

PORTABLE FLUIDIC ACTUATION

Tech ID: 22933 / UC Case 2013-064-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,737,888	08/22/2017	2013-064

BRIEF DESCRIPTION

A new mechanism of portable fluid actuation has been developed by researchers at UC Berkeley. The technique modulates air pressure within microfluidic channels, leading to fluidic actuation within a device. This actuation technique enables bubble-free fluid flow and, in contrast to traditional pressure (positive or negative) driven flows, can be used to fill up dead-end chambers. Additionally, priming of the fluidic channels is not necessary before fluid actuation. Unlike degas-driven flow, this new technique eliminates the need for pre-degassed and vacuum-sealed devices, enabling consistent and long-lasting fluid flow.

This portable technique is enabled with very simple and cheap hardware. Also, pulsatory effects common to most fluid pumping mechanisms are nonexistent. Since the fluid being actuated never comes in contact with any of the pumping machinery, this technique is also ideal for containing biohazardous fluids without the need of sterilizing the actuation system after each run. Hence, this invention is applicable to portable diagnostic platforms and devices. This technology is also applicable to the larger volumes contained in macrofluidic networks.

APPLICATIONS

- Enables portable microfluidic platforms without the need of large, expensive, and power consuming pumping systems
- Fluidic actuation for portable diagnostic devices
- Enables the loading of dead-end chambers within the fluidic network
- Bubble free Fluid actuation without prior priming of channels

ADVANTAGES

- Enables bubble-free fluid flow in contrast to traditional pressure (positive or negative) driven flows
- Eliminates the need for special device packaging as is necessary with degas-driven fluid flow
- Ideal for containing biohazardous fluids without the need of sterilizing the actuator system after fluidic actuation

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Mobile Molecular Diagnostics System](#)
- ▶ [Self-Powered Blood Coagulation Chip For Inr Value And Hematocrit Determination](#)

CONTACT

Laleh Shayesteh
lalehs@berkeley.edu
tel: 510-642-4537.



INVENTORS

- » [Lee, Luke P.](#)

OTHER INFORMATION

CATEGORIZED AS

- » [Sensors & Instrumentation](#)
- » [Environmental Sensors](#)

RELATED CASES

2013-064-0

