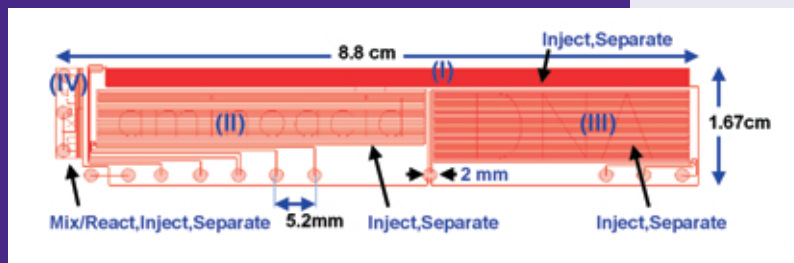
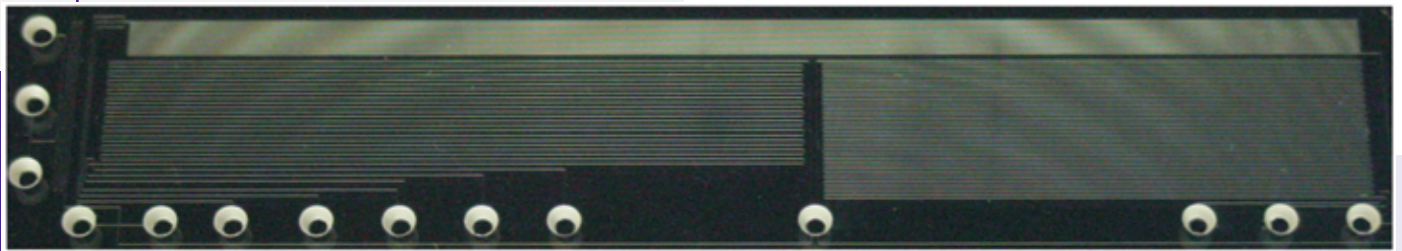


A solution for:



Microfluidic Lab-On-A-Chip



Chip Design Goals

The goal of the chip design was to fit multiple separation and mix/reaction assays onto a single multiplex chip.

Four canonical assays are included that span a wide range of potential applications. They are: (I) standard amino acid and peptide separation, (II) unaltered amino acid separation, (III) DNA separation without sieving matrix, and (IV) competitive immunoassay with on-chip mixing and reacting. The 4" reticle size from LioniX was selected. Overall, the design integrates well over 4 meters of DRIE micro-channels.

Assays (I), (II), and (III) have a 25 μm channel width and (IV) has a 52 μm channel width.

Channel depth is 12,5 μm .

Carnegie Mellon MEMS Lab Synbiosys Project

The SYNBIOSYS (SYNthesis of BIOfluidic micro-SYSTEMS) project within the Carnegie Mellon Microelectromechanical Systems (MEMS) Laboratory designed the multi-assay chip.

The objective of this project is to create models and tools that allow fast and accurate simulation and optimization of complex microfluidic lab-on-a-chip devices. Application areas are in component simulation and optimization of functional units such as separation, mixing and reaction, as well as system level simulation and optimization. Funding for this project comes from the United States Defense Advanced Research Projects Agency (DARPA) and the National Science Foundation (NSF).

manufactured by:



Lionix BV

Lionix is a leading provider in development and small to high volume production of leveraging and innovative products based on microsystem technology and MEMS. Our core technologies are integrated optics and microfluidics.

Lionix' customers operate in telecom, industrial process control, life sciences and space markets and include OEM's, multinationals, VC start-up companies as well as research institutions from around the world.

Lionix offers design for manufacturing and horizontal integration by partnering with MEMS/MST foundries and suppliers of complementary technologies. Cooperations are based on subcontracting, licensing of IP or joint ventures.



For more information please contact

Lionix BV

Dr Hans van den Vlekkert, *President & CEO*
PO Box 456
7500 AH Enschede
The Netherlands

Telephone + 31 53 489 3827
Fax + 31 53 489 3601
e-mail info@lionixbv.nl
web www.lionixbv.nl

CMU

The Microelectromechanical Systems (MEMS) Laboratory is associated jointly with the Department of Electrical & Computer Engineering, The Robotics Institute, and the Institute for Complex Engineered Systems at Carnegie Mellon University.

Researchers in the MEMS Laboratory are developing miniature sensor and actuator systems made using batch-fabrication processes, especially integrated-circuit fabrication processes. Research in this area is motivated by the potential to produce high-performance, low-cost, miniature sensors and actuators. Application interests include: RF MEMS, microfluidics, physical sensors and actuators, and biological and chemical sensors.



For more information please contact

Carnegie Mellon University

Mary L. Moore, *Executive Administrator*
Hamerschlag Hall, Room 1207
Pittsburgh, PA 15213
USA

Telephone +1 412 268 4594
Fax +1 412 268 4595
email mlmoore@ece.cmu.edu
web www.ece.cmu.edu/~mems/overview/