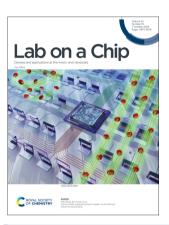
### Lab on a Chip

#### Devices and applications at the micro- and nanoscale rsc.li/loc

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

#### IN THIS ISSUE

ISSN 1473-0197 CODEN LCAHAM 24(19) 4473-4670 (2024)



#### Cover See Wei Wang, Itai Cohen et al., pp. 4549-4557. Image reproduced by permission of Wei Wang, Itai Cohen from Lab Chip, 2024, 24, 4549.



Inside cover See Anna Lee et al., pp. 4558-4570. Image reproduced by permission of Anna Lee from Lab Chip, 2024, 24, 4558.

#### **EDITORIAL**

4481

#### Andreas Manz - Pioneer, Mentor, Friend

Nicole Pamme and Petra S. Dittrich

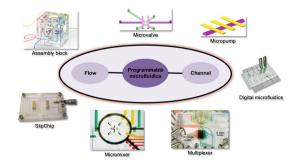


#### **TUTORIAL REVIEWS**

4483

## Microfluidic programmable strategies for channels

Yongxian Song, Yijiang Zhou, Kai Zhang, Zhaoxuan Fan, Fei Zhang and Mingji Wei\*





# Advance your career in science

with professional recognition that showcases your experience, expertise and dedication

#### Stand out from the crowd

Prove your commitment to attaining excellence in your field

# Gain the recognition you deserve

Achieve a professional qualification that inspires confidence and trust

# Unlock your career potential

Apply for our professional registers (RSci, RSciTech) or chartered status (CChem, CSci, CEnv)

## Apply now

rsc.li/professional-development

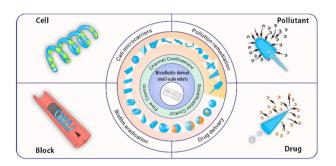


#### **TUTORIAL REVIEWS**

#### 4514

Design and batch fabrication of anisotropic microparticles toward small-scale robots using microfluidics: recent advances

Chaoyu Yang, Xurui Liu, Xin Song and Li Zhang\*

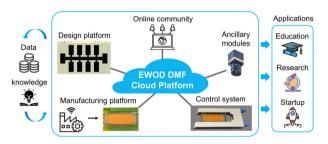


#### **PERSPECTIVE**

#### 4536

#### Democratizing digital microfluidics by a cloudbased design and manufacturing platform

Qining Leo Wang, Eric Hyunsung Cho, Jia Li, Hsin-Chuan Huang, Sarath Kin, Yuhao Piao, Lin Xu, Kenneth Tang, Shounak Kuiry, Zifan He, Danning Yu, Brian Cheng, Chang-Chi Wu, Connor Choi, Kwanwoo Shin, Tsung-Yi Ho and Chang-Jin "CJ" Kim\*

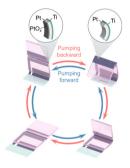


#### **PAPERS**

#### 4549

#### Electronically actuated artificial hinged cilia for efficient bidirectional pumping

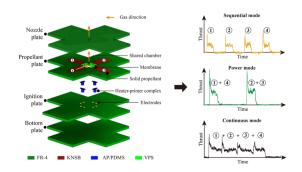
Wei Wang,\* Ivan Tanasijevic, Jinsong Zhang, Eric Lauga and Itai Cohen\*



#### 4558

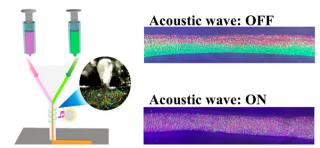
#### Lab-on-PCB solid propellant microthruster with multi-mode thrust capabilities

Jeongrak Lee, Seonghyeon Kim, Hanseong Jo and Anna Lee\*



#### **PAPERS**

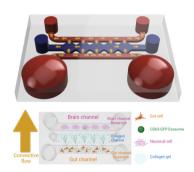
#### 4571



#### Micromixer driven by bubble-induced acoustic microstreaming for multi-ink 3D bioprinting

Mitsuyuki Hidaka, Masaru Kojima and Shinji Sakai\*

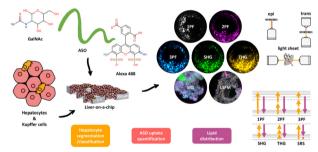
#### 4581



#### Development of in vitro model of exosome transport in microfluidic gut-brain axis-on-a-chip

Gwang Myeong Seo, Hongki Lee, Yeon Jae Kang, Donghyun Kim\* and Jong Hwan Sung\*

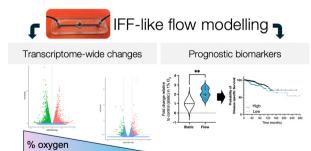
#### 4594



#### Multimodal imaging of a liver-on-a-chip model using labelled and label-free optical microscopy techniques

Jan Majer, Aneesh Alex, Jindou Shi, Eric J. Chaney, Prabuddha Mukherjee, Darold R. Spillman Jr, Marina Marjanovic, Carla F. Newman, Reid M. Groseclose, Peter D. Watson,\* Stephen A. Boppart\* and Steve R. Hood\*

#### 4609



#### Investigating the impact of the interstitial fluid flow and hypoxia interface on cancer transcriptomes using a spheroid-on-chip perfusion system

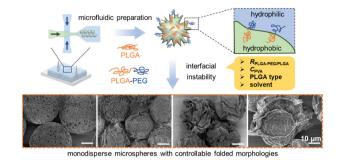
Emily Pyne, Mark Reardon, Martin Christensen, Pablo Rodriguez Mateos, Scott Taylor, Alexander Iles, Ananya Choudhury, Nicole Pamme and Isabel M. Pires\*

#### **PAPERS**

#### 4623

Microfluidic preparation of monodisperse PLGA-PEG/PLGA microspheres with controllable morphology for drug release

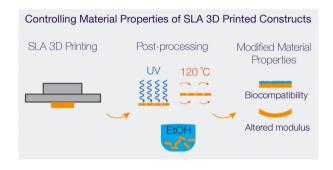
Wenwen Chen, Hao Li, Xinyue Zhang, Yutao Sang\* and Zhihong Nie\*



#### 4632

Achieving biocompatibility and tailoring mechanical properties of SLA 3D printed devices for microfluidic and cell culture applications

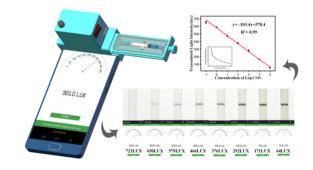
Matt D. Nelson,\* Patrick A. Tresco, Christian C. Yost and Bruce K. Gale



#### 4639

A smartphone-based immunochromatographic strip platform for on-site quantitative detection of antigenic targets

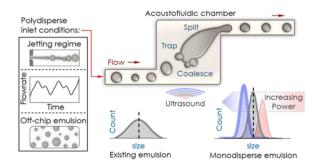
Enhui Zhang, Qing Zeng, Yanwen Xu, Jinhui Lu, Chengcheng Li, Ke Xiao, Xiaozhou Li, Jinfeng Li, Tingting Li,\* Chengyao Li\* and Ling Zhang\*



#### 4649

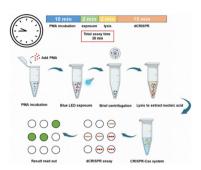
#### Ultrasound reforms droplets

Lokesh Malik, Subhas Nandy, Niladri Sekhar Satpathi, Debasish Ghosh, Thomas Laurell and Ashis Kumar Sen\*



#### **PAPERS**

#### 4659



Fast and sensitive detection of viable *Escherichia* coli O157:H7 using a microwell-confined and propidium monoazide-assisted digital CRISPR microfluidic platform

Weihong Yin, Kai Hu, Bingwen Yu, Tao Zhang,\* Haohua Mei, Bowen Zhang, Zheyu Zou, Liping Xia, Yehong Gui, Juxing Yin, Wei Jin and Ying Mu\*