOR Prolonging THE NET LIFETIME OF A MINIATURE BIOFUEL CELL STACK** 1049
 T. Miyake^{1,2}, S. Yoshino¹, Y. Yatagawa¹, K. Haneda¹, and M. Nishizawa^{1,2}
¹Tohoku University, JAPAN and ²Japan Science and Technology Agency (JST), JAPAN

Poster Session Microfluidics - Fluid Mechanics & Modeling

- T1D CHAOTIC ANALYSIS AND FRET REACTION OF A SPLIT-AND-RECOMBINE MICROREACTOR** 1052
Y.-T. Chen, W.-F. Fang, and J.-T. Yang
National Taiwan University, TAIWAN
- T2D DYNAMICS OF ROTATING MAGNETIC MICRO-BEAD CHAINS** 1055
Y. Gao¹, M. Hulsen¹, and J.M.J. den Toonder^{1,2}
¹*Eindhoven University of Technology, THE NETHERLANDS* and
²*Philips Applied Technologies, THE NETHERLANDS*
- T3D MICROFLUIDIC LUBRICATED EXTENSIONAL FLOW OF VISCOELASTIC FLUIDS** 1058
J. Wang, D.F. James, and A. Günther
University of Toronto, CANADA
- T4D NUMERICAL PROTOTYPING OF MICROFLUIDIC CHIPS FOR MULTIDIMENSIONAL ELECTROPHORETIC SEPARATIONS** 1061
P.A. Kler, C.L.A. Berli, and F.A. Guarnieri
Universidad Nacional del Litoral, ARGENTINA
- T5D PARTICLE COLLISION DYNAMICS IN GEOMETRICALLY-ENHANCED DIFFERENTIAL IMMUNOCAPTURE (GEDD) μ DEVICES FOR RARE CELL CAPTURE** 1064
J.P. Gleghorn, J.P. Smith, and B.J. Kirby
Cornell University, USA

Poster Session Microfluidics - Micro Liquid Handling

- T6D AC ELECTRO-OSMOTIC MICROMIXER USING A FACE-TO-FACE, ASYMMETRIC PAIR OF PLANAR ELECTRODES** 1067
J.L. Chen, W.H. Shih, and W.-H. Hsieh
National Chung Cheng University, TAIWAN
- T7D AN ADAPTIVE BI-DIRECTIONAL MICRO-PUMP BY USING LIGHT-INDUCED ELECTROOSMOSIS** 1070
S.-M. Yang¹, R.-J. Chen², T.-M. Yu¹, H.-P. Huang¹, L. Hsu¹, and C.-H. Liu²
¹*National Chiao Tung University, TAIWAN* and ²*National Tsing Hua University, TAIWAN*
- T8D ROBUST FILLING OF SLIPCHIPS** 1073
L. Li, M.A. Karymov, K.P. Nichols, and R.F. Ismagilov
University of Chicago, USA
- T9D FORMATION AND ACTUATION OF MULTILAMELLAR LIPID TUBES USING MICROFLUIDIC PICOLITER DISPENSING ARRAY** 1076
M. Masubuchi¹, M. Yamada¹, T. Toyota^{1,2}, and M. Seki¹
¹*Chiba University, JAPAN* and ²*University of Tokyo, JAPAN*
- T10D MICROFLUIDIC DROPLET-BASED LIQUID-LIQUID EXTRACTION FOR FLUORESCENCE-INDICATED MASS TRANSFER** 1079
J.Q. Yu^{1,2}, L.K. Chin¹, Y. Chen², G.J. Zhang², G.Q. Lo², T.C. Ayi³, P.H. Yap³,
D.L. Kwong², and A.Q. Liu¹
¹*Nanyang Technological University, SINGAPORE*,
²*Agency for Science, Technology and Research (A*STAR), SINGAPORE*, and
³*DSO National Laboratories, SINGAPORE*
- T11D NOVEL COMBINATION OF HYDROPHILIC/HYDROPHOBIC SURFACE FOR LARGE WETTABILITY DIFFERENCE AND ITS APPLICATION TO LIQUID MANIPULATION** 1082
T. Kobayashi¹, K. Shimizu², Y. Kaizuma³, and S. Konishi¹
¹*Ritsumeikan University, JAPAN*, ²*Kyoto University, JAPAN*, and ³*Shinko Seiki Co., LTD, JAPAN*
- T12D SELECTIVE DROPLET SAMPLING FLOW SYSTEM USING MINIMUM NUMBER OF HORIZONTAL PNEUMATIC VALVES FORMED BY SINGLE STEP PDMS MOLDING** 1085
D.H. Yoon, D. Wakui, T. Sekiguchi, and S. Shoji
Waseda University, JAPAN

- T13D TWO SAME-SIZED DROPLETS COALESCENCE BY LASER-INDUCED CAVITATION BUBBLES** 1088
 Z.G. Li^{1,2}, J.Q. Yu¹, P.A. Quito-Su¹, C.D. Ohl¹, J.B. Zhang², and A.Q. Liu¹
¹Nanyang Technological University, SINGAPORE and
²Agency for Science, Technology and Research (A*STAR), SINGAPORE

Poster Session Microfluidics - Multi-Phase and Digital Microfluidics

- T14D A 'MICROFLUIDIC PINBALL' FOR CONTINUOUS GENERATION OF LAYER-BY-LAYER POLYELECTROLYTE MICROCAPSULES** 1091
 C. Kantak^{1,2}, L. Yobas¹, T. Bansai¹, and D. Trau²
¹Agency for Science, Technology and Research (A*STAR), SINGAPORE and
²National University of Singapore, SINGAPORE
- T15D A MAGNETOPHORESIS SYSTEM FOR CONTROLLED TRANSPORT AND TRAPPING OF MAGNETIC BEADS** 1094
 Z.-C. Peng¹, W. Guo², J.L. Cannon³, and P.J. Hesketh¹
¹Georgia Institute of Technology, USA, ²Tsinghua University, CHINA, and ³University of Georgia, USA
- T16D CONTROLLABLE DROPLET SYNCHRONIZATION MODULE FOR TEMPORAL CONTROL OF MICRODROPLETS** 1097
 D.-H. Lee and J.-K. Park
 Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA
- T17D DIRECTED PRECIPITATION OF SUSPENSION PARTICLES ONTO BLANK SUBSTRATES USING MARANGONI CELLS** 1100
 E. Hendarto and Y.B. Gianchandani
 University of Michigan, USA
- T18D FROM CHEMICAL MIXTURES TO PICOLITER DROPLET LIBRARIES: HARNESSING CONCENTRATION GRADIENTS WITH DROPLET-BASED MICROFLUIDICS** 1103
 A.B. Theberge¹, G. Whyte¹, and W.T.S Huck^{1,2}
¹University of Cambridge, UK and ²Radboud University Nijmegen, UK
- T19D LAPLACE TRAP FOR ONE-TO-ONE FUSION OF ASYNCHRONOUSLY GENERATED DROPLETS** 1106
 M.G. Simon, R. Lin, J.S. Fisher, and A.P. Lee
 University of California, Irvine, USA
- T20D MULTI-SIZE DROPLETS GENERATION VIA SIDE-BRANCH MICROFLUIDIC CHANNELS** 1109
 S. Xiong¹, L.K. Chin¹, Y.F. Yu¹, J.Q. Yu¹, Y. Chen², G.J. Zhang², G.Q. Lo², D.L. Kwong², and A.Q. Liu¹
¹Nanyang Technological University, SINGAPORE and
²Agency for Science, Technology and Research (A*STAR), SINGAPORE
- T21D ON-CHIP INVESTIGATION OF DRUG-PROTEIN BINDING BY MEANS OF DROPLET MICROFLUIDICS AND MAGNETIC BEADS** 1112
 D. Lombardi and P.S. Dittrich
 ETH Zürich, SWITZERLAND
- T22D ROBUST ON-DEMAND ELECTROSTATIC DROPLET CHARGING AND SORTING IN A DROPLET-BASED MICROFLUIDIC DEVICE** 1115
 B. Ahn, K. Lee, R. Panchapakesan, P. Gopalan, and K.W. Oh
 University at Buffalo, The State University of New York, USA
- T23D SIZE CONTROLLABLE POLYMERIC MICROLENS FABRICATION BY USING A MULTIPHASE DROPLET INCLUDING AIR CORE** 1118
 D.H. Yoon¹, T. Arakawa², J.S. Go³, and S. Shoji¹
¹Waseda University, JAPAN, ²Tokyo Medical and Dental University, JAPAN, and
³Pusan National University, SOUTH KOREA

Poster Session Microfluidics - Multi-Scale/Integrative Microfluidics

- T24D** 20/100/400-CHANNEL CHEMICALLY INERT, REVERSIBLE PARALLEL MICROFLUIDIC CONNECTOR AS GENERIC CHIP-TO-WORLD INTERFACE 1121
B.E. Rapp, T. Duttchen, and K. Länge
Karlsruhe Institute of Technology (KIT), GERMANY
- T25D** ELECTRO OSMOTIC SHEAR FLOW IN MICROCHANNELS 1124
D. Mampallil, D. van den Ende, and F. Mugele
University of Twente, THE NETHERLANDS
- T26D** INTEGRATED MICROFLUIDIC PLATFORM FOR ALGAL TOXIN ANALYSIS 1127
G. Sui, S. Liu, J. Zhang, and P. Yang
Fudan University, CHINA
- T27D** PLANAR PHOSPHOLIPID MEMBRANE CHIPS FOR THERMODYNAMICS STUDIES OF CERAMIDE ION CHANNELS 1130
C. Shao, M. Colombini, and D.L. DeVoe
University of Maryland, USA
- T28D** THERMO-SWITCHABLE ELECTROKINETIC ION-ENRICHMENT, ELUTION AND SEPARATION BASED ON A POLY (N-ISOPROPYLACRYLAMIDE) HYDROGEL PLUG PREPARED INSIDE A GLASS MICROCHANNEL 1133
Z.-M. Li, D. Ma, Q.-H. He, and H.-W. Chen
Zhejiang University, CHINA

Poster Session Microfluidics - Others

- T29D** BIOCHEMICAL QUANTIZATION BY MICROFLUIDIC DROPLETS FOR THE DEVELOPMENT OF MICROBE COUNTER 1136
K.A. Aritome, Y. Takahata, K. Sakamoto, K. Noda, A. Kuroda, T. Ishikawa, R. Miyake, and Y. Murakami
Hiroshima University, JAPAN
- T30D** LORENZ-LIKE CHAOTIC SYSTEM ON A CHIP 1139
S. Jambovane, H.S. Rho, and J.W. Hong
Auburn University, USA
- T31D** NUCLEIC ACID EXTRACTION MICRODEVICE AND ITS MICROFLUIDIC PROTOCOL OPTIMIZATION 1142
T.G. Kang¹, W.J.A. Ng¹, S.R.B. Mohamed Rafei¹, and S. Kim²
¹Agency for Science, Technology and Research (A*STAR), SINGAPORE and
²National University of Singapore, SINGAPORE
- T32D** TWISTED MICROFLUIDICS: A NOVEL PHOTORESIST LAMINATION PROCESS FOR 3D MULTILEVEL LAB-ON-A-CHIP (LOC) APPLICATIONS 1145
R.Ch. Meier, V. Badilita, U. Wallrabe, and J.G. Korvink
University of Freiburg, GERMANY

Poster Session Nanotechnologies - Nanofluidics

- T1E** NANOFLUIDIC DEVICES FOR PROTEIN CONCENTRATION AND ENZYMATIC REACTION KINETICS 1148
X.-H. Xia and C. Wang
Nanjing University, CHINA

Poster Session Nanotechnologies - Nanoengineering

- T2E MAGNETIC CORE SHELL NANOPARTICLES TRAPPING USING IRON BEADS
MAGNETIC CHAMBER** 1151
B. Teste¹, F. Malloggi¹, A.L. Gassner², T. Georgelin¹, H.H. Girault²,
J.M. Siaugue¹, P. Tabeling¹, and S. Descroix¹
¹Ecole Supérieure de Physique et de Chimie Industrielles (ESPCI), FRANCE and
²Ecole Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND

Poster Session Nanotechnologies - Nanobiotechnology

- T3E A QUANTUM DOT BASED NANOASSAY FOR QUANTIFYING GENE COPY
NUMBER WITH ULTRAHIGH RESOLUTION** 1154
Y. Zhang, I.M. Shih, T.L. Wang, and T.H. Wang
Johns Hopkins University, USA
- T4E DISTANCE-DEPENDENT VARIATION WITH THE LENGTH OF DNA SPACERS IN
FLUORESCENCE SIGNALS OF DNA-CY3-TAILORED GOLD NANOPARTICLES
DEPOSITED ON A SOLID SURFACE** 1157
J.M. Obliosca, P.-C. Wang, and F.-G. Tseng
National Tsing Hua University, TAIWAN
- T5E EXTENDED-NANO CHANNEL BASED ROLLING CIRCLE AMPLIFICATION TO
DETECT SINGLE MOLECULE DNA** 1160
Y. Tanaka^{1,2}, H. Xi¹, K. Sato^{2,3}, K. Mawatari^{1,2}, B. Renberg¹, M. Nilsson⁴, and T. Kitamori^{1,2}
¹University of Tokyo, JAPAN, ²Japan Science and Technology Agency (JST), JAPAN,
³Japan Women's University, JAPAN, and ⁴Uppsala University, SWEDEN
- T6E LOCALIZED HEATING ON SILICON FIELD EFFECT TRANSISTORS FOR
BIO-CHEMICAL REACTIONS** 1163
B. Reddy, Jr.¹, O.H. Elibol², P.R. Nair³, B.R. Dorvel¹, D. Bergstrom³,
M.A. Alam³, and R. Bashir¹
¹University of Illinois, Urbana-Champaign, USA, ²Intel Corporation, USA, and
³Purdue University, USA
- T7E OBSERVATION OF HIGH CONTRAST FERRITIN PROTINS IN TEM ENHANCED
BY MICRO ELECTROSTATIC PHASE PLATE** 1166
T.W. Huang¹, L.T. Lin¹, K.W. Liu¹, Y.J. Chuang², C.H. Huang¹, F.R. Chen¹, and F.G. Tseng^{1,3}
¹National Tsing Hua University, TAIWAN, ²Ming Chuan University, TAIWAN, and
³Academia Sinica, TAIWAN
- T8E ULTRA-RAPID 3D-ACEO ELECTROKINETIC PRECONCENTRATION
FOR VIRUS DETECTION** 1169
R.-G. Wu¹, J.-W. Lee¹, H.-Y. Chang², and F.-G. Tseng^{1,2}
¹National Tsing Hua University, TAIWAN and ²Research Center for Applied Sciences, TAIWAN
- T9E SILICON NANOWIRE BIOSENSOR FOR STUDYING NUCLEAR HORMONE
RECEPTOR AND RESPONSE ELEMENT INTERACTIONS** 1172
G.-J. Zhang, M.J. Huang, Z.H.H. Luo, G.K.I. Tay, E.-J.A. Lim, E.T. Liu, and J.S. Thomsen
*Agency for Science, Technology and Research (A*STAR), SINGAPORE*

Poster Session Nanotechnologies - Nanostructured Materials

- T10E ANTIBACTERIAL SURFACE WITH CYLINDRICAL NANOSHELL ARRAY** 1175
Y.-B. Park, M.-S. Kang, and Y.-K. Choi
Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA
- T11E HIGH SENSITIVE SERS IMMUNO SENSOR BASED ON GOLD-SHELLED AND
CORRUGATED POLYSTYRENE NANOBEADS FOR IN-VIVO TRACKING IN CELLS** 1178
H.Y. Hsieh¹ and F.-G. Tseng^{1,2}
¹National Tsing Hua University, TAIWAN and ²Academia Sinica, TAIWAN

T12E	NANOPARTICLE FACTORIES IN FLOWING FOAMS	1181
	S. Duraiswamy ¹ and S.A. Khan ^{1,2}	
	¹ National University of Singapore, SINGAPORE and	
	² Singapore-MIT Alliance for Research and Technology (SMART) Centre, SINGAPORE	

T13E	STUDY ON NANOSCALE PATTERNING METHOD OF SELF-ASSEMBLED MONOLAYER USING NEAR-FIELD PHOTOTHERMAL DESORPTION	1184
	Y. Yamamoto, Y. Taguchi, and Y. Nagasaka	
	Keio University, JAPAN	

Poster Session MEMS & NEMS Technologies - Micro- & Nanomachining

T1F	DAMAGE-FREE MICROFABRICATION OF TRANSPARENT PERFLUOROPOLYMER FOR SINGLE-MOLECULE IMAGING DEVICE	1187
	T. Ono ^{1,2} , R. Iizuka ^{1,2} , T. Akagi ^{1,2} , T. Funatsu ^{1,2} , and T. Ichiki ^{1,2}	
	¹ University of Tokyo, JAPAN and ² Japan Science and Technology Agency (JST), JAPAN	

T2F	FABRICATION OF 1-D NANOCHANNELS ON PMMA SUBSTRATE BY PHOTORESIST-FREE UV LITHOGRAPHY AND UV-ASSISTED BONDING UNDER LOW TEMPERATURE	1190
	X.-Q. Hu, X.-B. Zhang, L. Zheng, Q.-H. He, and H.-W. Chen	
	Zhejiang University, CHINA	

T3F	FABRICATION OF VERTICAL AND HIGH-ASPECT-RATIO GLASS MICROFLUIDIC DEVICE BY BOROSILICATE GLASS MOLDING TO SILICON STRUCTURE	1193
	K. Kawai, F. Yamaguchi, A. Nakahara, and S. Shoji	
	Waseda University, JAPAN	

T4F	LASER STENCILING FOR POLYMER MICROFLUIDIC DEVICES	1196
	W. Longsine and A. Han	
	Texas A&M University, USA	

T5F	LATERAL NANO-CHANNEL FABRICATED IN FUSED SILICA BY FEMTOSECOND LASER IRRADIATION AND WET ETCHING	1199
	O. Nukaga ¹ , S. Yamamoto ² , K.V. Tabata ^{1,3} , T. Kubota ^{1,4} , S. Samukawa ^{1,5} , and M. Sugiyama ^{1,4}	
	¹ BEANS Project, JAPAN, ² Fujikura Ltd., JAPAN, ³ Osaka University, JAPAN,	
	⁴ University of Tokyo, JAPAN, and ⁵ Tohoku University, JAPAN	

T6F	TRANSFER BONDING OF MICROSTRUCTURES AND FABRICATION OF FRAGILE PDMS MEMBRANES USING WATER DISSOLVABLE FILM	1202
	J.M. Karlsson, T. Haraldsson, C.F. Carlborg, G. Stemme, and W. van der Wijngaart	
	Royal Institute of Technology (KTH), SWEDEN	

Poster Session MEMS & NEMS Technologies - Microfluidic Components/Packaging

T7F	A DISPOSABLE DISCRETE-AGENT-RELEASE CARTRIDGE FOR FLEXIBLE ENDOSCOPES	1205
	N. Wangler, M. Welsche, G. Roth, N. Paust, and R. Zengerle	
	University of Freiburg, GERMANY	

T8F	A VAPOR BASED MICROFLUIDIC SAMPLE CONCENTRATOR	1208
	W. Xu ¹ , L.L. Wu ² , G.P. Li ² , and M. Bachman ²	
	¹ University of North Carolina, USA and ² University of California, Irvine, USA	

T9F	ELECTROSPRAYING MICROFLUIDIC CHIP FOR EMULSION GENERATION AND SATELLITE DROPLET SEPARATION	1211
	H.C. Lin ¹ , M.H. Lee ¹ , C.H. Yeh ¹ , Y.C. Chung ² , and Y.C. Lin ¹	
	¹ National Cheng Kung University, TAIWAN and ² Ming Chi University of Technology, TAIWAN	

T10F	HOT EMBOSSING OF PLASTIC MICROFLUIDIC DEVICES USING POLY(DIMETHYLSILOXANE) MOLDS	1214
	V.N. Goral ¹ , Y.-C. Hsieh ² , O.N. Petzold ¹ , R.A. Faris ¹ , and P.K. Yuen ¹	
	¹ Corning Incorporated, USA and ² Corning Research Center, TAIWAN	

T11F OXYGEN PLASMA-FREE MICROFLUIDIC DEVICE SEALING 1217
C.W. Beh, W. Zhou, and T.-H. Wang
Johns Hopkins University, USA

T12F THREE-DIMENSIONAL HYDRO-MAGNETIC FOCUSING OF SUPERPARAMAGNETIC BEADS 1220
R. Afshar, Y. Moser, T. Lehnert, and M.A.M. Gijss
École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND

Poster Session MEMS & NEMS Technologies - Integration Strategies

T13F HIGHLY-INTEGRATED, LOW-COST IN-VITRO DIAGNOSTIC PLATFORM FOR MINIATURIZED ASSAY DEVELOPMENT 1223
J. Nestler¹, A. Morschhauser², T. Otto^{1,2}, B. Koger¹, A. Brandenburg¹, K. Wunderlich¹,
E. Ehrentreich-Foerster¹, F.F. Bier¹, and T. Gessner^{1,2}
¹Fraunhofer Research Institution, GERMANY and ²Chemnitz University of Technology, GERMANY

T14F PASSIVE MICRO-ASSEMBLY OF A FLUIDIC CONTROL CHIP AND A MULTI-WELL CONTINUOUS FLOW PCR CHIP FOR HIGH THROUGHPUT APPLICATIONS 1226
D.S. Park¹, H. Wang¹, P.-C. Chen^{1,2}, T. Park¹, N. Kim¹, B.H. You^{1,3}, D.E. Nikitopoulos¹,
S.A. Soper¹, and M.C. Murphy¹
¹Louisiana State University, USA, ²Singapore Institute of Manufacturing Technology, SINGAPORE, and ³Texas State University, USA

Poster Session MEMS & NEMS Technologies - New Chip Materials

T15F FABRICATION OF ROOM TEMPERATURE OPERABLE MICROPUMP POWERED BY INSECT MUSCLE CELL SHEET 1229
K. Shimizu¹, Y. Akiyama¹, T. Hoshino¹, K. Iwabuchi¹, Y. Akiyama², M. Yamato², T. Okano²,
and K. Morishima¹
¹Tokyo University of Agriculture and Technology, JAPAN and ²Tokyo Women's Medical University, JAPAN

T16F LASER WELDED POLYANILINE CIRCUITS 1232
R.D. Henderson, O.S. Hutter, R.M. Guijt, T. Lewis, E.F. Hilder, P.R. Haddad, and M.C. Breadmore
University of Tasmania, AUSTRALIA

T17F THERMOPLASTICS ELASTOMERS FOR MICROFLUIDICS VALVING AND MIXING, TOWARD HIGH-THROUGHPUT FABRICATION OF MULTILAYERS DEVICES 1235
E. Roy, J.-C. Galas, and T. Veres
National Research Council Canada, CANADA

Poster Session MEMS & NEMS Technologies - Surface Modification

T18F FUNCTIONAL COATING OF HETEROGENEOUS MICROSTRUCTURE SURFACES WITH SELF INTERACTING BIOMOLECULES 1238
N.M. Gunn, M. Bachman, G.P. Li, and E.L. Nelson
University of California, Irvine, USA

T19F SELF-ASSEMBLED MONOLAYER-ASSISTED SILICON NANOWIRE BIOSENSOR FOR STUDYING PROTEIN-DNA INTERACTIONS 1241
G.-J. Zhang, M.J. Huang, Z.H.H. Luo, G.K.I. Tay, E.-J.A. Lim, E.T. Liu, and J.S. Thomsen
*Agency for Science, Technology and Research (A*STAR), SINGAPORE*

T20F SOLVENT PROCESSING OF PMMA AND COC CHIPS FOR BONDING DEVICES WITH OPTICAL QUALITY SURFACES 1244
I.R.G. Ogilvie, V.J. Sieben, C.F.A. Floquet, R. Zmijan, M.C. Mowlem, and H. Morgan
University of Southampton, UK

Poster Session Imaging & Detection Technologies - Flow Visualization

- T1G AN AUTOMATED FULL-CHIP MICRO-PIV SETUP FOR MEASURING MICROCHANNEL ACOUSTOPHORESIS: SIMULTANEOUS DETERMINATION OF FORCES FROM ACOUSTIC RADIATION AND ACOUSTIC STREAMING** 1247
R. Barnkob¹, P. Augustsson², T. Laurell², and H. Bruus¹
¹Technical University of Denmark, DENMARK and ²Lund University, SWEDEN

Poster Session Imaging & Detection Technologies - Optical

- T2G A LAB-ON-A-CHIP SYSTEM INTEGRATED WITH SUBWAVELENGTH PERIODIC PATTERNED METAL SURFACES FOR SERS-BASED MOLECULAR IDENTIFICATION BIOSENSING** 1250
M. Jin, V. Pully, L. Shui, C. Otto, A. van den Berg, and E.T. Carlen
University of Twente, THE NETHERLANDS
- T3G BIOSENSOR BASED ON FLUORESCENT SPHERICAL RESONATOR USING POLYSTYRENE MICROBEAD** 1253
Y.F. Yu¹, T. Bourouina², Z.X. Shen¹, N.Q. Ngo¹, and A.Q. Liu¹
¹Nanyang Technological University, SINGAPORE and ²University of Paris Est, FRANCE
- T4G EVANESCENT FIELD ABSORPTION SPECTROSCOPY ON POLY(DIMETHYLSILOXANE) SINGLE-MODE RIB WAVEGUIDE INTEGRATED WITH MICROFLUIDIC SYSTEM** 1256
J.S. Kee^{1,2}, D.P. Poenar², L. Yobas¹, and Y. Chen¹
¹Agency for Science, Technology and Research (A*STAR), SINGAPORE and
²Nanyang Technological University, SINGAPORE
- T5G HYBRID OPTICAL READOUT FOR QUANTITATIVE DETECTION OF COCAINE IN SWEAT BY LAB-ON-A-PAPER: TOWARDS NEW GENERATION OF DRUGMETERS** 1259
R. Walczak¹, J.A. Dziuban¹, J. Krüger², M. Scholles³, and J. Ruano-Lopez⁴
¹Wroclaw University of Technology, POLAND, ²Biosensia Ltd., IRELAND, ³IFMS, GERMANY, and
⁴IKERLAN, SPAIN
- T6G INTEGRATED MULTI BEAM SPECTROSCOPY WITH EMBEDDED PRECISE OPTICS** 1262
Y. Kazama and A. Hibara
University of Tokyo, JAPAN
- T7G LIGHT-DIRECTED, SPATIALLY ADDRESSABLE OXYGEN DETECTION IN A HYDROGEL MICROARRAY BASED ON PHASE-BASED LIFETIME DETECTION USING DIGITAL MICROMIRROR DEVICE** 1265
S.H. Huang¹, C.H. Tsai¹, K.Y. Hung², and Y.C. Chung²
¹National Taiwan Ocean University, TAIWAN and ²Mingchi University of Technology, TAIWAN
- T8G MULTISPECTRAL ABSORBANCE PHOTOMETRY WITH A SINGLE LIGHT DETECTOR USING FREQUENCY DIVISION MULTIPLEXING** 1268
G.K. Kurup and A.S. Basu
Wayne State University, USA
- T9G TEMPERATURE MODULATION AND PHASE SENSITIVE IMAGING TO DETECT POINT MUTATIONS** 1271
K. Zrelli¹, T. Barilero¹, E. Cavatore¹, H. Berthoumieux¹, V. Croquette¹, A. Lemarchand²,
L. Jullien¹, T. Le Saux¹, and C. Gosse²
¹École Normale Supérieure (ENS), FRANCE and ²Université Paris 6, FRANCE

Poster Session Imaging & Detection Technologies - Electrochemical

- T10G BIOLOGICAL NOSES FOR A ROBOT** 1274
N. Misawa, H. Mitsuno, R. Kanzaki, and S. Takeuchi
University of Tokyo, JAPAN

T11G SIGNAL IMPROVEMENT BY DIELECTRIC FOCUSING IN MICROFLUIDIC IMPEDANCE CYTOMETERS 1277
M. Evander, B. Dura, A.J. Ricco, G.T.A. Kovacs, and L. Giovangrandi
Stanford University, USA

T12G SIMULTANEOUS IMPEDANCE AND FLUORESCENCE DETECTION OF PROTEINS IN A CYCLO OLEFIN POLYMER CHIP CONTAINING A COLUMN WITH AN ORDERED PILLAR ARRAY WITH INTEGRATED GOLD MICROELECTRODES 1280
X. Illa¹, R. Rodríguez-Trujillo¹, O. Ordeig², W. De Malsche³, A. Homs-Corbera¹, H. Gardeniers⁴,
G. Desmet³, J.P. Kutter², J. Samitier¹, and A. Romano-Rodríguez¹
¹Universitat de Barcelona, SPAIN, ²Technical University of Denmark, DENMARK,
³Vrije Universiteit, BELGIUM, and ⁴MESA+, University of Twente, THE NETHERLANDS

T13G ELECTROCHEMICAL IMMUNOSENSING OF ZEARALENONE MYCOTOXIN IN BABY FOODS ON MICROFLUIDIC CHIP: TOWARDS A TOTAL INTEGRATION 1283
M. Hervás, M.A. López and A. Escarpa
University of Alcalá, SPAIN

Poster Session Imaging & Detection Technologies - Mass Spectrometry

T14G FABRICATION OF SILICON NANOSTRUCTURE BY METAL-ASSISTED ETCHING AND ITS EFFECTS TO MATRIX-FREE LASER DESORPTION/IONIZATION MASS SPECTROMETRY 1286
C.W. Tsao¹, J.T. Huang¹, Y.C. Cheng², W.Y. Chen¹, and C.C. Chien²
¹Nation Central University, TAIWAN and ²Cathay General Hospital, TAIWAN

Poster Session Imaging & Detection Technologies - Optofluidics

T15G AN OPTOFLUIDIC TUNABLE PRISM VIA CONTROL OF FLOW RATE RATIO 1289
S. Xiong^{1,2}, Y. Yang¹, Y. Chen², G.J. Zhang², G.Q. Lo², D.L. Kwong², and A.Q. Liu¹
¹Nanyang Technological University, SINGAPORE and
²Agency for Science, Technology and Research (A*STAR), SINGAPORE

T16G DEVELOPMENT OF NOVEL MICRO OPTICAL DIFFUSION SENSOR USING MICRO FRESNEL MIRROR 1292
T. Oka, K. Itani, Y. Taguchi, and Y. Nagasaka
Keio University, JAPAN

T17G MICROFLUIDIC DROPLET DYE LASER BASED ON A FABRY-PEROT CAVITY 1295
G. Aubry^{1,2}, Q. Kou^{1,2}, C. Wang^{1,2}, S. Meance^{1,2}, J.J. He³, and A.M. Haghiri-Gosnet²
¹Université Paris Sud, FRANCE, ²Centre National de la Recherche Scientifique (CNRS), FRANCE, and
³Zhejiang University, CHINA

T18G THREE-DIMENSIONAL MICROFLUIDIC L2 WAVEGUIDE USING DEAN VORTEX 1298
K.S. Lee, S.B. Kim, K.H. Lee, H.J. Sung, and S.S. Kim
Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA

Poster Session Imaging & Detection Technologies - Others

T19G A NANOGAP-EMBEDDED NANOWIRE FIELD EFFECT TRANSISTOR FOR SENSOR APPLICATIONS: IMMUNOSENSOR AND HUMIDITY SENSOR 1301
J.-H. Ahn, J.-Y. Kim, M. Im, J.-W. Han, and Y.-K. Choi
Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA

T20G DEMONSTRATION OF MICROCANTILEVER BIOSENSOR ARRAY WITH IN-PLANE PHOTONIC TRANSDUCTION MECHANISM 1304
G.P. Nordin, S. Kim, W. Hu, R.R. Anderson, J.W. Noh, S.J. Ness,
W.C. Dahlquist, and D.C. Richards
Brigham Young University, USA

T21G FLOW SPEED PARTICLE FOCUSING IN MICROFLUIDIC IMPEDANCE MEASUREMENTS 1307
R.M. Pugo¹, S.C. Deane¹, C. Glasse¹, M.R. Burcher¹, H. Morgan², and C.H. Reccius¹
¹Philips Research Laboratories, UK and ²University of Southampton, UK

T22G MICROENGINEERED MULTISPECTRAL CONTRAST AGENTS FOR MAGNETIC RESONANCE IMAGING 1310
X. Wang¹, S.W. Anderson², and X. Zhang¹
¹Boston University, USA and ²Boston Medical Center, USA

T23G ULTRA-MULTIPLEXED BEADS SYSTEM WITH IN SITU DNA PROBE SYNTHESIS 1313
K. Machida, N. Kishii, M. Ichimura, K. Ito, N. Sakamoto, and A. Yasuda
Sony Corporation, JAPAN

Poster Special Focus Session - Tissue Engineering

T1H CONSTRUCTION OF VASCULAR-MIMETIC TISSUE IN A SEPARABLE MICROCHIP 1316
T. Yamashita, Y. Tanaka, Y. Sugii, K. Mawatari, and T. Kitamori
University of Tokyo, JAPAN

T2H GENERATION OF CHITOSAN MICROFIBER FOR BIO-ARTIFICIAL LIVER MICROCHIP 1319
K.-H. Lee^{1,4}, S.-J. Shin¹, D.Y. No¹, C.-B. Kim¹, J.K. Kim², Y.W. Cho³, B.G. Chung³, S. Chung¹,
R.D. Kamm⁴, and S.-H. Lee¹
¹Korea University, KOREA, ²Kookmin University, KOREA, ³Hanyang University, KOREA, and ⁴Massachusetts Institute of Technology, USA

T3H MICROFLUIDIC-BASED 3D MICROTISSUE WITH PERFUSED HUMAN CAPILLARIES 1322
Y.-H. Hsu, M. Moya, C.C.W. Hughes, S. George, and A.P. Lee
University of California, Irvine, USA

T4H PRECISE ASSEMBLY OF MICRO-TISSUES IN A MICROFLUIDIC DEVICE USING AN AVIDIN-BIOTIN BINDING SYSTEM AND OPTICAL TWEEZERS 1325
N. Kojima^{1,2}, K. Miura¹, H. Nakayama¹, S. Takeuchi^{1,2}, and Y. Sakai^{1,2}
¹University of Tokyo, JAPAN and ²BEANS Project, JAPAN

T5H USING CO-CULTURE MICROSYSTEM FOR CELL MIGRATION UNDER FLUID SHEAR STRESS 1328
C.H. Yeh, S.H. Tsai, L.W. Wu, and Y.C. Lin
National Cheng Kung University, TAIWAN

Poster Special Focus Session - Electrowetting-Driven Digital Microfluidics

T6H AN ELECTROWETTING-BASED MICROFLUIDIC PLATFORM FOR MAGNETIC BIOASSAYS 1331
S. Chang^{1,2}, V. Schaller¹, B. Raeissi¹, A. Kalabukhov¹, J.F. Schneiderman¹, F. Öisjöen¹, A. Jesorka¹,
A. Prieto Astalan³, C. Johansson³, P. Enoksson¹, D. Winkler¹, and A. Sanz-Velasco¹
¹Chalmers University of Technology, SWEDEN, ²East China University of Science and Technology, CHINA, and ³Imego Institute, SWEDEN

T7H INTEGRATED MICROBIOREACTOR FOR CULTURE AND ANALYSIS OF BACTERIA, ALGAE AND YEAST (BAY) 1334
S.C.C. Shih, S.H. Au, and A.R. Wheeler
University of Toronto, CANADA

Session 2A3 - Characterization of Intrinsic Cell Properties

MEASURING THE ACOUSTOPHORETIC CONTRAST FACTOR OF LIVING CELLS IN MICROCHANNELS 1337
P. Augustsson¹, R. Barnkob², C. Grenvall¹, T. Deierborg¹, P. Brundin¹, H. Bruus², and T. Laurell¹
¹Lund University, SWEDEN and ²Technical University of Denmark, DENMARK

UNCERTAINTY IN FLOW IMPEDANCE MEASUREMENTS ARISING FROM SHEAR-INDUCED ROTATION OF PARTICLES IN MICROFLUIDIC CHANNELS 1340
M. Nikolic-Jaric¹, G.A. Ferrier¹, S. Rzeszowski¹, T. Cabel¹, S. Nandagopal¹, F. Lin¹,
G.E. Bridges¹, D.J. Thomson¹, and M.R. Freeman²
¹University of Manitoba, CANADA and ²University of Alberta, CANADA

MORPHOLOGY-BASED SORTING -BLOOD CELLS AND PARASITES	1343
J.P. Beech ¹ , S. Holm ¹ , M.P. Barrett ² , and J.O. Tegenfeldt ^{1,3}	
¹ Lund University, SWEDEN, ² University of Glasgow, SCOTLAND, and ³ University of Gothenburg, SWEDEN	

Session 2B3 - Proteomics

PNEUMATIC VALVE ASSISTED SOL-GEL MICROFLUIDIC PLATFORM FOR MULTIPLEX SELEX ON A CHIP	1346
S.W. Lee ¹ , J.-Y. Ahn ² , R. Shou ² , E. Kim ² , T. Laurell ¹ , O.C. Jeong ³ , and S. Kim ²	
¹ Lund University, SWEDEN, ² Dongguk University, SOUTH KOREA, and ³ Inje University, SOUTH KOREA	

AN INTEGRATED DIFFERENTIAL NANOCALIMETER WITH ON-CHIP MICROFLUIDIC MULTIPLEXING FOR HIGH THROUGHPUT GENOMICS AND PROTEOMICS	1349
H. Esfandyarpour and R.W. Davis	
Stanford University, USA	

DROPLET ANALYSIS WITH ELECTROSPRAY IONIZATION MASS SPECTROMETRY USING AN INTEGRATED GLASS MICROCHIP	1352
Y. Zhu and Q. Fang	
Zhejiang University, CHINA	

Session 2C3 - Droplet Array for Bioassays

DETERMINISTIC LATERAL DISPLACEMENT DEVICE FOR DROPLET SEPARATION BY SIZE – TOWARDS RAPID CLONAL SELECTION BASED ON DROPLET SHRINKING	1355
H.N. Joensson, M. Uhlén, and H. Andersson-Svahn	
Royal Institute of Technology (KTH), SWEDEN	

1-MILLION DROPLET ARRAY FOR HIGH-DYNAMIC-RANGE DIGITAL MICROFLUIDICS	1358
A.C. Hatch, J.S. Fisher, and A.P. Lee	
University of California, Irvine, USA	

MICROFLUIDIC SYNTHESIS OF MAGNETOCHROMATIC MICROSPHERES UTILIZING MAGNETIC SELF-ASSEMBLY AND PHOTOPOLYMERIZATION PROCESS	1361
J. Kim, Y. Song, H. Lee, W. Park, H. Kim, and S. Kwon	
Seoul National University, SOUTH KOREA	

Session 2D3 - Unconventional Separation Approaches

BUBBLE-BASED CONTINUOUS SEPARATION SYSTEM IN MICROFLUIDIC DEVICE	1364
A. Kobayashi, M. Yamada, and M. Seki	
Chiba University, JAPAN	

EXAMINING LATERAL DISPLACEMENT OF CELLS ROLLING ON ASYMMETRIC RECEPTOR PATTERNS	1367
C.-H. Lee ¹ , S. Bose ¹ , K.J. Van Vliet ¹ , J.M. Karp ² , and R. Karnik ¹	
¹ Massachusetts Institute of Technology, USA and ² Harvard University, USA	

DEFORMABILITY BASED CELL MARGINATION FOR MALARIAL INFECTED RED BLOOD CELL ENRICHMENT	1370
H.W. Hou ^{1,2} , A.A.S. Bhagat ¹ , P. Mao ³ , J. Han ^{1,3} , and C.T. Lim ³	
¹ Singapore-MIT Alliance for Research and Technology (SMART) Centre, SINGAPORE,	
² National University of Singapore, SINGAPORE, and ³ Massachusetts Institute of Technology, USA	

Day 3 - Wednesday, 6 October 2010

Plenary Presentation V

- IGNITING EVOLUTION WITH MICROFABRICATED FITNESS LANDSCAPES** 1373
Q. Zhang¹, K. Robin², C.-K. Tung³, and R.H. Austin^{1,2}
¹Princeton University, USA, ²Hong Kong University of Science and Technology, and
³University of Pittsburgh, USA

Session 3A1 - Cell Deformability

- BACTERIA IN SUBMICRON CHANNELS AND MICROVALVES** 1376
J. Männik, F. Sekhavati, J.E. Keymer, and C. Dekker
Delft University of Technology, THE NETHERLANDS
- MICROFLUIDIC MODEL OF SICKLE CELL PATHOPHYSIOLOGY** 1379
D.K. Wood¹, J.M. Higgins^{2,3}, L. Mahadevan⁴, and S.N. Bhatia^{1,5,6}
¹Massachusetts Institute of Technology, USA, ²Massachusetts General Hospital, USA,
³Harvard Medical School, USA, ⁴Harvard University, USA, ⁵Howard Hughes Medical Institute, USA, and
⁶Brigham and Women's Hospital, USA
- DEFORMABILITY CYTOMETRY: HIGH-THROUGHPUT, CONTINUOUS MEASUREMENT OF CELL MECHANICAL PROPERTIES IN EXTENSIONAL FLOW** 1382
D.R. Gossett, H.T.K. Tse, S. Lee, A.T. Clark, and D. Di Carlo
University of California, Los Angeles, USA

Session 3B1 - Clinical Assays

- MULTIPLEX BIOASSAYS USING A SUSPENSION ARRAY PLATFORM: TOWARDS THE HIGH THROUGHPUT SCREENING OF DRUGS TARGETING CANCER STEM CELLS** 1385
G.R. Broder¹, S.W. Birtwell¹, G. Hage², O. Thastrup², H. Morgan¹ and P.L. Roach¹
¹University of Southampton, UK, and ²cureX, DENMARK
- DISPOSABLE BIOANALYTICAL MICRODEVICE FOR MONITORING THE EFFECT OF ANTI-PLATELET DRUGS** 1388
L. Basabe-Desmonts^{1,2}, S. Ramstrom², A. Lopez-Alonso², M. Somers¹, A.J. Ricco¹, and D. Kenny²
¹Dublin City University, IRELAND and ²Royal College of Surgeons in Ireland (RCSI), IRELAND
- HIGH-THROUGHPUT CIRCULATING TUMOR CELLS (CTCs) ISOLATION USING INERTIAL FORCES** 1391
A.A.S. Bhagat¹, H.W. Hou^{1,2}, S. Huang³, C.T. Lim^{1,2}, and J. Han^{1,3}
¹Singapore-MIT Alliance for Research and Technology (SMART) Centre, SINGAPORE,
²National University of Singapore, SINGAPORE, and ³Massachusetts Institute of Technology, USA

Session 3C1 - Integrated Microfluidic Systems

- ENHANCEMENT OF A LABEL-FREE DIELECTROPHORETIC CELL SORTER WITH AN INTEGRATED IMPEDANCE DETECTION SYSTEM** 1394
M. Carminati¹, M.D. Vahey², A. Rottigni¹, G. Ferrari¹, J. Voldman², and M. Sampietro¹
¹Politecnico di Milano, ITALY and ²Massachusetts Institute of Technology, USA
- MINIATURIZATION OF INTEGRATED MICROFLUIDIC SYSTEMS** 1397
H. Kinoshita¹, K. Aoki¹, I. Yanagisawa², and T. Fujii¹
¹University of Tokyo, JAPAN and ²Nano Fusion Technologies, Inc., JAPAN
- MICROSCALE CONTROLLED CONTINUOUS CELL CULTURE** 1400
K.S. Lee, P. Boccazzi, A.J. Sinskey, and R.J. Ram
Massachusetts Institute of Technology, USA

Session 3D1 - Nanofluidics

Invited Presentation

- THE IMPORTANCE OF WALL CHEMISTRY IN NANOFUIDICS** 1403
J.C.T. Eijkel and A. van den Berg
MESA+, University of Twente, THE NETHERLANDS

Invited Presentation

- ELECTROCHEMICAL NANOFUIDICS: THE MESOSCOPIC LIMIT** 1406
M.A.G. Zevenbergen¹, N. Wongrajit¹, P.S. Singh¹, E.D. Goluch¹, B.L. Wolfrum¹, and S.G. Lemay^{1,2}
¹*Delft University of Technology, THE NETHERLANDS and*
²*MESA+, University of Twente, THE NETHERLANDS*

- CONCENTRATION DEPENDENCE OF STERN LAYER CAPACITANCES AND SURFACE EQUILIBRIUM CONSTANTS IN SILICA-BASED NANOFUIDIC CHANNELS** 1409
M.B. Andersen¹, J.S. Frey², H. Bruus¹, and S. Pennathur²
¹*Technical University of Denmark, DENMARK and* ²*University of California, Santa Barbara, USA*

Session 3A2 - Cell Analysis I

Invited Presentation

- VISUALIZING VIRAL FUSION AT THE SINGLE-PARTICLE LEVEL IN MICROCHANNELS** 1412
D.L. Floyd¹, J.J. Otterstrom^{1,2}, J.J. Skehel³, S.C. Harrison², and A.M. van Oijen²
¹*Harvard Medical School, USA,* ²*University of Groningen, THE NETHERLANDS, and*
³*Medical Research Council, UK*

- CANCER CELL ASSAYS BY USE OF IMMUNOCAPTURE, SUBCELLULAR IMAGING, AND PROGRAMMED CELL RELEASE IN GEDI MICRODEVICES** 1415
J.P. Gleghorn¹, S.M. Santana¹, E.D. Pratt¹, M.S. Loftus², M. Jodari-Karimi², N.H. Bander²,
D.M. Nanus², P. Giannakakou², and B.J. Kirby¹
¹*Cornell University, USA and* ²*Weill Cornell Medical College, USA*

- MICROFLUIDIC DEVICE TO ENABLE FUNCTIONAL ASSAYS OF CIRCULATING TUMOR CELL BEHAVIOR AND HETEROGENEITY** 1418
J.W. Warrick, B.P. Casavant, M.L. Frisk, and D.J. Beebe
University of Wisconsin, USA

Session 3B2 - Blood Analysis

- QUANTIFICATION OF AMINO ACIDS IN BLOOD USING DIGITAL MICROFLUIDICS** 1421
M.J. Jebrail, H. Yang, J.M. Mudrik, and A.R. Wheeler
University of Toronto, CANADA

- HIGH-THROUGHPUT BLOOD ANALYSIS ON A CHIP USING LENSLESS DIGITAL HOLOGRAPHY** 1424
S.O. Isikman¹, S.S. Seo^{1,2}, I. Sencan¹, O. Mudanyali¹, T.-W. Su¹, W. Bishara¹, A. Erlinger¹,
and A. Ozcan¹
¹*University of California, Los Angeles, USA and* ²*Korea University, SOUTH KOREA*

- BACK-TO-BACK INTEGRATED NANOWIRE BIOSENSOR WITH MICROFILTRATION DEVICE FOR APPLICATION TO THE CARDIAC BIOMARKER DETECTION FROM BLOOD SAMPLE** 1427
T.G. Kang, H.M. Ji, G.-J. Zhang, A. Agarwal, and Y. Chen
*Agency for Science, Technology and Research (A*STAR), SINGAPORE*

Session 3C2 - Microfluidic Circuits

- PRESSURE MAPPING OF MICROFLUIDIC FLOWS WITH COLORIMETRIC PRESSURE SENSING PARTICLES** 1430
S. Chalasani, Y. Xie, and C.H. Mastrangelo
University of Utah, USA

FAST AND SIMPLE: RECONFIGURABLE ELEMENTS AND SOLUTIONS FOR CREATING AND DRIVING FLUIDIC NETWORKS 1433
D. Sabourin¹, P. Skafte-Pedersen¹, V. Coman¹, M. Hemmingsen¹, J. Petersen², J.P. Kutter¹, J. Emneus¹,
D. Snakenborg¹, and M. Dufva¹
¹Danmarks Tekniske Universitet (DTU), DENMARK and ²Herlev University Hospital, DENMARK

SPATIALLY RESOLVED PRESSURE AND FLOW METERING IN MICROFLUIDIC SYSTEMS USING POLYELECTROLYTE HYDROGELS 1436
M. Utz and K. Prudnikova
University of Virginia, USA

Session 3D2 - Nanobiotechnology

TRACKING OF SINGLE DNA AND PROTEIN MOLECULES UNDERGOING ENZYMATIC DEGRADATION IN FLUID 1439
D. Onoshima¹, N. Kaji¹, M. Tokeshi¹, and Y. Baba^{1,2}
¹Nagoya University, JAPAN and
²National Institute of Advanced Industrial Science and Technology (AIST), JAPAN

THE DISASSEMBLY OF A CORE-SATELLITE NANOASSEMBLED SUBSTRATE FOR COLORIMETRIC BIOMOLECULAR DETECTION 1442
J.R. Waldeisen, T. Wang, B.M. Ross, and L.P. Lee
University of California, Berkeley, USA

MASSIVELY PARALLEL, HIGH FORCE INTERROGATION OF SINGLE CELL MECHANICS VIA LOCALIZED MAGNETIC NANOPARTICLES 1445
P. Tseng, J.W. Judy, and D. Di Carlo
University of California, Los Angeles, USA

Plenary Presentation VI

MICROFLUIDIC TOOLS FOR SYNTHETIC BIOLOGY 1448
P. Schuille
University of Dresden, GERMANY

Poster Session Life Science Applications - Genomics & Proteomics

W1A BEADS-IN-GELS ANTIBODY MICROARRAYS FOR MULTIPLEXED PROTEIN PROFILING 1451
H. Li, R.F. Leulmi, and D. Juncker
McGill University and Genome Quebec Innovation Centre, CANADA

W2A ELECTROPORATION-BASED SELECTIVE EXTRACTION OF SUBCELLULAR PROTEINS .. 1454
Y. Zhan¹, V.A. Martin¹, R.L. Geahlen¹, and C. Lu²
¹Purdue University, USA and ²Virginia Polytechnic Institute and State University, USA

W3A ON-CHIP MELTING CURVE ANALYSIS WITH A PRECISE TEMPERATURE COMPENSATION METHOD 1457
H.M. Ji, M.Y.D. Ang, S.P.M. Tan, S.R.B. Mohamed Rafei, G.K.I. Tay, and T.G. Kang
Agency for Science, Technology and Research (A*STAR), SINGAPORE

W4A SINGLE DNA MOLECULE DETECTION BY ON-BEAD ROLLING CIRCLE AMPLIFICATION USING MICROCHIP FOR EFFICIENT DETECTION 1460
K. Sato¹, Y. Kitamura¹, N. Sasaki¹, K. Sato², K. Mawatari², M. Nilsson³, and T. Kitamori²
¹Japan Women's University, JAPAN, ²University of Tokyo, JAPAN, and ³Uppsala University, SWEDEN

Poster Session Life Science Applications - Clinical Diagnostics

W5A A FULLY-INTEGRATED APTAMER-BASED AFFINITY ASSAY PLATFORM FOR MONITORING ASTRONAUT HEALTH IN SPACE 1463
G.J. Sommer¹, A.H. Hecht^{1,2}, R.H. Durland³, X. Yang³, A.K. Singh¹, and A.V. Hatch¹
¹Sandia National Laboratories, USA, ²University of Michigan, USA, and ³AM Biotechnologies, LLC, USA

- W6A A NOVEL TECHNIQUE FOR DETECTING THE THERAPEUTIC TARGET, KRAS MUTANT, FROM PERIPHERAL BLOOD USING THE AUTOMATIC GENECHIP ANALYZER DEVICE WITH WEIGHTED ENZYMATIC CHIP ARRAY** 1466
 S.K. Hsiung¹, H.J. Chang¹, M.J. Yang², M.S. Chang¹, D.A. Tsao¹, H.H. Chiu³, Y.F. Chen⁴, T.L. Cheng², and S.R. Lin¹
¹Fooyin University Hospital, TAIWAN, ²Kaohsiung Medical University, TAIWAN, ³Fooyin University, TAIWAN, and ⁴Gene Target Technology Co. Ltd., TAIWAN
- W7A ANALYSIS OF SPERM QUALITY IN A MICROFLUIDIC DEVICE** 1469
 Y.-A. Chen, J.-D. Huang, C.-M. Lin, C.-Y. Chen, V.F.-S. Tsai, C.-K. Lee, W.-J. Wu, J.-T. Hsieh, H.-C. Chang, W.-Y. Ma, and A.M. Wo
 National Taiwan University, TAIWAN
- W8A DEVELOPMENT OF MICROFLUIDIC BASED DEVICES FOR STUDYING TUMOUR BIOLOGY AND EVALUATING TREATMENT RESPONSE IN HEAD AND NECK CANCER BIOPSIES** 1472
 D.C. Sylvester, S.M. Hattersley, S.J. Haswell, N.D. Stafford, and J. Greenman
 University of Hull, UK
- W9A HIGH-SENSITIVE ENZYME-LINKED IMMUNOSORBENT ASSAY IN THREE-DIMENSIONAL LAB-ON-A-CD** 1475
 Y. Ukita¹, T. Azeta², S. Kondo², M. Takeo², S. Yusa², Y. Takamura¹, T. Saiki³, and Y. Utsumi²
¹Japan Advanced Institute of Science and Technology (JAIST), JAPAN, ²University of Hyogo, JAPAN, and ³Hyogo Institute of Technology, JAPAN
- W10A IN SITU MONITORING OF CAUTERIZATION WITH A BIOPSY NEEDLE USING IMPEDANCE CHARACTERISTICS OF EMBEDDED PIEZOTHERMAL ELEMENTS** 1478
 K. Visvanathan, T. Li, and Y.B. Gianchandani
 University of Michigan, USA
- W11A MICROFLUIDIC CHIP-CAPILLARY ELECTROPHORESIS WITH ADJUSTABLE ON-CHIP SAMPLE DILUTION FOR PROFILING OF URINARY MARKERS** 1481
 W.P. Guo and Y.S. Fung
 University of Hong Kong, HONG KONG
- W12A MICROFLUIDIC SYSTEMS FOR IMPROVING ASSISTED REPRODUCTIVE TECHNOLOGIES CULTURE PROTOCOLS** 1484
 F. van Rossem¹, T.C. Esteves², M. Boiani², S. Le Gac¹, and A. van den Berg¹
¹MESA+, University of Twente, THE NETHERLANDS and ²Max-Planck Institute for Molecular Biomedicine, GERMANY
- W13A PAPER-BASED ELECTROCHEMICAL ELISA** 1487
 X.J. Li, Z.H. Nie, C.-M. Cheng, A.B. Goodale, and G.M. Whitesides
 Harvard University, USA
- W14A RAPID AND SENSITIVE MICRORNA PROFILING USING ENCODED GEL PARTICLES** 1490
 S.C. Chapin¹, D.C. Appleyard¹, D.C. Pregibon², and P.S. Doyle¹
¹Massachusetts Institute of Technology, USA and ²Firefly BioWorks, USA
- W15A DEVELOPMENT OF SmartAmp2-BASED TECHNOLOGY FOR RAPID DETECTION OF THE 2009 PANDEMIC INFLUENZA A/H1N1 VIRUS** 1493
 Y. Kawai², J.-E. Morlighem¹, Y. Kimura¹, H. Kanamori², T. Ishidao², Y. Mitani², Y. Kogo², T. Hanami¹, T. Soma¹, Y. Ishizu¹, M. Hanami¹, S. Aoki¹, A. Katayama¹, H. Kinoshita¹, Y. Tanaka¹, A. Lezhava¹, T. Ishikawa¹, and Y. Hayashizaki¹
¹RIKEN Omics Science Center, JAPAN and ²K.K. DNAFORM, JAPAN

Poster Session Life Science Applications - Point-of-Care Testing

- W16A A GENERAL PURPOSE, MULTIWAVELENGTH, MICROFLOW CYTOMETER FOR CLINICAL AND ENVIRONMENTAL APPLICATIONS** 1496
 P.B. Howell, N. Hashemi, J.P. Golden, J.S. Erickson, J. Kim, G.P. Anderson, and F.S. Ligler
 Naval Research Laboratory, USA

W17A	CELL-BASED TOXIN SCREENING INTEGRATED WITH A CELL-SUSTAINABLE HYDROGEL ON CHIP FOR ONSITE AND PORTABLE APPLICATIONS	1499
	Y. Xu ^{1,2} , K. Jang ^{1,2} , K. Mawatari ^{1,2} , T. Konno ¹ , K. Ishihara ¹ , and T. Kitamori ^{1,2} <i>¹University of Tokyo, JAPAN and ²Japan Science and Technology Agency (JST), JAPAN</i>	
W18A	DIRECT ON-DISK WIRELESS TEMPERATURE MEASUREMENT FOR CENTRIFUGAL MICROFLUIDIC PLATFORMS	1502
	J. Burger ¹ , T. Jäger ² , A. Gross ¹ , A. Lastochkin ² , D. Mark ¹ , G. Roth ² , F. von Stetten ² , R. Zengerle ^{1,2} , and L. Reindl ² <i>¹Institute for Micromachining and Information Technology (HSG-IMIT), GERMANY and ²University of Freiburg, GERMANY</i>	
W19A	HIGH SPEED PLATELET COUNTING BY MICROFLUIDIC IMPEDANCE MEASUREMENT IN DILUTED WHOLE BLOOD	1505
	D.M. Pettigrew, S.C. Deane, J.D. Gwyer, C.H. Reccius, C. Glasse, M.R. Burcher, and C. van Berkel <i>Philips Research Laboratories, UK</i>	
W20A	INTEGRATED MICROSYSTEM FOR MULTIPLEXED DETECTION OF CARDIAC BIOMARKERS IN BLOOD TOWARDS POINT-OF-CARE DEVICE DEVELOPMENT	1508
	G.-J. Zhang, T.G. Kang, T.C.K. Chai, Z.H.H. Luo, M.J. Huang, G.K.I. Tay, E.-J.A. Lim, H. Ji, and M. Je <i>Agency for Science, Technology and Research (A*STAR), SINGAPORE</i>	
W21A	MICROFLUIDIC DEVICES FOR RAPID LABEL-FREE SEPARATION AND SENSING OF CELLS	1511
	S. Bose ¹ , C.-H. Lee ¹ , J.M. Karp ² , and R. Karnik ¹ <i>¹Massachusetts Institute of Technology, USA and ²Brigham and Women's Hospital, USA</i>	
W22A	MICROFLUIDIC SENSOR FOR THE DETECTION OF DNA OR PROTEIN BY HYBRIDIZATION-BASED FLUORESCENCE ENHANCEMENT OR IMMUNOASSAY-BASED FLUORESCENCE QUENCHING	1514
	J. Wang ¹ , M. Aki ² , D. Onoshima ¹ , K. Arinaga ² , N. Kaji ¹ , M. Tokeshi ¹ , S. Fujita ² , N. Yokoyama ² , and Y. Baba ^{1,3} <i>¹Nagoya University, JAPAN, ²Fujitsu Laboratories Ltd., JAPAN, and ³National Institute of Advanced Industrial Science and Technology (AIST), JAPAN</i>	
W23A	POINT-OF-CARE MEASUREMENT OF ZINC IN BLOOD SERUM	1517
	P. Jothimuthu ¹ , R. Wilson ¹ , S. Sukavasi ¹ , J. Herren ¹ , H. Wong ² , F. Beyette ¹ , W. Heineman ¹ , and I. Papautsky ¹ <i>¹University of Cincinnati, USA and ²Cincinnati Children's Hospital Medical Center, USA</i>	
W24A	THE DEVELOPMENT OF A DIAGNOSTIC TEST FOR THE DETECTION OF DRUGS IN SALIVA USING A DISPOSABLE SAMPLE PREPARATION MICRO-FLUIDIC CARTRIDGE	1520
	A.M. Sesay ¹ , U. Krühne ² , S. Sonny ¹ , T. Lund-Olesen ² , and V. Virtanen ¹ <i>¹Oulu University, FINLAND and ²Danish Technological Institute, DENMARK</i>	

Poster Session Life Science Applications - Drug Development

W25A	A CELLULAR MICROARRAY PERFUSION SYSTEM FOR CHEMO-DRUG SCREENINGS	1523
	L.-C. Hsiung, C.-H. Wang, C.-L. Chiang, C.-T. Kuo, Y.-H. Huang, H. Lee, and A.M. Wo <i>National Taiwan University, TAIWAN</i>	
W26A	DEVELOPMENT OF A MICRO CARDIOVASCULAR SYSTEM FOR EVALUATION OF ANTICANCER ACTIVITY AND RENAL CLEARANCE	1526
	K. Sato, Y. Imura, and E. Yoshimura <i>University of Tokyo, JAPAN</i>	
W27A	MERGING 'MICRO' WITH 'NANO': ON-CHIP HIGH-THROUGHPUT SYNTHESIS OF POLYMERIC NANOPARTICLES FOR CANCER THERAPY	1529
	P.M. Valencia ¹ , M. Rhee ^{1,2} , R. Langer ¹ , O.C. Farokhzad ² , and R. Karnik ¹ <i>¹Massachusetts Institute of Technology, USA and ²Brigham and Women's Hospital, Harvard Medical School, USA</i>	

W28A	ON THE GENERATION OF POLY(DL-LACTIDE-CO-GLYCOLIDE) (PLGA) PARTICLES IN MICROFLUIDIC FLOW FOCUSING DEVICES (MFFD) MADE OF NORLAND OPTICAL ADHESIVE (NOA 81)	1532
	A. Homsy ¹ , P. Klouček ² , and N.F. de Rooij ¹ ¹ <i>École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND and</i> ² <i>Université de Neuchâtel, SWITZERLAND</i>	
W29A	THE DEVELOPMENT OF A MINIATURIZED WIRELESS MICRODIALYSIS-MICROCHIP ELECTROPHORESIS SYSTEM FOR <i>IN VIVO</i> MONITORING OF DRUGS AND NEUROTRANSMITTERS IN AWAKE AND FREELY MOVING SHEEP	1535
	S.M. Lunte ¹ , P. Nandi ¹ , A. Regel ¹ , R. Grigsby ¹ , M.K. Hulvey ¹ , D. Scott ¹ , E. Naylor ² , S. Gabbert ² , and D. Johnson ² ¹ <i>University of Kansas, USA and</i> ² <i>Pinnacle Technologies, USA</i>	
Poster Session Life Science Applications - Cell Culture		
W30A	A MICROFLUIDIC DEVICE WITH HYDRODYNAMIC SWITCHING FOR TRANSPORT PROPERTY MEASUREMENTS OF CELL MEMBRANES	1538
	W.J. Chen and W.H. Hsieh <i>National Chung Cheng University, TAIWAN</i>	
W31A	A THERMO-RESPONSIVE PNIPAAm-GRAFTED-PDMS SURFACE USED FOR CELL CULTURE IN MICROFLUIDIC CHANNELS	1541
	D. Ma, Z.-M. Li, Q.-H. He, and H.-W. Chen <i>Zhejiang University, CHINA</i>	
W32A	AN AUTOMATED EMBRYO CULTURE SYSTEM USING DYNAMIC MICROARRAY	1544
	H. Kimura ¹ , H. Nakamura ¹ , T. Kurakazu ¹ , T. Yamamoto ² , S. Takeuchi ¹ , Y. Sakai ¹ , and T. Fujii ¹ ¹ <i>University of Tokyo, JAPAN and</i> ² <i>Tokyo Institute of Technology, JAPAN</i>	
W33A	CONTINUOUS MYELOMA CELL CULTURE IN STORAGE CHAMBER BASED ON DROPLET FUSION-DIVISION	1547
	L.K. Chin ¹ , T.C. Ayi ² , P.H. Yap ² , and A.Q. Liu ¹ ¹ <i>Nanyang Technological University, SINGAPORE and</i> ² <i>DSO National Laboratories, SINGAPORE</i>	
W34A	FLOW-THROUGH ELECTROPORATION FOR TRANSFECTION BASED ON LOW-FREQUENCY AC VOLTAGE	1550
	Y. Zhan ¹ , J. Wang ¹ , N. Bao ¹ , T. Geng ¹ , and C. Lu ² ¹ <i>Purdue University, USA and</i> ² <i>Virginia Polytechnic Institute and State University, USA</i>	
W35A	HIGH RESOLUTION PATTERNING OF CELLS WITH A PHOSPHORYLCHOLINE-BASED POLYMER IN A MICROFLUIDIC CHANNEL USING A PARYLENE DRY FILM MASK	1553
	K. Kuribayashi-Shigetomi ¹ , Y. Tsuda ^{1,2} , H. Nakamura ¹ , and S. Takeuchi ^{1,2} ¹ <i>University of Tokyo, JAPAN and</i> ² <i>BEANS Project, JAPAN</i>	
W36A	IMPEDANCE SPECTROSCOPY FOR <i>IN SITU</i> BIOMASS MEASUREMENTS IN MICROBIOREACTORS	1556
	S. Goh and R.J. Ram <i>Massachusetts Institute of Technology, USA</i>	
W37A	INTEGRATED PERFUSION CULTURE MICRO-CHAMBER ARRAY CHIP FOR HIGH-THROUGHPUT DRUG DOSE RESPONSE ASSAY	1559
	K. Hattori, S. Sugiura, and T. Kanamori <i>National Institute of Advanced Industrial Science and Technology (AIST), JAPAN</i>	
W38A	MICROHOLE DEVICE FOR DERIVATION AND SEPARATION OF LIPOSOMES FROM HUMAN LYMPHOCYTES WITH SYNCHRONIZED CULTURE	1562
	M. Yamanaka and T. Yasuda <i>Kyushu Institute of Technology, JAPAN</i>	
W39A	REALIZATION OF TWO-DIMENSIONAL CONCENTRATION SPACES BY MICRO SEGMENTED FLOW FOR MICROTOXICOLOGICAL SCREENINGS	1565
	P.M. Günther, A. Funfak, J. Cao, S. Schneider, F. Möller, and J.M. Köhler <i>Ilmenau University of Technology, GERMANY</i>	

- W40A STRAIN-GRADATION GENERATOR USING SERIALY CONNECTED MICROBALLOONS FOR PARALLEL TESTING OF CELL-STRETCHING CULTURE** 1568
 K. Shimizu^{1,2}, A. Shunori², K. Morimoto², M. Hashida¹, and S. Konishi^{1,2}
¹Kyoto University, JAPAN and ²Ritsumeikan University, JAPAN

Poster Session Life Science Applications - Cell Handling & Sorting

- W41A A MICROFLUIDIC MAMMALIAN CELL SORTER WITH THERMAL GELATION POLYMER SOLUTION** 1571
 Y. Shirasaki¹, M. Goto², H. Sugino³, T. Arakawa⁴, D. Yoon², J. Mizuno², S. Shoji²,
 T. Funatsu³, and O. Ohara^{1,5}
¹RIKEN RCAI, JAPAN, ²Waseda University, JAPAN, ³University of Tokyo, JAPAN,
⁴Tokyo Medical and Dental University, JAPAN, and ⁵Kazusa DNA Research Institute, JAPAN
- W42A A RESETTABLE HIGH-DENSITY MICROFLUIDIC CELL TRAPPING SYSTEM** 1574
 R.D. Sochol¹, K. Iwai¹, A.T. Higa¹, J.C. Lo², E. Zhou¹, L. Lo¹, C. Luong¹, M. Dueck¹,
 S. Li¹, L.P. Lee¹, and L. Lin¹
¹University of California, Berkeley, USA and ²Sandia National Laboratories, USA
- W43A ACOUSTOPHORETIC PRETREATMENT OF CELL LYSATE PRIOR TO FACS ANALYSIS** 1577
 A. Lenshof¹, B. Warner², and T. Laurell¹
¹Lund University, SWEDEN and ²BD Biosciences, USA
- W44A BIOLOGICAL PARTICLE HANDLING USING FLOW-INDUCED ELECTROKINETIC TRAPPING** 1580
 L.C. Jellema and E. Verpoorte
 University of Groningen, THE NETHERLANDS
- W45A CONCENTRATION AND EXTRACTION CHIP OF FETAL NUCLEATED RED BLOOD CELL (NRBC) BY MICRO GAP WITH DIAPHRAGM FOR FETAL DNA DIAGNOSIS FROM MATERNAL BLOOD** 1583
 T. Kumo¹, Y. Tomizawa¹, M. Kita², H. Takabayashi², E. Tamiya³, and Y. Takamura¹
¹Japan Advanced Institute of Science and Technology (JAIST), JAPAN,
²Kanazawa Medical University, JAPAN, and ³Osaka University, JAPAN
- W46A DEAN FLOW-COUPLED INERTIAL FOCUSING FOR ULTRA-HIGH-THROUGHPUT PARTICLE FILTRATION** 1586
 S. Ardabili, J. Gantelius, J. Kowalewski, H. Brismar, and A. Russom
 Royal Institute of Technology (KTH), SWEDEN
- W47A DIFFERENT BARCODES CODIFICATION FOR EMBRYO MICRO-LABELING** 1589
 R. Gómez-Martínez¹, S. Novo², M. Duch¹, L. Barrios², E. Ibañez², C. Nogues², J. Esteve¹,
 and J.A. Plaza¹
¹Centro Nacional de Microelectrónica (CNM), SPAIN and
²Universitat Autònoma de Barcelona, SPAIN
- W48A EXTRACTION OF CIRCULATING TUMOR CELLS FROM BLOOD USING ACOUSTOPHORESIS** 1592
 P. Augustsson¹, C. Magnusson¹, C. Grenvall¹, H. Lilja^{1,2}, and T. Laurell¹
¹Lund University, SWEDEN and ²Memorial Sloan-Kettering Cancer Center, USA
- W49A CELL 'TRAP AND RELEASE' USING NOVEL MICROFLUIDIC 'HYDRAULIC JUMP' TRAP** 1595
 D. Mitra¹, Y. Park^{1,2}, Y. Choi³, H. Patel¹, B. Pham¹, J.R. Waldeisen¹, T. Kang², and L.P. Lee¹
¹University of California, Berkeley, USA, ²Sogang University, SOUTH KOREA, and
³Korea University, SOUTH KOREA
- W50A LONG-RANGE CONCENTRATION GRADIENTS OF MULTI-COMPOUNDS FOR BACTERIAL CHEMOTAXIS ASSAY** 1598
 M. Kim and T. Kim
 Ulsan National Institute of Science & Technology (UNIST), SOUTH KOREA

W51A	MICRO-SANDWICH IN MICROFLUIDICS: 3D BIOPOLYMER MEMBRANES FOR CELL ASSEMBLY	1601
	X.L. Luo, H.C. Wu, C.Y. Tsao, Y. Cheng, G.W. Rubloff, and W.E. Bentley <i>University of Maryland, USA</i>	
W52A	MICROFLUIDIC MODULES FOR [¹⁸F] ACTIVATION - TOWARDS AN INTEGRATED MODULAR LAB ON A CHIP FOR PET RADIOTRACER SYNTHESIS	1604
	F. De Leonardis ¹ , G. Pascali ² , P.A. Salvadori ² , P. Watts ¹ , and N. Pamme ¹ ¹ <i>University of Hull, UK and</i> ² <i>University of Pisa, ITALY</i>	
W53A	NEGATIVE DIELECTROPHORETIC FORCE BASED SEPARATION SYSTEM FOR HUMAN BREAST CANCER CELL (MCF 7) IN DILUTED RED BLOOD CELLS (RBC)	1607
	J. Lee, Y. Kim, and B. Kim <i>Korea Aerospace University, SOUTH KOREA</i>	
W54A	PASSIVE LABEL-FREE RARE CELL ENRICHMENT INERTIAL MICROFLUIDIC DEVICE USING CELL DEFORMABILITY AS A BIOMARKER	1610
	S.C. Hur and D. Di Carlo <i>University of California, Los Angeles, USA</i>	
W55A	SIZE SELECTIVITY AND TRAPPING EFFICIENCY OF SINGLE-CELLS WITH A HYDRODYNAMIC WELL IN A MICROFLUIDIC DEVICE	1613
	C.-M. Lin, C.-C. Tseng, T.-Y. Tu, C.-L. Chen, and A.M. Wo <i>National Taiwan University, TAIWAN</i>	
W56A	TWO-DIMENSIONAL CELL SORTING DEVICE EMPLOYING PINCHED-FLOW FRACTIONATION AND MAGNETOPHORESIS	1616
	M. Senaha, R. Mitamura, M. Yamada, and M. Seki <i>Chiba University, JAPAN</i>	
Poster Session Life Science Applications - Cell Analysis		
W57A	'SNIFFER-PATCH ASSAY' ON A MICROFLUIDIC CHIP FOR HIGH-THROUGHPUT SCREENING OF DRUGS TO CONTROL NEUROTRANSMITTER RELEASE	1619
	Y.H. Kim, G.W. Jeong, Y.E. Kim, D.H. Woo, C.J. Lee, J.Y. Kang, and T.S. Kim <i>Korea Institute of Science and Technology (KIST), SOUTH KOREA</i>	
W58A	A HIGH PERFORMANCE CONTINUOUS ELECTROPORATION CHIP	1622
	Z. Wei, H. Huang, M. Wu, Z. Liang, W. Wang, and Z. Li <i>Peking University, CHINA</i>	
W59A	A MICRO MOIRE CHIP FOR AUTOMATED WHOLE FIELD CELL ANALYSIS	1625
	X.Y. Zheng and X. Zhang <i>Boston University, USA</i>	
W60A	A NEURONAL NETWORK DISPLAY FOR NEUROTOXICITY SCREENING	1628
	J.-P. Frimat ¹ , J. Sisaïskis ² , H. Hardelauf ³ , S. Subbiah ³ , M. Leist ³ , P. Lampen ¹ , J. Franzke ¹ , J.G. Hengstler ² , C. van Thriel ² , and J. West ¹ ¹ <i>Institute for Analytical Sciences (ISAS), GERMANY, </i> ² <i>Technische Universität Dortmund, GERMANY, and</i> ³ <i>Universität Konstanz, GERMANY</i>	
W61A	ANALYSIS OF INTRACELLULAR RESPONSE TO LOCALIZED CHEMICAL STIMULATION ON TISSUE-MIMICKING MICRODEVICE	1631
	K. Terao ^{1,2} , M. Gel ^{2,3} , A. Fuke ⁴ , A. Okonogi ^{2,4} , T. Okitsu ^{2,4} , T. Suzuki ^{1,2} , T. Tada ^{2,4} , M. Washizu ^{2,3} , and H. Kotera ^{2,4} ¹ <i>Kagawa University, JAPAN, </i> ² <i>Japan Science and Technology Agency (JST), JAPAN, </i> ³ <i>University of Tokyo, JAPAN, and</i> ⁴ <i>Kyoto University, JAPAN</i>	
W62A	DEPLETION ZONE ISOTACHOPHORESIS: A NEW MICRO/NANOFLUIDIC ELECTROKINETIC METHOD	1634
	J.W. Quist, K.G.H. Janssen, J. Li, H.J. van der Linden, and T. Hankemeier <i>Leiden University, THE NETHERLANDS</i>	

W63A	ELECTRON-BEAM INDUCED <i>IN SITU</i> SPATIOTEMPORAL NANOFABRICATION TOWARD INTRACELLULAR NANOROBOTICS	1637
	T. Hoshino and K. Morishima <i>Tokyo University of Agriculture and Technology, JAPAN</i>	
W64A	FISH ‘N’ CHIPS – A SINGLE CELL GENOMIC ANALYZER FOR THE HUMAN MICROBIOME	1640
	R.J. Meagher, P. Liu, Y.K. Light, K.D. Patel, T.D. Perroud, and A.K. Singh <i>Sandia National Laboratories, USA</i>	
W65A	INTEGRATED LABELLING, DISSOCIATION, ELECTROKINETIC TRANSPORT AND DETECTION OF PRIMARY TUMOUR CELLS	1643
	J. Woods, P.T. Docker, C.E. Dyer, S.J. Haswell, and J. Greenman <i>University of Hull, UK</i>	
W66A	LABEL-FREE DETECTION OF B AND T CELL RESPONSES BY USING HIGH RESOLUTION 2D-SPR IMAGING SENSOR	1646
	Y. Iribe, H. Shinohara, and M. Suzuki <i>University of Toyama, JAPAN</i>	
W67A	MICRODROPLET EMULSION GENERATOR ARRAYS FOR HIGH-THROUGHPUT SINGLE CELL GENETIC VARIATION ANALYSIS	1649
	R. Novak, Y. Zeng, J. Shuga, G. Venugopalan, D. Fletcher, L. Zhang, M.T. Smith, and R.A. Mathies <i>University of California, Berkeley, USA</i>	
W68A	MICROFLUIDIC SYSTEM FOR EVALUATION OF PHOTODYNAMIC THERAPY (PDT) PROCEDURES	1652
	E. Jedrych, Z. Pawlicka, M. Chudy, A. Dybko, and Z. Brzozka <i>Warsaw University of Technology, POLAND</i>	
W69A	OPTICAL INJECTION AND MANIPULATION OF FUNCTIONAL NAOTOOL USING PHOTO-RESPONSIVE CHEMICAL AND OPTICAL TWEEZERS FOR INTRACELLULAT MEASUREMENT	1655
	H. Maruyama ¹ , K. Kotani ² , A. Honda ³ , T. Takahatta ³ , and F. Arai ¹ <i>¹Nagoya University, JAPAN, ²Tohoku University, JAPAN, and ³Hosei University, JAPAN</i>	
W70A	SINGLE LIVING CELL MANIPULATION AND MICRORHEOLOGICAL STUDY WITH LASER-INDUCED CAVITATION BUBBLES	1658
	Z.G. Li ¹ , P.A. Quinto-Su ¹ , J.B. Zhang ² , C.D. Ohl ¹ , and A.Q. Liu ¹ <i>¹Nanyang Technological University, SINGAPORE and ²Agency for Science, Technology and Research (A*STAR), SINGAPORE</i>	
W71A	STUDYING NF-KAPPA B TRANSLOCATION BETWEEN NUCLEUS AND CYTOPLASM BY ELECTROPORATIVE FLOW CYTOMETRY	1661
	J. Wang ¹ , B. Fei ¹ , Y. Zhan ² , R.L. Geahlen ¹ , and C. Lu ² <i>¹Purdue University, USA and ²Virginia Polytechnic Institute and State University, USA</i>	
W72A	DEVELOPMENTS TOWARDS INTEGRATED ACOUSTIC CELL TRAPPING AND PCR	1664
	B.L. Poe ¹ , B. Hammarström ² , T. Laurell ² , J. Nilsson ² , and J.P. Landers ¹ <i>¹University of Virginia, USA and ²Lund University, SWEDEN</i>	

Poster Session Life Science Applications - Others

W73A	A CAPILLARY-ENDOTHELIUM-MIMETIC MICROFLUIDIC CHIP FOR THE STUDY OF CHEMOTACTIC RESPONSE	1667
	W.H. Wu ¹ , T.H. Punde ¹ , P.C. Shih ² , C.Y. Fu ¹ , T.P. Wang ¹ , L. Hsu ² , H.Y. Chang ¹ , and C.H. Liu ¹ <i>¹National Tsing Hua University, TAIWAN and ²National Chiao Tung University, TAIWAN</i>	
W74A	AN ANTIBIOTIC BIOSENSOR PLATFORM FOR PRECLINICAL EVALUATION OF DRUG RELEASE PROFILE OF NANOCAPSULES	1670
	C.-C. Hong ¹ , C.-Y. Wang ¹ , K.-T. Peng ² , and I.-M. Chu ¹ <i>¹National Tsing Hua University, TAIWAN and ²Chang Chung Memorial Hospital, TAIWAN</i>	

W75A	CHARGE-REVERSIBLE SOLID SURFACE AND ITS APPLICATION TO DNA MANIPULATION UNDER MICROFLUIDIC ENVIRONMENTS	1673
	K.-Y. Hwang ¹ , J.-H. Kim ¹ , K.P. Suh ² , K. Namgoong ¹ , S.-H. Paek ¹ , and N. Huh ¹ <i>¹Samsung Electronics, SOUTH KOREA and ²Seoul National University, SOUTH KOREA</i>	
W76A	HIGH-THROUGHPUT END-ON IMAGING OF DROSOPHILA EMBRYO FOR QUANTITATIVE ANALYSIS OF MORPHOGENS AND SIGNALING	1676
	K. Chung ¹ , Y. Kim ² , E. Gong ¹ , S. Shvartsman ² , and H. Lu ¹ <i>¹Georgia Institute of Technology, USA and ²Princeton University, USA</i>	
W77A	MAGNETICALLY ACTUATED PARTICLE-BASED PROCEDURES IN CONTINUOUS FLOW	1679
	M.D. Tarn ¹ , S.A. Peyman ¹ , R.F. Fakhruddin ² , A. Iles ¹ , V.N. Paunov ¹ , and N. Pamme ¹ <i>¹University of Hull, UK and ²Kazan State University, RUSSIA</i>	
W78A	MICROFLUIDIC DEVICES FOR ANESTHETIC FREE <i>IN VIVO</i> AXONAL TRANSPORT IMAGING	1682
	S. Mondal ¹ , S. Ahlawat ¹ , K. Rao ¹ , V. Venkataraman ² , and S.P. Koushika ¹ <i>¹National Centre for Biological Sciences (NCBS), INDIA and ²Indian Institute of Science, INDIA</i>	
W79A	MINIATURE OSMOTIC ACTUATORS FOR CONTROLLED MAXILLOFACIAL DISTRACTION OSTEOGENESIS	1685
	Y.H. Li, C.C. Wang, C.W. Chang, and Y.C. Su <i>National Tsing Hua University, TAIWAN</i>	
W80A	PARALLEL NEURON-BENIGN MICROFLUIDIC GRADIENT GENERATOR ARRAY FOR STUDYING THE RESPONSE OF SINGLE NEURONS TO BIOCHEMICAL GRADIENTS	1688
	N. Bhattacharjee and A. Folch <i>University of Washington, USA</i>	

Poster Session Microreaction Applications - Flow Chemistry / Synthesis

W1B	A MICROFLUIDIC APPROACH TO "GREEN" SINGLET OXYGEN MEDIATED OXIDATION	1691
	E. Lumley ¹ , C. Wiles ^{1,2} , C. Dyer ¹ , N. Pamme ¹ , and R. Boyle ¹ <i>¹University of Hull, UK and ²Chemtrix BV, THE NETHERLANDS</i>	
W2B	DIRECT SYNTHESIS OF HYDROGEN PEROXIDE BASED ON MICROREACTOR TECHNOLOGY	1694
	T. Inoue ¹ , K. Ohtaki ¹ , Y. Kikutani ² , K. Sato ¹ , M. Nishioka ¹ , S. Hamakawa ¹ , K. Mawatari ³ , A. Hibara ³ , F. Mizukami ¹ , and T. Kitamori ³ <i>¹National Institute of Advanced Industrial Science and Technology (AIST), JAPAN, ²Kanagawa Academy of Science and Technology (KAST), JAPAN, and ³University of Tokyo, JAPAN</i>	
W3B	PAPER WITHDRAWN	
W4B	STRATIFIED FLOW-DRIVEN ROUTE TO MONODISPERSE UNILAMELLAR LIPID VESICLES	1700
	S. Matosevic and B.M. Paegel <i>Scripps Research Institute, USA</i>	
W5B	STUDY ON THE RATE ACCELERATION OF THE BAYLIS-HILLMAN REACTION WITHIN MICROREACTORS	1703
	L. Qi, J. Yang, J. Qiao, H. Ma, and Y. Chen <i>Chinese Academy of Sciences, CHINA</i>	

Poster Session Microreaction Applications - Integrated Synthesis & Work-up

W6B	IMPROVING CRYSTAL SIZE DISTRIBUTION USING MICROREACTOR MIXING UNITS	1706
	R. Goovaerts, W. De Malsche, N. De Meirleir, G. Desmet, and J. Denayer <i>Vrije Universiteit Brussel, BELGIUM</i>	

Poster Session Microreaction Applications - Others

- W7B LANDSCAPING REACTION KINETICS ON A CHIP** 1709
H.S. Rho, S. Jambovane, and J.W. Hong
Auburn University, USA
- W8B SIZE CONTROL OF UNILAMELLAR GIANT VESICLES USING MICROFLUIDICS FOR ARTIFICIAL CELL STUDIES** 1712
K. Nishimura¹, T Toyota², H. Suzuki^{1,3}, and T. Yomo^{1,3}
¹*Osaka University, JAPAN*, ²*Tokyo University, JAPAN*, and
³*Japan Science and Technology Agency (JST), JAPAN*

Poster Session Other Applications - Environment

- W1C A MINIATURE HIGH PRECISION CONDUCTIVITY AND TEMPERATURE SENSOR SYSTEM FOR OCEAN MONITORING** 1715
X. Huang, M.C. Mowlem, R. Pascal, K. Chamberlain, C. Banks, and H. Morgan
University of Southampton, UK
- W2C AUTONOMOUS MICROFLUIDIC SYSTEM FOR SPECTROSCOPIC pH MEASUREMENTS** 1718
R.E.G van Hal¹, J. Shah¹, R.J. Schroeder¹, P. Dryden¹, J. Wong¹, D.J. Pittman², G.H. Gustavson¹,
and B. Raghuraman¹
¹*Schlumberger-Doll Research, USA* and ²*Schlumberger Riboud Product Centre, FRANCE*
- W3C MICRO PRECONCENTRATOR FOR HANDHELD MONITORING OF WATER QUALITY** 1721
B. Alfeeli^{1,2} and M. Agah¹
¹*Virginia Polytechnic Institute and State University, USA* and
²*Kuwait Institute for Scientific Research, KUWAIT*
- W4C WATER QUALITY MANAGEMENT USING A COST-EFFECTIVE AND FIELD-PORTABLE LENSFREE ON-CHIP MICROSCOPE** 1724
O. Mudanyli, C. Oztoprak, D. Tseng, A. Erlinger, and A. Ozcan
University of California, Los Angeles, USA

Poster Session Other Applications - Separation Science

- W5C DEVELOPMENT OF A MICROFLUIDIC DEVICE FOR PERFORMING SAMPLE PRECONCENTRATION AND CAPILLARY ELECTROPHORESIS SEPARATION** 1727
H. Chun¹, J.P. Alarie², and J.M. Ramsey²
¹*Seoul National University, SOUTH KOREA* and ²*University of North Carolina, USA*
- W6C DOWNSCALING QUANTITATIVE ISOTACHOPHORESIS: LIMITS AT THE SUB-PICOLITER SCALE** 1730
K.G.H Janssen¹, J. Li¹, H.T. Hoang², N.R. Tas², H.J. van der Linden¹, and T. Hankemeier¹
¹*Leiden University, THE NETHERLANDS* and ²*MESA+, University of Twente, THE NETHERLANDS*
- W7C FLUORESCENCE IMAGING ANALYSIS OF TRANSIENT TRAPPING–MICROCHIP MICELLAR ELECTROKINETIC CHROMATOGRAPHY** 1733
K. Sueyoshi, F. Kitagawa, and K. Otsuka
Kyoto University, JAPAN
- W8C ION-PAIR REVERSED PHASE LIQUID CHROMATOGRAPHY OF DNA IN DEEP-UV PATTERNED SILICON PILLAR ARRAYS** 1736
W. De Malsche^{1,2}, L. Zhang², J. Op De Beeck¹, J. Vangeloven¹, M. Hiraoka^{2,3}, I. Yamashita³,
B. Majeed², M. Op de Beeck², P. Fiorini², and G. Desmet¹
¹*Vrije Universiteit Brussel, BELGIUM*, ²*IMEC, BELGIUM*, and ³*Panasonic, JAPAN*
- W9C MIGRATION AND SEPARATION OF PHOTO-ABSORBING MICRO-PARTICLES USING LASER-PHOTOPHORESIS IN AQUEOUS SOLUTION** 1739
H. Monjushiro¹, M. Takahashi², and H. Watarai²
¹*High Energy Accelerator Research Organization, JAPAN* and ²*Osaka University, JAPAN*

- W10C SAMPLE STACKING CAPILLARY ELECTROPHORETIC MICRODEVICE FOR HIGHLY SENSITIVE MINI Y SHORT TANDEM REPEAT GENOTYPING** 1742
 Y. Chen, J.Y. Choi, S.J. Choi, and T.S. Seo
Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA

Poster Session Other Applications - Food & Nutrition

- W11C INTEGRATED OPTOFLUIDIC SYSTEM FOR CHARACTERIZATION OF RED WINES** 1745
 M. Gutiérrez¹, C. Domingo², J. Vila-Planas¹, F. Capdevila², S. Demming³, S. Büttgenbach³,
 A. Llobera¹, and C. Jiménez-Jorquera¹
¹*Instituto de Microelectrónica de Barcelona (IMB-CNM), SPAIN,*
²*Estació de Viticultura i Enologia, INCAVI, SPAIN, and* ³*Institut für Mikrotechnik, GERMANY*

Poster Session Other Applications - Fuel Cells

- W12C SCALING AND MANUFACTURING OF LAMINAR FLOW-BASED FUEL CELLS** 1748
 A.S. Hollinger¹, F.R. Brushett¹, L.J. Markoski², and P.J.A. Kenis¹
¹*University of Illinois, Urbana-Champaign, USA and* ²*INI Power Systems, USA*

Poster Session Other Applications - Others

- W13C ULTRASONIC MANIPULATION OF MICRON SIZE BUBBLES IN NANO-LITHOGRAPHY** 1751
 M. Baragona¹, R. in 't Groen¹, M. Kovacevic-Milivojevic¹, R. Maessen¹, M. Riepen²,
 R. Badie², and J. den Toonder¹
¹*Philips Applied Technologies, THE NETHERLANDS and* ²*ASML Research, THE NETHERLANDS*

Poster Session Microfluidics - Fluid Mechanics & Modeling

- W1D CHARACTERIZATION OF A HYDRODYNAMIC WELL FOR NON-INVASIVE TRAPPING OF SINGLE CELLS** 1754
 C.-C. Tseng, C.-M. Lin, and A.M. Wo
National Taiwan University, TAIWAN

- W2D EFFECTS OF ELECTROTHERMAL FLOW ON PARTICLE DEFLECTION AND TRAPPING IN INSULATING (ELECTRODELESS) DIELECTROPHORESIS DEVICES** 1757
 B.G. Hawkins and B.J. Kirby
Cornell University, USA

- W3D HIGHLY PRACTICAL, MODEL-BASED SIMULATION PLATFORM FOR INTEGRATED MICRO-FLUID CIRCUIT** 1760
 R. Miyake¹, S. Okabe¹, H. Tsudome², Y. Endo², K Mawatari³, and T. Kitamori³
¹*Hiroshima University, JAPAN,* ²*Hitachi Plant Technologies, JAPAN, and* ³*University of Tokyo, JAPAN*

- W4D MIXING ANALYSIS OF NEUTRALLY BUOYANT PARTICLES OF FINITE SIZE IN COMPLEX FLOW AIDED BY A NOVEL SINGLE-FIELD THREE-DIMENSIONAL EPIFLUORESCENCE PARTICLE IMAGING TECHNIQUE** 1763
 A.M. Hirsch, B. Zhang, C.-Y. Kuo, and H. Lu
Georgia Institute of Technology, USA

- W5D OPTIMUM PECLET NUMBERS FOR ACCURATE MEASUREMENT OF ELECTROOSMOTIC MOBILITY OF COMPLEX DNA BUFFERS IN MICRO/NANOFLUIDICS** 1766
 W. Wang and Y.-K. Lee
Hong Kong University of Science and Technology, HONG KONG

- W6D PARTICLE FOCUSING IN A STRAIGHT SQUARE MICROCHANNEL VIA COMBINATION OF INERTIAL AND ELASTIC FLOW** 1769
 S. Yang¹, S.S. Lee², S.J. Lee³, and J.M. Kim¹
¹*Ajou University, SOUTH KOREA,* ²*ETH Zürich, SWITZERLAND, and* ³*University of Suwon, SOUTH KOREA*

Poster Session Microfluidics - Micro Liquid Handling

- W7D A PHASE REPLACEMENT-TRIGGERED MICROVALVE FOR PROTEIN CRYSTALLIZATION BY FREE INTERFACE DIFFUSION** 1772
G. Li, Q. Chen, and J. Zhao
Chinese Academy of Sciences, CHINA
- W8D ACCURATE AND RELIABLE MULTI CHAMBER PCR CHIP WITH SAMPLE LOADING AND PRIMER MIXING USING VACCUM JACKETS FOR $n \times m$ QUANTITATIVE ANALYSIS** 1775
N.B. Trung¹, M. Saito², E. Tamiya², and Y. Takamura¹
¹*Japan Advanced Institute of Science and Technology (JAIST), JAPAN* and ²*Osaka University, JAPAN*
- W9D AN OPEN-SURFACE MICRO-DISPENSER VALVE FOR THE LOCAL STIMULATION OF CONVENTIONAL TISSUE CULTURES** 1778
C.G. Sip and A. Folch
University of Washington, USA
- W10D DEVELOPMENT OF ON-CHIP AUTOMATIC CELL SENSING AND EJECTION SYSTEM** 1781
T. Kawahara¹, T. Mizunuma², H. Uvet¹, M. Hagiwara¹, Y. Yamanishi³, and F. Arai¹
¹*Nagoya University, JAPAN*, ²*Tohoku University, JAPAN*, and ³*Japan Science and Technology Agency (JST), JAPAN*
- W11D INCREASING THE FLUID FLOW VELOCITY IN A MICROCHANNEL USING 3D NON-METALLIC ELECTRODES** 1784
H.A. Rouabah¹, B.Y. Park², R.B. Zaouk², M.J. Madou², H. Morgan¹, and N.G. Green¹
¹*University of Southampton, UK* and ²*University of California, Irvine, USA*
- W12D MICROFLUIDIC NETWORK-BASED COMBINATORIAL DILUTION DEVICE WITH AN INITIAL CONCENTRATION CONTROLLER** 1787
K. Lee¹, C. Kim², Y. Kim², B. Ahn¹, J. Bang², J. Kim¹, Y.-K. Yoon¹, J.Y. Kang², and K.W. Oh¹
¹*University at Buffalo, The State University of New York, USA* and ²*Korea Institute of Science and Technology (KIST), SOUTH KOREA*
- W13D ON-CHIP LIQUID DEGASSING WITH LOW WATER LOSS** 1790
J.M. Karlsson, T. Haraldsson, N. Sandström, G. Stemme, A. Russom, and W. van der Wijngaart
Royal Institute of Technology (KTH), SWEDEN
- W14D VERTICAL MICROFLUIDIC PROBE HEADS** 1793
R.D. Lovchik, U. Drechsler, and E. Delamarche
IBM Research, Zurich, SWITZERLAND
- W15D SAMPLE VOLUME METERING IN A DISPOSABLE MICROFLUIDIC CARTRIDGE** 1796
S. Vanhanen, P. Järvelä, and P. Kallio
Tampere University of Technology, FINLAND
- W16D NUMERICAL MODELLING OF THERMOCAPILLARY FLOW ON SUPERHYDROPHOBIC SURFACES** 1799
T. Baier, C. Steffes, and S. Hardt
Technische Universität Darmstadt, GERMANY

Poster Session Microfluidics - Multi-Phase and Digital Microfluidics

- W17D A HOMOGENEOUS ASSAY FOR BIOMOLECULE INTERACTION ANALYSIS IN DROPLETS BY FLOURESCENCE POLARIZATION** 1802
H. Joensson, C. Zhang, M. Uhlén, and H. Andersson Svahn
Royal Institute of Technology (KTH), SWEDEN
- W18D BUBBLES NO MORE: TRAPPING AND REMOVAL OF GAS BUBBLES IN SINGLE-LAYER ELASTOMERIC DEVICES** 1805
C. Lochovsky, S. Yasotharan, and A. Günther
University of Toronto, CANADA

W19D CONTROLLED DROP GENERATION FOR DIGITAL MICROFLUIDIC SYSTEMS BY MEANS OF ELECTROWETTING	1808
H. Gu, M.H.G. Duits, and F. Mugele <i>MESA+, University of Twente, THE NETHERLANDS</i>	
W20D DROPLET MICROFLUIDIC SYSTEM FOR HIGH-THROUGHPUT SCREENING OF TOXICITY OF ANTIBIOTICS	1811
K. Churski, T. Kamiński, S. Jakiela, P. Korczyk, and P. Garstecki <i>Polish Academy of Sciences, POLAND</i>	
W21D GENERATION OF CONCENTRATION GRADIENTS IN DROPLET-BASED MICROFLUIDIC SYSTEM WITH A SINGLE NANOLITER-SCALE INJECTION	1814
L.F. Cai and Q. Fang <i>Zhejiang University, CHINA</i>	
W22D MAGNETIC DROPLETS - GENERATION AND MANIPULATION IN CONTINUOUS FLOW	1817
E. AlHetlani, O.J. Hatt, M. Vojtišek, M.D. Tarn, and N. Pamme <i>University of Hull, UK</i>	
W23D MULTIPLE EMULSION FORMATION IN CROSS-SHAPED MICROCHANNEL USING ALTERNATIVE DROPLET GENERATION TECHNIQUE	1820
J. Shimamura, Y. Yokoyama, H. Moriguchi, and T. Torii <i>University of Tokyo, JAPAN</i>	
W24D ON-DROP SEPARATION AND SENSING WITH COMPOUND DROPLET MICROFLUIDICS	1823
Z. Barikbin ¹ , M.T. Rahman ¹ , P. Parthiban ² , A.S. Rane ¹ , V. Jain ¹ , and S.A. Khan ^{1,2} ¹ Singapore-MIT Alliance for Research and Technology (SMART) Centre, SINGAPORE and ² National University of Singapore, SINGAPORE	
W25D SELF-SORTING OF DEFORMABLE PARTICLES IN A MICROFLUIDIC CIRCUIT	1826
M.S. Raafat, M. Cartas Ayala, and R. Karnik <i>Massachusetts Institute of Technology, USA</i>	
W26D SOLUTION CONCENTRATION CHANGE OF PICOLITER-SIZED MICRODROPLET REACTORS	1829
M. Takinoue, H. Onoe, and S. Takeuchi <i>University of Tokyo, JAPAN</i>	
Poster Session Microfluidics - Multi-Scale/Integrative Microfluidics	
W27D INTEGRATED MICROFLUIDICS FOR SEROTYPE IDENTIFICATION OF FOOT AND MOUTH DISEASE VIRUS	1832
H. Sant ¹ , S. Sundberg ¹ , A. Miles ² , M. Johnson ¹ , E. Liddiard ¹ , and B. Gale ^{1,2} ¹ University of Utah, USA and ² Wasatch Microfluidics, USA	
W28D MICROFLUIDIC CULTURE CHAMBER FOR THE LONG-TERM PERFUSION AND PRECISE CHEMICAL STIMULATION OF ORGANOTYPIC BRAIN TISSUE SLICES	1835
H.H. Caicedo ¹ , M. Vignes ^{2,3} , B. Brugg ² , and J.M. Peyrin ² ¹ University of Illinois, Chicago, USA, ² Universite Pierre et Marie Curie, FRANCE, and ³ Institut Curie, FRANCE	
W29D PRECISION MICROFLUIDIC OSCILLATORS FOR ON-CHIP TIMING AND CONTROL	1838
P.N. Duncan, T.V. Nguyen, and E.E. Hui <i>University of California, Irvine, USA</i>	
Poster Session Microfluidics - Others	
W30D ACTIVE MICROFLUIDIC MIXER USING VIRTUAL SOURCE-SINK PAIRS FOR DNA PURIFICATION	1841
H.C. Tekin, C. Vandevyver, and M.A.M. Gijs <i>École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND</i>	

W31D	FLOATING MICROFLUIDIC GRADIENTS	1844
	M.A. Qasaimeh and D. Juncker <i>McGill University, CANADA</i>	
W32D	MICROFLUIDIC GENERATION OF MAGNETIC SEMIFLEXIBLE CHAIN BASED ON CHITOSAN MICROCAPSULES	1847
	K. Jiang, C. Arya, S.R. Raghavan, and D.L. DeVoe <i>University of Maryland, USA</i>	
W33D	OPTOFLUIDIC FABRICATION OF FOLDABLE HYDROGEL PARTICLES TOWARD INTUITIVE DRUG DELIVERY CARRIERS	1850
	T.S. Shim, S.-H. Kim, C.-J. Heo, J.-H. Choi, and S.-M. Yang <i>Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA</i>	
W34D	USE OF INTEGRATED ELECTRODES AND EMBRYO TRAPS FOR INDIVIDUALLY ADDRESSABLE LOADING, CULTURING AND MONITORING OF <i>C. elegans</i>	1853
	J. Krajniak and H. Lu <i>Georgia Institute of Technology, USA</i>	

Poster Session Nanotechnologies - Nanofluidics

W1E	CLOSED-END NANOCHANNELS: MODEL PLATFORM FOR NANOFLUIDIC FLOWS	1856
	P. Joseph ¹ , V.N. Phan ² , P. Dubreuil ¹ , P. Abgrall ² , A.-M. Gué ¹ , and N.-T. Nguyen ² ¹ <i>Université de Toulouse, FRANCE</i> and ² <i>Nanyang Technological University, SINGAPORE</i>	
W2E	SELECTIVE PRECONCENTRATION WITHIN MICRO-NANOFLUIDIC DEVICE: A SINGLE STEP FOR ON CHIP BIOMOLECULE PRECONCENTRATION AND SEPARATION	1859
	C. Nanteuil, A.C. Louër, A. Plecis, and A.M. Haghiri-Gosnet <i>Centre National de la Recherche Scientifique (CNRS), FRANCE</i>	

Poster Session Nanotechnologies - Nanoengineering

W3E	VERTICAL NANOTUBES CONNECTED BY A SUBSURFACE NANOCHANNEL	1862
	H. Persson ¹ , J. Beech ¹ , W. Hällström ¹ , C. Niman ¹ , L. Samuelson ¹ , M. Kanje ¹ , S. Oredsson ¹ , C.N. Prinz ¹ , and J.O. Tegenfeldt ^{1,2} ¹ <i>Lund University, SWEDEN</i> and ² <i>University of Gothenburg, SWEDEN</i>	

Poster Session Nanotechnologies - Nanobiotechnology

W4E	AN OPEN MICROFLUIDIC DEVICE WITH ACTIVE VALVES FOR ACCURATE TRAPPING OF DNA BY SILICON NANOTWEEZERS	1865
	N. Lafitte, M. Kumemura, M. Nagai, L. Jalabert, D. Collard, and H. Fujita <i>University of Tokyo, JAPAN</i>	
W5E	DYNAMIC TRACKING OF SINGLE CELL SYNTHESIS OF CdSe QUANTUM DOTS WITH A MICROFLUIDIC DEVICE	1868
	L. Wang ¹ , Z.-L. Zhang ¹ , R. Cui ¹ , H.-H. Liu ¹ , J. Li ¹ , S.-L. Liu ¹ , Z.-X. Xie ¹ , Y. Chen ² , and D.-W. Pang ¹ ¹ <i>Wuhan University, CHINA</i> and ² <i>Ecole Normale Supérieure, FRANCE</i>	
W6E	FABRICATION OF SILICON NANOPATE AND NANOWIRE BIOSENSOR ARRAYS WITH HIGH SPECIFICITY AND SUB-PICOMOLAR LIMITS OF DETECTION	1871
	B. Dorvel ¹ , B. Reddy Jr. ¹ , D. Bergstrom ² , M.A. Alam ² , S. Clare ³ , and R. Bashir ¹ ¹ <i>University of Illinois, Chicago, USA</i> , ² <i>Purdue University, USA</i> , and ³ <i>Indianapolis University School of Medicine, USA</i>	
W7E	NANOFLUIDIC SINGLE-MOLECULE SORTER CONCEPTUALLY PROVEN BY SORTING OF DNA	1874
	T. Yamamoto ¹ and T. Fujii ² ¹ <i>Tokyo Institute of Technology, JAPAN</i> and ² <i>University of Tokyo, JAPAN</i>	

W8E ON-CHIP NANOMANIPULATION OF SINGLE INFLUENZA VIRUS USING DIELECTROPHORETIC CONCENTRATION AND OPTICAL TWEEZERS 1877
H. Maruyama¹, K. Kotani², A. Honda³, T. Takahata³, and F. Arai¹
¹Nagoya University, JAPAN, ²Tohoku University, JAPAN, and ³Hosei University, JAPAN

W9E REAL-TIME OBSERVATION OF DNA CONFORMATIONAL TRANSITIONS AT A SINGLE-MOLECULE LEVEL BY MICROFLUIDIC DEVICES 1880
H. Suzuki¹, N. Kaji¹, Y. Okamoto¹, M. Tokeshi¹, and Y. Baba^{1,2}
¹Nagoya University, JAPAN and
²National Institute of Advanced Industrial Science and Technology (AIST), JAPAN

Poster Session Nanotechnologies - Nanoassembly

W10E SIMULTANEOUS CONTROL OF LENGTH AND LOCATION OF METAL-ORGANIC NANOWIRES GROWN BY HYDRODYNAMIC FOCUSING IN A MULTILAYER MICROFLUIDIC DEVICE 1883
P. Kuhn¹, J. Puigmartí-Luis¹, I. Imaz², D. Maspoch², and P.S. Dittrich¹
¹ETH Zürich, SWITZERLAND and
²Centre d'Investigacions en Nanociència i Nanotecnologia (ICN-CSIC), SPAIN

Poster Session Nanotechnologies - Nanostructured Materials

W11E CHEMICAL SG-SELEX ON THE NANOPOROUS SILICON SUBSTRATE CAN GENERATE HIGH AFFINITY ssDNA APTAMERS AGAINST NON-SOLUBLE CHEMICALS 1886
J.-Y. Ahn¹, S.W. Lee², M. Jo¹, M. Kim¹, H. Bae¹, T. Laurell², O.C. Jeong³, and S. Kim¹
¹Dongguk University, SOUTH KOREA, ²Lund University, SWEDEN, and
³Inje University, SOUTH KOREA

W12E INVESTIGATION OF PHONON-ASSISTED OPTICAL NEAR-FIELD EXCITATION ON NANOSTRUCTURED TiO₂ TOWARDS ON-CHIP FUEL CELL APPLICATION 1889
Thu.H.H. Le, K. Mawatari, K. Kitamura, T. Yatsui, T. Kawazoe, M. Ohtsu, and T. Kitamori
University of Tokyo, JAPAN

W13E SELECTIVE DEPOSITION OF ELECTROSPUN ALGINATE-BASED NANOFIBERS ON CELL-REPELLING HYDROGEL SURFACES FOR CELL-BASED MICROARRAY 1892
S.H. Huang¹, T.C. Chien¹, K.Y. Hung², and Y.C. Chung²
¹National Taiwan Ocean University, TAIWAN and ²Mingchi University of Technology, TAIWAN

Poster Session MEMS & NEMS Technologies - Micro- & Nanomachining

W1F A NOVEL FABRICATION METHOD OF HOLLOW NANONEEDLES APPLICABLE FOR SINGLE CELL OPERATION 1895
Y. Zhang, X. Ji, C. Li, W. Wu, and Z. Li
Peking University, CHINA

W2F ENHANCED MICROFABRICATION CAPABILITIES OF THERMOPLASTICS ELASTOMERS FOR CD LAB SYSTEM INCLUDING: LYSING, PCR AND HYBRIDIZATION MICROFLUIDIC FUNCTIONS 1898
E. Roy¹, M. Mounier¹, R. Peytavi², J. Siegrist³, R. Gorkin³, M. Madou², M.G. Bergeron² and T. Veres¹
¹National Research Council Canada, CANADA, ²Laval University, CANADA, and
³University of California, Irvine, USA

W3F FABRICATION OF A MRI STANDARDIZATION DEVICE BY STACKING HIGHLY PATTERNED THIN PDMS LAYERS 1901
R. Samuel, H.J. Sant, F. Jiao, C.R. Johnson, and B.K. Gale
University of Utah, USA

W4F FLEXIBLE MICROPOST ARRAYS FOR STUDYING TRACTION FORCES OF VASCULAR SMOOTH MUSCLE CELLS 1904
Q. Cheng, Z. Sun, G.A. Meininger, and M. Almasri
University of Missouri, USA

W5F MICROMACHINING OF PYREX7740 GLASS FOR MICRO-FLUIDIC DEVICES 1907
J.W. Liu, Q.A. Huang, J.T. Shang, and J.Y. Tang
Southeast University, CHINA

W6F WAX PATTERNS BY DECAL-TRANSFER-MICROLITHOGRAPHY AND ITS USE FOR LOW-TEMPERATURE-BONDING OF BIO-FUNCTIONALIZED μ TAS 1910
M. Díaz-González and A. Baldi
Instituto de Microelectrónica de Barcelona (IMB-CNM), SPAIN

Poster Session MEMS & NEMS Technologies - Microfluidic Components/Packaging

W7F A DISPOSABLE MICROFLUIDIC ARRAY PLATFORM FOR AUTOMATIC ION CHANNEL RECORDING 1913
M. Rossi¹, F. Thei¹, H. Morgan², and M. Tartagni¹
¹*University of Bologna, ITALY* and ²*University of Southampton, UK*

W8F ALL IN ONE LATERAL-FLOW CHIP FOR ARRAY IMMUNOASSAY 1916
T. Miura, T. Horiuchi, J. Takahashi, Y. Iwasaki, M. Seyama, and E. Tamechika
NTT Microsystem Integration Laboratories, JAPAN

W9F FREQUENCY ADDRESSABLE ACOUSTIC COLLECTION, SEPARATION AND MIXING IN A PZT DRIVEN GLASS CAPILLARY MICROFLUIDIC ACTUATOR 1919
M.K. Araz and A. Lal
Cornell University, USA

W10F METABOLOMIC NMR BY INDUCTIVE COUPLING 1922
A. Zaß¹, K. Wang¹, J. Korvink¹, M. Reed², J. Landers¹, and M. Utz¹
¹*University of Virginia, USA* and ²*Albert Ludwig - Universität, GERMANY*

W11F PDMS NANOSTRUCTURES FABRICATED BY TWO-STEP MOLDING PROCESS USED FOR TUNABLE SERS INTEGRATED WITH MICROFLUIDICS 1925
X. Wang¹, Z. Geng^{1,2}, W. Wang¹, and Z. Li¹
¹*Peking University, CHINA* and ²*Minzu University, CHINA*

Poster Session MEMS & NEMS Technologies - Integration Strategies

W12F A TWO CHAMBER SU8 LABONACHIP WITH INTEGRATED BURST VALVE FOR SAMPLE PREPARATION, SAMPLE CONCENTRATION AND PCR 1928
V. Calvo¹, M. Agirregabiria¹, L.J. Fernandez¹, A. Ezkerra¹, J. Berganzo¹, J. Elizalde¹, K. Mayora¹, D. Verdoy², and J.M. Ruano-Lopez¹
¹*Ikerlan S. Coop, SPAIN* and ²*Gaiker, SPAIN*

W13F FACILE AND CONTROLLED INTEGRATION OF FUNCTIONAL NANOSTRUCTURES IN MICROFLUIDIC DEVICE 1931
J. Kim and I. Park
Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA

Poster Session MEMS & NEMS Technologies - New Chip Materials

W14F FLUOROTHERMOPLASTIC CHIPS FOR DROPLET MICROFLUIDICS AND DNA ANALYSIS 1934
S. Begolo, G. Colas, L. Malaquin, and J.-L. Viovy
Institut Curie, FRANCE

W15F MICROFLUIDIC DEVICES MADE OF UV-CURABLE GLUE (NOA81) FOR FLUORESCENCE DETECTION BASED APPLICATIONS 1937
Ph. Wägli, B.Y. Guélat, A. Homsy, and N.F. de Rooij
École Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND

Poster Session MEMS & NEMS Technologies - Surface Modification

W16F A HEMOCOMPATIBLE ARRAY CYLINDRICAL NANOSHELL WITH A REDUCED EFFECTIVE BLOOD CONTACT AREA 1940
H. Im, Y.-B. Park, J. Suk, M. Im, C.O. Joe, and Y.-K. Choi
Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA

W17F	IN-SITU SOL-GEL MODIFICATION OF PDMS ELECTROPHORETIC ANALYTICAL DEVICES	1943
	I. Hoek ¹ , A. Bubendorfer ¹ , T. Kemmitt ^{1,2} , and W.M. Arnold ^{1,2} <i>¹Industrial Research Ltd., NEW ZEALAND and ²Victoria University, NEW ZEALAND</i>	
W18F	SIMPLE AND FUNCTIONAL MODIFICATION OF PDMS SURFACE FOR MICROCHANNEL ELECTROPHORESIS	1946
	T. Shirai, M. Takai, and K. Ishihara <i>University of Tokyo, JAPAN</i>	
W19F	WETTABILITY PATTERNING IN MICROFLUIDIC SYSTEMS BY POLY(ACRYLIC ACID) GRAFT POLYMERIZATION	1949
	M.H. Schneider ^{1,2} , B. Kozlov ^{1,2} , H. Willaime ¹ , Y. Tran ¹ , F. Rezugui ² , and P. Tabeling ¹ <i>¹École Supérieure de Physique et de Chimie Industrielles (ESPCI), FRANCE and ²Études et Production Schlumberger, FRANCE</i>	

Poster Session Imaging & Detection Technologies - Flow Visualization

W1G	MEASUREMENT OF PERIODIC FLOW USING MICRO PARTICLE IMAGE VELOCIMETRY WITH PHASE SAMPLING TECHNIQUE	1952
	W.-I. Wu, D. Ewing, P.R. Selvaganapathy, and C.Y. Ching <i>McMaster University, CANADA</i>	

Poster Session Imaging & Detection Technologies - Optical

W2G	A POLYMERIC MICRO-OPTIC DEVICE FOR THE DETECTION OF MICROFLUIDIC FLOW SPATIAL PROFILE	1955
	F. Sapuppo ¹ , A. Llobera ² , F. Schembri ¹ , and M. Bucolo ¹ <i>¹Università degli Studi di Catania, ITALY and ²Centro Nacional de Microelectrónica (CNM), SPAIN</i>	
W3G	CMOS-BASED LUMINESCENCE DETECTION FOR LAB-ON-A-CHIP	1958
	L. Shen ¹ , M. Ratterman ¹ , D. Klotzkin ² , and I. Papautsky ¹ <i>¹University of Cincinnati, USA and ²State University of New York, Binghamton, USA</i>	
W4G	FIBER FREE PLUG AND PLAY ON-CHIP SCATTERING CYTOMETER MODULE – FOR IMPLEMENTATION IN MICROFLUIDIC POINT OF CARE DEVICES	1961
	T.G. Jensen and J.P. Kutter <i>Danmarks Tekniske Universitet (DTU), DENMARK</i>	
W5G	HYDRATION LAYERS OF ALCOHOL AND PROTEINS ANALYZED BY THZ BIOMEMS	1964
	S. Laurette, A. Treizebre, and B. Bocquet <i>Université de Lille, FRANCE</i>	
W6G	INVESTIGATION OF PLASMONIC NANODOT ARRAYS COMPARED WITH NANO HOLE ARRAYS FABRICATED BY A SEQUENTIAL NANOIMPRINT TECHNIQUE	1967
	K. Nakamoto ^{1,2} , R. Kurita ² , and O. Niwa ^{1,2} <i>¹University of Tsukuba, JAPAN and ²National Institute of Advanced Industrial Science and Technology (AIST), JAPAN</i>	
W7G	LONG-RANGE SPR SENSOR WITH MICRO LIQUID CHANNELS FOR MAINTAINING SYMMETRICAL CONDITION	1970
	T. Kan ¹ , H. Kojo ² , E. Iwase ³ , K. Matsumoto ¹ , and I. Shimoyama ¹ <i>¹University of Tokyo, JAPAN, ²Cannon Corp., JAPAN, and ³Harvard University, USA</i>	
W8G	REAL-TIME BIOCHEMICAL RESPONSE UPON CHEMICAL STIMULATION OF LIVING MONOCYTES INVESTIGATED BY FOURIER TRANSFORM INFRARED MICROSCOPY (μ-FTIR)	1973
	G. Birarda ^{1,2} , G. Greci ² , L. Businaro ² , S. Pacor ³ , M. Tormen ² , and L. Vaccari ¹ <i>¹Eletra Synchrotron Light Laboratory, ITALY, ²Consiglio Nazionale delle Ricerche (CNR), ITALY, and ³Trieste University, ITALY</i>	

Poster Session Imaging & Detection Technologies - Electrochemical

- W9G 3-D CARBON INTERDIGITATED ARRAY NANO-ELECTRODES FOR HIGHLY SENSITIVE SENSING OF NEUROTRANSMITTERS** 1976
J.-I. Heo¹, D.-S. Shim¹, R.M. Duarte², M. Madou², and H. Shin¹
¹Ulsan National Institute of Science & Technology (UNIST), SOUTH KOREA and
²University of California, Irvine, USA
- W10G INTEGRATED ELECTROCHEMICAL MICRO-SENSORS FOR METABOLISM STUDIES OF YEAST CELLS** 1979
F. Zhang^{1,2}, J.J. Liu¹, J.H. Tian¹, L. Wang¹, P.G. He², and Y. Chen^{1,3}
¹École Normale Supérieure (ENS), FRANCE, ²East China Normal University, CHINA, and
³Kyoto University, JAPAN
- W11G SIGNIFICANT IMPROVEMENT IN SENSITIVITY OF LEAKAGE CURRENT MICROSENSOR BY USING DENATURANT AND ELECTROLYTE-ENTRAPPING DPPC LIPOSOMES** 1982
P. Lorchrachoonkul¹, T. Shimanouchi², K. Yamashita¹, H. Umakoshi², R. Kuboi², and M. Noda¹
¹Kyoto Institute of Technology, THAILAND and ²Osaka University, JAPAN

Poster Session Imaging & Detection Technologies - Mass Spectrometry

- W12G CHIP-BASED HEATERLESS NANO-APCI-MS** 1985
R.J. Raterink, M. de Korte, H. van der Linden, and T. Hankemeier
Leiden University, THE NETHERLANDS
- W13G IDENTIFYING PSA BIOMARKER WITH SOL-GEL INTEGRATED MICROARRAY AND MALDI-TOF MS** 1988
J.-Y. Ahn¹, S.W. Lee², M. Jo¹, S. Ren¹, J. Kang¹, S. Lee¹, T. Laurell², and S. Kim¹
¹Dongguk University, SOUTH KOREA and ²Lund University, SWEDEN

Poster Session Imaging & Detection Technologies - Optofluidics

- W14G CHARACTERIZATION OF AN OPTOFLUIDIC MICROFLOW CYTOMETER FOR SINGLE PARTICLE ANALYSIS** 1991
M. Rosenauer and M.J. Vellekoop
Vienna University of Technology, AUSTRIA
- W15G ELASTOMER MEMBRANE PRESSURE SENSORS FOR MICROFLUIDICS** 1994
A.G. Orth, E.F. Schonbrun, and K.B. Crozier
Harvard University, USA
- W16G ON-CHIP REFRACTIVE INDEX MEASUREMENT VIA INTERFACIAL REFRACTION OF TWO PHASE FLOW STREAMS** 1997
S. Xiong^{1,2}, Y. Yang¹, Y. Chen², G.J. Zhang², G.Q. Lo², D.L. Kwong², and A.Q. Liu¹
¹Nanyang Technological University, SINGAPORE and
²Agency for Science, Technology and Research (A*STAR), SINGAPORE

Poster Session Imaging & Detection Technologies - Others

- W17G A CORONA DISCHARGE PROCESS BASED MICRO ELECTRIC NO_x CONVERTER FOR THE TOTAL NO_x EVALUATION IN AIR** 2000
S.I. Yoon, Y.H. Choi, M.S. Kim, and Y.J. Kim
Yonsei University, SOUTH KOREA
- W18G CHARACTERIZATION OF PDMS MICROVALVES USING MUSIC** 2003
A.K. Au, P. Liu, and A. Folch
University of Washington, USA
- W19G DETECTION OF TRACE EXPLOSIVES BY SERS USING 3-D NANOCHANNEL ARRAYS** 2005
K. Jiang, I. White, and D.L. DeVoe
University of Maryland, USA

W20G IN SITU MICRO DROPLET TYPING SYSTEM USING 3 ω METHOD 2008
N. Yi, D. Kim, and J. Park
Pohang University of Science and Technology (POSTECH), SOUTH KOREA

W21G SAPPHIRE DIELECTRIC RESONATORS FOR MICROFLUIDIC COMPOSITIONAL ANALYSIS 2011
A. Porch, A. Masood, A.J. Naylor, A. Sulaimalebbe, and D.A. Barrow
Cardiff University, UK

Poster Special Focus Session - Tissue Engineering

W1H BEAD-BASED RAPID CONSTRUCTION OF HETEROGENEOUS 3D TISSUE ARCHITECTURE 2014
Y. Tsuda^{1,2}, H. Onoe¹, and S. Takeuchi^{1,2}
¹*University of Tokyo, JAPAN and* ²*BEANS Project, JAPAN*

W2H DEVELOPMENT OF INSULIN DELIVERY DEVICES COMPOSED OF LANGERHANS ISLETS AND CARDIOMYOCYTES 2017
H. Akaike¹, Y. Tanaka^{1,2}, Y. Sugii^{1,2}, and T. Kitamori^{1,2}
¹*University of Tokyo, JAPAN and* ²*Japan Science and Technology Agency (JST), JAPAN*

W3H HIGHLY ALIGNED SKELETAL MUSCLE FIBERS 2020
Y. Shimoyama, H. Onoe, Y. Tsuda, and S. Takeuchi
University of Tokyo, JAPAN

W4H MICROARRAYS FOR THE SCALABLE PRODUCTION OF UNIFORM AND METABOLICALLY RELEVANT TUMOUR SPHEROIDS 2023
H. Hardelauf¹, J.-P. Frimat¹, W. Schormann², J.D. Stewart², Y.-Y. Chiang¹, C. Cadenas², J. Franzke¹, J.G. Hengstler², L.A. Kunz-Schughart³, and J. West¹
¹*Institute for Analytical Sciences (ISAS), GERMANY,* ²*IfADo, GERMANY, and* ³*University of Dresden, GERMANY*

W5H SCULPTING TISSUE SCAFFOLDS WITH EMBEDDED 3-D VASCULATURE 2026
J.-H. Huang, J. Kim, A. Jayaraman, and V.M. Ugaz
Texas A&M University, USA

W6H PREPARATION OF ALGINATE MICROFIBERS FOR CELL ENTRAPMENT USING A MICROFLUIDIC DEVICE 2029
L. Capretto¹, S. Mazzitelli², X. Zhang¹, and C. Nastruzzi²
¹*University of Southampton, UK and* ²*University of Ferrara, ITALY*

Poster Special Focus Session - Electrowetting-Driven Digital Microfluidics

W7H A FEEDBACK CONTROL SYSTEM FOR HIGH-FIDELITY DIGITAL MICROFLUIDICS 2032
S.C.C. Shih¹, R. Fobel¹, P. Kumar², and A.R. Wheeler¹
¹*University of Toronto, CANADA and* ²*Indian Institute of Technology, INDIA*

W8H DIGITAL MICROFLUIDIC HUB FOR AUTOMATED NUCLEIC ACID SAMPLE PREPARATION 2035
H. Kim, M.S. Bartsch, R.F. Renzi, G.L. Pezzola, E.M. Remillard, E.A. Kittlaus, J. He, and K.D. Patel
Sandia National Laboratories, USA

W9H MODELING THE SPONTANEOUS INSERTION OF ONE LIQUID INTO ANOTHER ON A DROPLET MICROFLUIDIC PLATFORM 2038
D. Chatterjee, A.K. Tucker-Schwartz, and R.L. Garrell
University of California, Los Angeles, USA

Session 3A3 - Cell Analysis II

HIGH-DENSITY ARRAY OF SINGLE CELL TRAPS FOR HIGH-THROUGHPUT IMAGING OF CALCIUM DYNAMICS IN RESPONSE TO OXIDATIVE STRESS 2041
C.A. Rivet, K. Chung, M.L. Kemp, and H. Lu
Georgia Institute of Technology, USA

SEPARATION AND DETECTION OF RARE CELLS VIA MULTISTAGE MAGNETIC GRADIENT IN A MICROFLUIDIC DISK 2044
C.-L. Chen, K.-C. Chen, Y.-C. Pan, T.-P. Lee, C.-W. Yang, L.-C. Hsiung, C.-M. Lin, C.-Y. Chen, C.-H. Lin, B.-L. Chiang, and A.M. Wo
National Taiwan University, TAIWAN

SICKLING RED BLOOD CELLS IN DROPLET ARRAYS 2047
P. Abbyad¹, R. Dangla¹, P.-L. Tharaux², A. Alexandrou¹, and C.N. Baroud¹
¹*Ecole Polytechnique, FRANCE* and ²*Paris-Cardiovascular Research Centre, FRANCE*

Session 3B3 - Assays for Trauma & Disease

BURN INJURY INHIBITS NEUTROPHIL CHEMOTAXIS IN MICROFLUIDIC DEVICES 2050
K.L. Butler, V. Ambravaneswaran, N. Agrawal, M. Bilodeau, M. Toner, R.G. Tompkins, S. Fagan, and D. Irimia
Massachusetts General Hospital, Shriners Hospital for Children and Harvard Medical School, USA

REAL TIME ELECTROCHEMICAL DNA QUANTIFICATION IN A COC LAB ON A CHIP: TOWARDS LOW-COST DIAGNOSIS OF NOSOCOMIAL INFECTIONS 2053
V. Taniga¹, G. Mottet¹, S. Miserere¹, L. Malaquin¹, J.L. Viovy¹, F. Kivlehan², F. Mavre², D. Marchal², B. Limoges², A. Le Nel³, and J. Goulpeau³
¹*Institut Curie, FRANCE*, ²*Université Paris, FRANCE*, and ³*FLUIGENT, FRANCE*

ASSESSING THE TRAUMATIC BRAIN INJURY MARKERS S100 AND C-REACTIVE PROTEIN IN HUMAN CEREBROSPINAL FLUID VIA MICROFLUIDIC IMMUNOSUBTRACTION 2056
A.A. Apori and A.E. Herr
University of California, Berkeley, USA

Session 3C3 - Advanced Fluid Handling

DROPS ON RAILS 2059
R. Dangla, S. Lee, and C.N. Baroud
École Polytechnique, FRANCE

BIOLOGICALLY INSPIRED BIDIRECTIONAL FLUIDIC DIODE 2062
H. Cho, A. Kimteng, and L.P. Lee
University of California, Berkeley, USA

ON-CHIP POROUS POLYMER MONOLITHS FOR SOLID PHASE EXTRACTION USING DIGITAL MICROFLUIDICS 2065
H. Yang, J.M. Mudrik, M. Jebrail, and A.R. Wheeler
University of Toronto, CANADA

Session 3D3 - Nanobiotechnology Separation

SIMULTANEOUS CONCENTRATION AND SEPARATION OF PROTEINS IN NANOCHANNELS 2068
D.W. Inglis, N. Calander, and E.M. Goldys
Macquarie University, AUSTRALIA

NANOSLINKY: DNA ENTROPHORESIS DOWN A NANOFLUIDIC STAIRCASE 2071
E.A. Strychalski, S.M. Stavis, M. Gaitan, and L.E. Locascio
National Institute of Standards and Technology (NIST), USA

ORDER AND DISORDER IN NANOPOROUS MEDIA CONTROLS DNA SEPARATION EFFICIENCY 2074
N. Nazemifard, L. Wang, W. Ye, S. Bhattacharjee, J.H. Masliyah, and D.J. Harrison
University of Alberta, CANADA

Day 4 - Thursday, 7 October 2010

Special Focus Session 4A1 - Tissue Engineering

Invited Presentation

COMPLEX TISSUE 2077

C.A. van Blitterswijk

University of Twente, THE NETHERLANDS

MICROFLUIDIC EXPERIMENTAL PLATFORM USING MICRO-ROTATION FLOW FOR PRODUCING MULTIPLE SIZE-CONTROLLED THREE-DIMENSIONAL SPHEROIDS 2080

H. Ota, T. Kodama, and N. Miki

Keio University, JAPAN

HIGH-THROUGHPUT SCREENING OF CELL-SURFACE TOPOGRAPHIC INTERACTIONS 2083

H.V. Unadkat¹, M. Hulsmann², K. Cornelissen¹, B. Papenburg¹, R.K. Truckenmüller¹, G.F. Post¹, M. Uetz¹, M.J.T. Reinders², D. Stamatialis¹, C. van Blitterswijk¹, and J. de Boer¹

¹University of Twente, THE NETHERLANDS and ²Delft University of Technology, THE NETHERLANDS

Special Focus Session 4B1 - In-Line Analysis in Microreactors

Invited Presentation

IN-LINE NMR ANALYSIS USING STRIPLINE BASED DETECTORS 2086

J. Bart¹, A.J. Oosthoek-de Vries¹, K. Tijssen¹, J.W.G. Janssen¹, P.J.M. van Bentum¹,

J.G.E. Gardeniers², and **A.P.M. Kentgens¹**,

¹Radboud University Nijmegen, THE NETHERLANDS and ²University of Twente, THE NETHERLANDS

AMPLIFICATION OF RNA IN GROWING AND DIVIDING MICRO-DROPLETS 2089

T. Ichii¹, H. Suzuki^{1,2}, and T. Yomo^{1,2}

¹Japan Science and Technology Agency (JST), JAPAN and ²Osaka University, JAPAN

EFFICIENT MICROWAVE HEATING AND DIELECTRIC CHARACTERIZATION OF MICROFLUIDIC SYSTEMS 2092

J. Naylor, S. Gooding, C. John, A. Morgan, O. Squires, J. Lees, D.A. Barrow, and A. Porch

Cardiff University, UK

Special Focus Session 4C1 - Electrowetting on Dielectric (EWOD)

Invited Presentation

PARALLEL PROCESSING OF MULTIFUNCTIONAL, POINT-OF-CARE BIO-APPLICATIONS ON ELECTROWETTING CHIPS 2095

R.B. Fair

Duke University, USA

AN INTEGRATED PLATFORM FOR LIGHT-INDUCED DIELECTROPHORESIS AND ELECTROWETTING 2098

J.K. Valley, S.N. Pei, H.-Y. Hsu, A. Jamshidi, and M.C. Wu

University of California, Berkeley, USA

FLUID FLOW AND MIXING WITHIN DROPS IN AC ELECTROWETTING 2101

P. Garcia-Sanchez¹, A. Ramos¹, and F. Mugele²

¹University of Sevilla, SPAIN and ²University of Twente, THE NETHERLANDS

Special Focus Session 4D1 - Business with Microfluidics

Invited Presentation

THE JOURNEY OF ÅMIC 2104

O. Öhman

Meje AB, SWEDEN

Invited Presentation

A PREFILLED, READY-TO-USE, ELECTROPHORESIS-BASED LAB-ON-A-CHIP DEVICE FOR MONITORING IONS IN BLOOD AND URINE 2107

S.S. Staal¹, J. Floris¹, S.O. Lenk¹, E. Staijen¹, M. Avilla Muñoz², D. Kohlheyer³, J.C.T. Eijkel³, and A. van den Berg³

¹Medimate BV, THE NETHERLANDS, ²University of Castilla-La Mancha, SPAIN, and

³MESA+, University of Twente, THE NETHERLANDS

Invited Presentation

VALUE CREATION BASED ON HIGH TECH P IC

J. Elders

Thermo Fisher Scientific, THE NETHERLANDS

Session 4A2 - Tissue Models and Analysis

MICROFLUIDIC INTERFACE DEVICES FOR *IN VIVO* ANALYSIS OF NEURAL CELLS USING 2-PHOTON LASER SCANNING MICROSCOPY 2111

H. Takehara, A. Nagaoka, J. Noguchi, T. Akagi, H. Kasai, and T. Ichiki

University of Tokyo, JAPAN

PERFUSION-BASED MICROFLUIDIC DEVICE FOR THREE-DIMENSIONAL DYNAMIC PRIMARY HUMAN HEPATOCYTE CELL CULTURE IN THE ABSENCE OF BIOLOGICAL OR SYNTHETIC MATRICES OR COAGULANTS 2114

V.N. Goral¹, Y.-C. Hsieh², O.N. Petzold¹, J.S. Clark¹, P.K. Yuen¹, and R.A. Faris¹

¹Corning Incorporated, USA and ²Corning Research Center, TAIWAN

FINE REGULATION OF POLARITY IN A HEPATOCYTE CULTURE UTILIZING OXYGEN-PERMEABLE MEMBRANES AND MICROPATTERNED COLLAGEN GEL 2117

H. Matsui^{1,3}, H. Kimura², T. Osada³, M. Sekijima³, T. Fujii², S. Takeuchi², and Y. Sakai²

¹BEANS Laboratory, JAPAN, ²University of Tokyo, JAPAN, and

³Mitsubishi Chemical Medience Co. Ltd., JAPAN

Session 4B2 - Chemistry at "Small Scale"

USING STRUCTURED MICROFLOWS TO SYNTHESIZE FUNCTIONAL PARTICLES 2120

K.W. Bong, K.T. Bong, D.C. Pregibon, and P.S. Doyle

Massachusetts Institute of Technology, USA

SONOCHEMICAL MICROREACTOR WITH MICROBUBBLES CREATED ON MICROMACHINED SURFACES 2123

D. Fernandez Rivas¹, A.G. Zijlstra¹, A. Prosperetti^{1,2}, D. Lohse¹, and J.G.E. Gardeniers¹

¹MESA+, University of Twente, THE NETHERLANDS and ²Johns Hopkins University, USA

CHAOTICALLY ACCELERATED BIOCHEMISTRY IN MICROSCALE CONVECTIVE FLOWS 2126

R. Muddu, Y.A. Hassan, and V.M. Ugaz

Texas A&M University, USA

Session 4C2 - Cell Encapsulation in Droplets

A PULSE LASER-DRIVEN MICROFLUIDIC DEVICE FOR ULTRA-FAST DROPLET GENERATION ON DEMAND AND SINGLE-CELLS ENCAPSULATION 2129

S.Y. Park¹, T.H. Wu¹, Y. Chen¹, S. Nisperos², J. Zhong², and P.-Y. Chiou¹

¹University of California, Los Angeles, USA and ²University of Southern California, USA

MICROFLUIDIC DEVICE FOR SINGLE-CELL ENCAPSULATION BY RANDOM BREAKUP AND SORTING OF MICRO-DROPLETS 2132

E. Um and J.-K. Park

Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA

HIGH EFFICIENCY CELL ENCAPSULATION UTILIZING NOVEL ON-DEMAND DROPLET GENERATION SCHEME AND IMPEDANCE-BASED DETECTION 2135

R. Lin, J.-L. Prieto, J.S. Fisher, and A.P. Lee

University of California, Irvine, USA

Session 4D2 - Microfluidics Pure and Simple

**PHONONIC CRYSTAL METAMATERIALS FOR FREQUENCY TUNABLE
MICROFLUIDIC FUNCTIONS USING SURFACE ACOUSTIC WAVES** 2138

J. Reboud, R. Wilson, Y. Bourquin, Y. Zhang, S.L. Neale, and J.M. Cooper

University of Glasgow, UK

**DYNAMIC PICO-LITER BUBBLE MANIPULATION VIA TIOPC-BASED
LIGHT-INDUCED DIELECTROPHORESIS** 2141

S.-M. Yang¹, T.-M. Yu¹, H.-P. Huang¹, H.-P. Chen², L. Hsu¹, and C.-H. Liu²

¹*National Chiao Tung University, TAIWAN* and ²*National Tsing Hua University, TAIWAN*