

제 86회

ORGAN ON A CHIP

기술교류회

2022.09.22 목 오후 4시 30분

한림대학교 중개의과학연구원 포스터홀



정상국 대표

(주)마이크로시스템

1. Education

박사: University of Pittsburgh, 기계공학과 (2009)

석사: 포항공과대학교, 기계공학과 (2003)

학사: 명지대학교, 기계공학과 (2000)

2. Experience

2009 ~ 현재

명지대학교 기계공학과, 교수

2017 ~ 현재

(주)마이크로시스템, 대표이사

2013 ~ 현재

첨단미세유체공학연구소, 소장

2016 ~ 2017

University of Texas, 방문교수

2003 ~ 2009

삼성전기, 연구원

제목

전기습윤 기반 미세유체 광학장치
(Electrowetting-driven microfluidic optical devices)

초록

We firstly present an active self-cleaning glass, so-called the Drop Free Glass (DFG), actuated by an electrowetting-on-dielectric principle for miniature cameras. It can remove water droplets in a wide range of sizes to allow the camera's lens to get clean at any time. The DFG offers a simple design structure to be easily installed on any device but provides a fast and energy efficient droplet cleaning operation. Since iPhone from Apple Inc. was firstly released in 2007, the demand on miniature cameras has risen sharply for various smart mobile services such as mobile video call and mobile apps. The miniature camera is now used not only for mobile smart devices but also for diverse industries such as automobile and drone. Especially, the miniature camera for the automobile or drone must have a self-cleaning system to clean dirt or water droplets attached on the camera cover glass during the operation. Otherwise, it would detract from the camera's performance. When water droplets are generated on the cover glass of a miniature camera installed in an automobile or drone in a humid atmosphere, the droplets can be efficiently removed by EWOD actuation. When patterned ITO electrodes covered by a hydrophobic dielectric layer on the cover glass are activated by EWOD, the droplets are simultaneously removed from the activated electrodes. It can be also applied for automotive windshields, mirrors, and building glasses.

주 관 한림대학교 미래융합스쿨 융합신소재공학전공, 융합신소재공학연구소

후 원 한국연구재단 중견연구사업, 산업통상자원부 3D 생체조직칩 제품화사업

지 원 한림대학교 대학원 나노-메디컬 디바이스 공학 협동과정, 춘천바이오산업진흥원

문의처: de3553@hallym.ac.kr / Tel: 033-248-3553