

Optofluidics 2013

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Optofluidics is broadly defined as the fusion of optics and microfluidics. The term optofluidics was coined less than a decade ago. Yet, the term and the concept it encapsulates have pervaded through a significant fraction of the miniature system research community. Optofluidic research continues to grow in unanticipated directions. The Second International Conference on Optofluidics (Optofluidics-2012) showcased some of these developments. The conference was first organized by Xi'an Jiaotong University in 2011 and then Suzhou University, Institute of Nanotechnology, Xi'an Jiaotong University and Suzhou Industrial Park where it was proudly hosted as a summit conference of the CHInano conference in Suzhou on 13–15 Sep 2012. We are happy that Lab on a Chip, a major publication venue for optofluidic research has scheduled this themed issue.

This special issue contains a number of interesting papers in the field of optofluidics. The projects reported span from very new and exciting optofluidic innovations to mature applications of optofluidic techniques.

The optical geometry reported in DOI: 10.1039/c3lc50157d for use in simultaneous absorption and refractive index measurement is remarkably novel and sensible. As a solution to the common optical measurement task, it is highly amenable to incorporation into micro-analysis systems.

The approach of a highly targeted coating of phospholipid ink on a whispering-gallery microlaser (DOI: 10.1039/c3lc50149c) is an interesting technical

development that is likely to be broadly adopted for related work as it minimizes on valuable reagent use.

The novel optofluidic switch described in DOI: 10.1039/c3lc50204j is schematically simple and elegant. The application articulated in the paper also pushes optofluidics in an unanticipated direction – renewable energy application. Last year's special issue featured a paper (DOI: 10.1039/c2lc40490g) on applying optofluidics to address biofuel

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production. This current paper shows that optofluidics can address renewable energy challenges from more than one angle.

We would also like to draw attention to a very interesting paper (DOI: 10.1039/c3lc50207d) where the authors report on the use of FRET and optofluidic lasers to measure very subtle protein–protein interactions.

The paper-based dengue fever diagnostic device reported in DOI: 10.1039/c3lc50135c is an excellent example of an application project. The concept of using paper as a suitable and highly consistent fluidic processing medium that allows for simple optical analysis is only a few years old. Lo *et al.* developed an important application that optimally capitalizes on the cost and consistent

quality of this approach to address the strong needs of developing countries.

All of the papers in this special issue were refereed according to the usual Lab on a Chip standards, with Ai-Qun Liu and Changhui Yang serving as editors. The Third International Conference on Optofluidics will be held on 15–17 August, 2013 in Hong Kong and more details can be found from <http://www.optofluidics.cn/>.