Selected papers from the 2nd European conference on microfluidics: μ Flu'10

Stéphane Colin · Gian Luca Morini ·
Bernd Michel

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The Second European Conference on Microfluidics (μ Flu10) was held in Toulouse in December 8–10, 2010, under the sponsorship of the Hydro-technical Society of France (SHF), the Alma Mater Studiorum Università di Bologna and the National Institute of Applied Sciences (INSA) of Toulouse.

This event has gathered 283 participants from 34 countries. During 3 days, 200 communications have been presented in 11 thematic sessions including Convective Micro Heat Transfer, Electrokinetic Microflows, Fluidic Microactuators and Micromixing, Gas Microflows, Lab on a Chip and Miniaturized Chemistry, Liquid Microflows, Microdroplets Management, Microfabrication Techniques for Microfluidic Systems, Microflows in Bioengineering and Biofluidics, Microflow Visualisation and Measurements, and Two-Phase Flows in Microsystems. In addition, this edition hosted a special session on recent developments of research on Cilia-Driven Flows.

This special volume of the Journal of *Microsystem Technologies* focuses the attention of the readers on a selection of 9 interesting works presented during the three

oral sessions and one poster session dedicated to the microfabrication techniques for microfluidic systems.

The first work of Ftouni et al. presents an original microfluidic setup for gold nanoparticles synthesis and the incorporation of these gold nanoparticles into silica capillaries to build catalytic microreactors dedicated to fine chemical reactions.

The paper of Jena et al. describes a parametric study on the hot embossing of cyclic olefin copolymer (Topas[®]) with the aim to investigate the influence of the various process parameters on the embossed micro-size patterns and improve the microfluidic device manufacturing with this copolymer.

Priest et al. study the penetration of liquids into pillar arrays fabricated in photoresist or quartz and modified chemically in order to verify the impact of the surface wettability on the formation of stable liquid films among the micropillars.

A polymer manufacturing technique based on lithographic process combined with lamination is presented by Bussuyt et al. for the realization of sealed liquid micro-tanks with a high filling ratio.

Suriano et al. characterize microchannels made in PMMA by femtosecond laser technology in order to assess possible chemical changes induced by this laser process on the ablated areas.

Kavcic et al. present a rapid prototyping system for fabrication of microfluidic circuits based on ultraviolet laser direct imaging (LDI) which can be an efficient alternative to existing photolithography techniques. Ultra-thin, flexible Y-microreactors fabricated in thermoplastic polymer foils are presented in the work of Metwally et al.

Renault et al. propose an analytical model for optimizing the design of the inlet and outlet manifolds of a

S. Colin (✉)
Université de Toulouse, INSA, ICA (Institut Clément Ader),
135, avenue de Rangueil, 31077 Toulouse, France
e-mail: stephane.colin@insa-toulouse.fr

G. L. Morini
Alma Mater Studiorum Università di Bologna, DIENCA,
Viale Risorgimento 2, 40136 Bologna, Italy
e-mail: gianluca.morini3@unibo.it

B. Michel
Micro Materials Centers, Berlin, Germany

B. Michel
Micro Materials Centers, Chemnitz, Germany

chemical microreactor based on rectangular parallel microchannels in order to obtain a uniform residence time distribution of fluid in the reactor.

Finally, a novel integrated thermal management solution for three-dimensional integrated circuitry is presented by Kearney et al.

We would like to thank the authors for presenting their works at the Conference and in this special issue. We would also like to extend our thanks to all the members of the Scientific Committee of the Conference for the accurate review process of each paper before the presentation to the Conference and, after the Conference, for the selection of the papers for the special issues linked to the Conference.

Our special thanks to Prof. Michel Bernd for his foresight in dedicating this volume to the Conference.

We would like to invite the readers to attend the third European Conference on Microfluidics that will be held in Heidelberg, Germany, in December 3–5, 2012. Details

about this next edition are available on <http://www.microfluidics2012.eu>.

Stéphane COLIN and Gian Luca MORINI
Co-Chairs of μ Flu'10 and Guest Editor,
Microsystem Technologies

Bernd Michel
Head of Micro Materials Centers Berlin and Chemnitz,
Editor-in-Chief, Microsystem Technologies