Doshisha University International Newsletter

Great Voyage

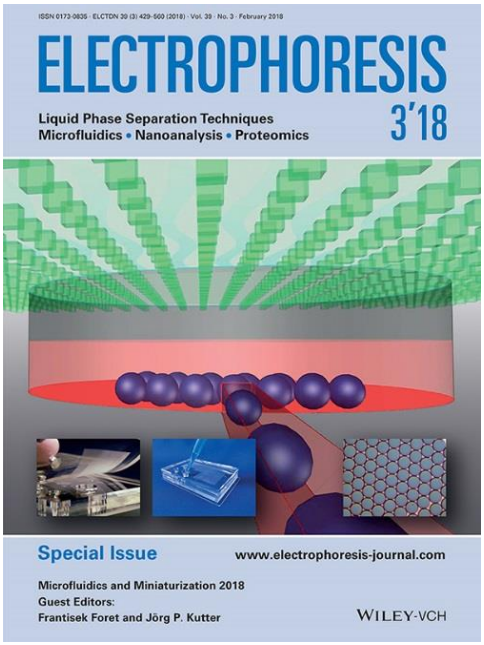
Vol.17 July 2018

CONTENTS

News

Paper of Associate Professor Masahiko Hashimoto et al. of the Faculty of Science and Engineering Featured on the Cover of Electrophoresis for the Second

An article of the research group of Associate Professor Masahiko Hashimoto (Department of Chemical Engineering and Materials Science, Faculty of Science and Engineering) and others was published in Electrophoresis (Special Issue: Microfluidics and Miniaturization 2018) on February 2, 2018. This is the second consecutive year that an article from this group has been selected for the publication's front cover.



The article demonstrated a new microfluidic technique, in which a microfluidic chip made of the silicon resin polydimethylsiloxane (PDMS) and several glass or plastic plates are bonded using only the viscoelastic property of PDMS and degassed for a certain time, enabling rapid automatic creation of monodisperse water-in-oil emulsion droplets (about 500 droplets per second) only by dropping oil and water phases in the microchannel entrance. This is almost the easiest, fastest and cheapest production technique of monodisperse emulsion droplets to date, which is expected to be applied to various biochemical analysis and functional materials production using liquid droplet.

Title of Article:

'Rapid automatic creation of monodisperse emulsion droplets by microfluidic device with degassed PDMS slab as a detachable suction actuator'

Presenter (Representative author of the article): Masahiko Hashimoto

Associate Professor, Department of Chemical Engineering and Materials Science, Faculty of Science and Engineering

Co-authors (contact persons):

Yuki Murata (completed Master's Program, Graduate School of Science and Engineering)
Yuta Nakashoji (completed Master's Program, Graduate School of Science and Engineering)
Masaki Kondo (Second year of Master's Program, Graduate School of Science and Engineering)
Yugo Tanaka (Second year of Master's Program, Graduate School of Science and Engineering)

Professor Daisuke Koyama (Faculty of Science and Engineering) Develops Ultrathin Lens for a Smartphone Camera

Professor Daisuke Koyama (Department of Electrical Engineering, Faculty of Science and Engineering), et al. developed a 1.5mm smartphone camera lens. With this lens, focal length can be freely adjusted using ultrasonic waves and liquid crystals, eliminating the need for moving parts. Therefore, this technology is expected to enable the design of even thinner smartphones in the near future.

The development of this lens was introduced in the Nikkei (newspaper) on June 4, 2018.
Further information can be found in the journal Applied Physics Letters.

Y. Shimizu, D. Koyama, M. Fukui, A. Emoto, K. Nakamura, M. Matsukawa, Ultrasound liquid crystal lens, Appl. Phys. Lett., Vol.112, No. 16, p.161104 (2018)

Professor Shizuko Hiryu (Faculty of Life and Medical Sciences), et al. discover that bats avoid interference by shifting their echolocation call frequencies

Professor Shizuko Hiryu, graduate student Kazuma Hase and others of the Faculty of Life and Medical Sciences discovered that bats avoid interference by adjusting the frequencies of their echolocation calls among themselves when flying in a group.

Bats possess a sophisticated sonar[1] system, which enables them to fly even through a dark narrow cave without colliding with each other, although a situation could theoretically arise where their echolocation calls interfere with those of other bats when flying in a group. How bats avoid interference from the echolocation calls of other bats had not been clarified.

Hiryu's group developed a system that can measure the sound emitted by each bat during flight by placing a telemetry microphone[2] on multiple bats. It was discovered that bats avoid interference by adjusting the frequency of the sound emitted to obtain information about their surroundings.

This finding demonstrated that bats can be a new model animal for studying group behavior and swarm intelligence sensing[3]. In the future, it is expected that studying bats' simple algorithm for avoiding interference will lead to ideas for new technology, such as group control of autonomous sensing robots.

This research achievement was published in the Communication Biology on May 3, 2018.

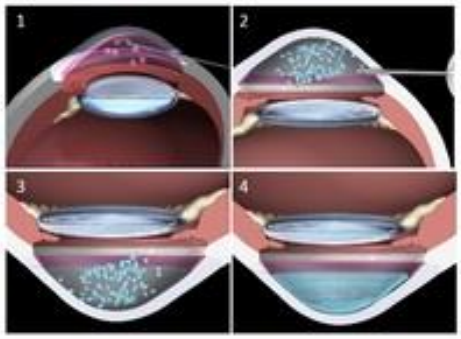
<glossary>

sonar[1] : The acronym for SOund NAvigation and Ranging. A technology detecting, or measuring distance between, objects by sound.

telemetry microphone[2] : A telemetry device is a wireless system that receives and records the sound received from a microphone mounted on flying bats

swarm intelligence sensing[3] : A sensing system that effectively interprets the surrounding environment as a group when its individuals cooperate to take orderly action

Achievement of Professor Noriko Koizumi and Assistant Professor Naoki Okumura (Faculty of Life and Medical Sciences) Published in the New England Journal of Medicine



The research result of Professor Noriko Koizumi and Associate Professor Naoki Okumura of the Faculty of Life and Medical Sciences, et al. made it possible to conduct the world's first regenerative therapy clinical study for corneal endothelial dysfunction, and its outcome was published in one of the world's most prestigious medical journals, The New England Journal of Medicine.

In the article, the group reported the efficacy and safety of cell injection therapy after a clinical study of 11 patients over two years. The study started in December 2013 using technology established at Doshisha University.

It was jointly conducted with the Department of Ophthalmology of Kyoto Prefectural University of Medicine (Professor Shigeru Kinoshita, Lecturer Morio Ueno, et al.) (published in March 15, 2018)

The research result was introduced in The Kyoto Shimbun, etc.

Title: Injection of Cultured Cells with a ROCK Inhibitor for Bullous Keratopathy

Authors: Shigeru Kinoshita, Noriko Koizumi, Morio Ueno, Naoki Okumura, Kojiro Imai, Hiroshi Tanaka, Yuji Yamamoto, Takahiro Nakamura, Tsutomu Inatomi, John Bush, Munetoyo Toda, Michio Hagiya, Isao Yokota, Satoshi Teramukai, Chie Sotozono, Junji Hamuro (co-first authors)

Published in: The New England Journal of Medicine. 2018 Mar 15; 378(11): 995-1003. doi: 10.1056/NEJMoa1712770

Fumika Takeji (Graduate School of Law) Receives Ikuo Onaka Family Law Incentive Award for New Researchers

Fumika Takeji (Doctoral Program, Graduate School of Law) received the 19th Ikuo Onaka Family Law Incentive Award for New Researchers, with her two articles published in 'Doshisha Legal Studies'. This award is offered to new researchers who have presented outstanding articles in the field of family law. Besides commending their achievement, the award is also expected to encourage their future research activities. The awardees are selected once a year by five committee members, including Professor Emeritus of Tokyo University, Akira Yonekura.

Takeji, focusing on the freedom and confinement of succession in the case of inheritance, deliberately introduced and analyzed legal precedents in Germany with themes of whether the freedom of decision of a right-holder of a legally reserved portion is restricted in relation to a creditor, and also in the case where alimentation or social assistance is involved. Takeji was highly commended for providing a new perspective on an issue that had not been fully discussed in Japan.

Awarded articles:

'Freedom of decision of a right-holder of a legally reserved portion and protection of creditors in German laws'

'Freedom of decision of a right-holder of a legally reserved portion and life security in German laws'

Report: “World Kitchen ～Ehomaki, Japan～” (presented by SIED)

On January 12th (Fri.), SIED hosted "World Kitchen ～ Ehomaki, Japan～" at the Faculty Lounge LIBRE on Kyotanabe campus. In this event, participants learned a traditional Japanese event “Setsubun” through making Ehomaki (sushi-roll) and eating beans.

To start off the event, SIED staff introduced unique sushi around Japan, and explained “Setsubun”. Participants followed the custom and ate as many beans as their age. After that, we made Ehomaki with shiitake mushroom, cucumber, egg, and pink fish floss. Although participants struggled with rolling sushi at first, everyone was able to make nice Ehomaki. In the end of the event, we ate them toward the south-southeast (good luck direction in 2018) and wished for a healthy year.

Report: "World Kitchen ～Rice cooked in local bamboo～" (presented by SIED)

On May 13th (Sun.), SIED and the International Exchange Association in Kyotanabe co-hosted “World Kitchen ~Rice cooked in local bamboo~” at Bio Tatara, an old Japanese folk house style cafe. 17 people including international students, local students and the association members joined the event.
Kyotanabe city is famous for bamboo, and May is the best season for bamboo shoot, so we cooked takenoko-gohan, bamboo shoot-rice. We prepared bamboo containers and steamed rice in it. Although participants struggled with controlling the fire, everyone helped each other and enjoyed the cooking. The staff of Bio Tatara also prepared bamboo shoot tempura and miso soup for us, we tasted them with takenoko-gohan. Despite the fact that it was raining on the day of the event, the word “delicious!” from participants made us so happy. We hope that the event will be a good memory for all the participants. After cooking, the staff of the association and Ecomana@Kyotanabe, one of the project groups in Doshisha introduced interesting stories about Japanese and Taiwanese bamboo. We also held a small quiz competition about their story. Some participants got a prize. Before ending the event, the staff of Bio Tatara took us around the Japanese old folk house.

Overseas Offices

Doshisha University's overseas offices were established in order to further promote its rapid and effective internationalization. At our overseas offices, we are implementing mainly public relations activities to increase the profile of Doshisha University, while at the same time making the most of the characteristics unique to each office. In addition, we are undertaking various efforts to recruit overseas students, support our students while they are studying overseas, and provide on-site support to members of our faculties while they are overseas.

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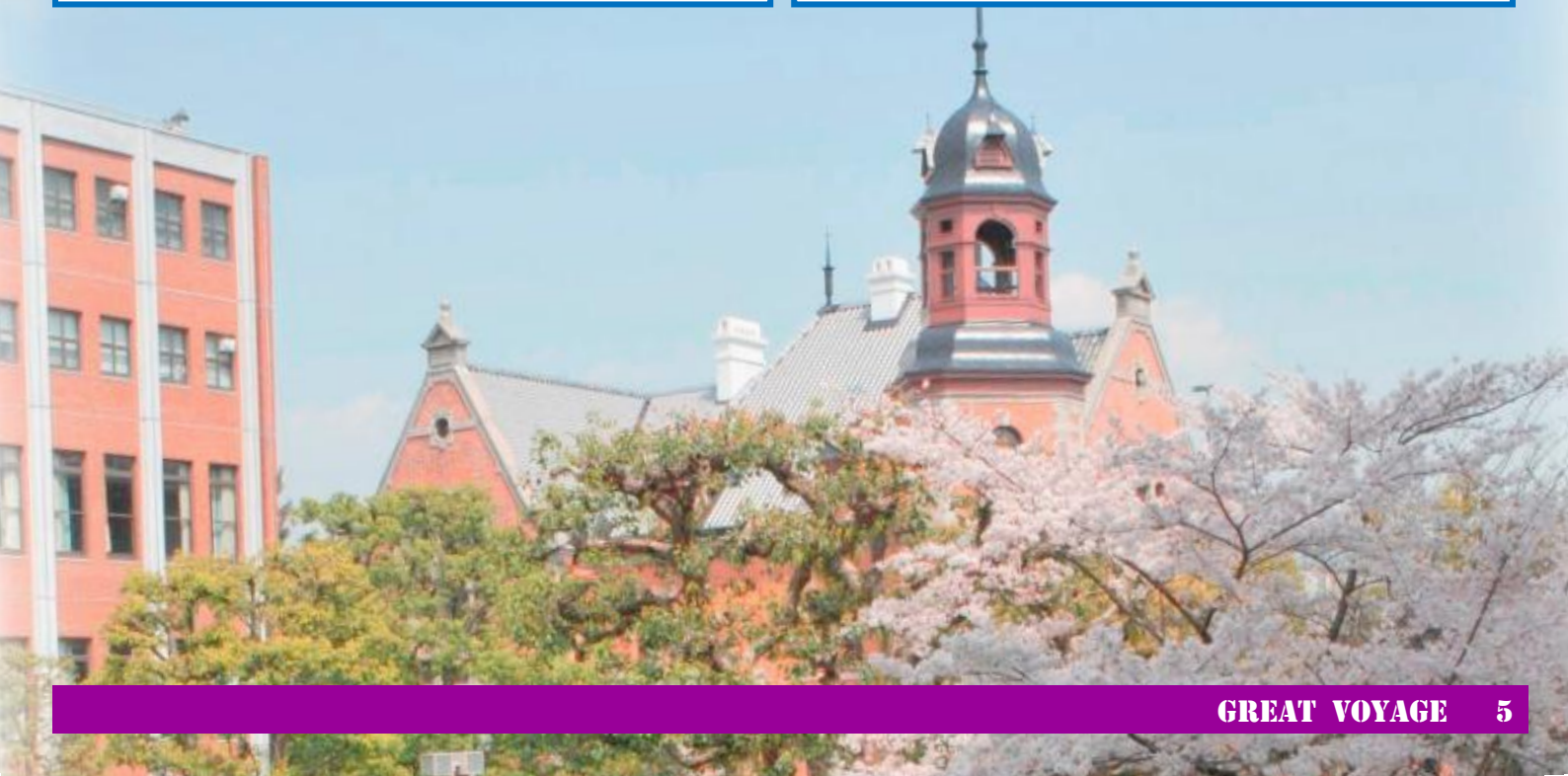

Greetings from Office of International Students

Dear Partners,

When you read this newsletter (early August), students in Doshisha will be studying so much for their final exams. Once they're finished, they will be enjoying the so anticipated summer vacation!

The Doshisha staff will also take vacations by shift, but we are already preparing to receive the new students who will enroll in this Fall semester.

There are three sections in our Office of International Students: first is the Section for International Admissions which handles the entrance examination for international students and public relations.
The second and third are the Section for International Students at both Imadegawa and Kyotanabe campuses, and they are in charge of supporting currently enrolled students.
For all international students interested in pursuing their studies in Japan, Kyoto and Doshisha University, be at ease as we will embrace you with hospitality spirit.

Warm Regards,
Office of International Students

SIED (Student Staff for Intercultural Events at Doshisha)

SIED, Student Staff for Intercultural Events at Doshisha, is a student organization under Office International Students to plan and implement intercultural events. They have worked for on-campus internationalization since October, 2013. As of May, 2018, the number of the staff is 52 in total on both Imadegawa and Kyotanabe campuses. The staff members are proactively working to promote mutual understanding between local and international student.

Imadegawa

Kyotanabe

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