

The 10th Academic Exchange and Cooperative Research Symposium between ETHZ and Hokkaido University (AECOR-X)

Date: March 7-8, 2023

Place: Hokkaido University, N13W8, Sapporo, Hokkaido, 060-8628, Japan

Organized by: Faculty of Engineering, Hokkaido University,
Swiss Federal Institute of Technology (ETHZ)

Sponsors: Robust Agriculture Research Center,
f3-engineering education center,
Organic Chemistry Institute,
Medical interdisciplinary organization



Symposium Coordinators

Yuichi Murai, Prof., Faculty of Engineering

Hajime Ito, Prof., School of Chemistry

Toru Hira, Asso. Prof. Faculty of Agriculture



Invited Researchers from ETHZ

Eric J. Windhab, Professor Emeritus

Peter Fischer, Professor (cancelled)

Three Ph.D. students

Symposium Agenda

March 7 (Tuesday) @ Hokkaido University Conference Hall

10:15-10:45 Visiting president office

11:00-12:00 LFC students' seminar

12:00-13:00 Lunch @ Cafedegohan

13:00-16:00 Plenary talks

16:30-18:45 Students' short presentations

19:15-21:00 Dinner @ Aburiya

March 8 (Wednesday) @ Hokkaido University Conference Hall

9:30-10:00 Visiting dean office @ Faculty of Engineering

10:30-12:45 Interdisciplinary symposium

12:45-13:45 Lunch @ MarcheCafelab

14:00-15:45 Laboratory tour (Engineering, Agriculture, Chemistry)

16:00-16:30 Closing

18:00-20:30 Farewell dinner and students' event

SYMPOSIUM DAY 1 (March 7, Tuesday)

Visiting President Office (10:15-10:45, March 7)

Invited persons only

Meeting with Kiyohiro Houkin, President of Hokkaido University

(Y. Murai comes to the hotel lobby to take all the visitors to the president office building)

LFC Seminar (11:00-12:00, March 7)

Each speaker has 8-min presentation, 3-min question and 1-min switching time.

Flow modulation during transition from two-phase to single-phase flow

Taiji Tanaka*, Ryo Aoki, and Yuichi Murai

Novel method for quantifying spatial profile of eddy viscosity by means of ultrasonic velocity profiler in Taylor-Couette flow

Akihide Takano*, Kohei Ohie, Yasufumi Horimoto, Yuji Tasaka, and Yuichi Murai

Flow structures of Rayleigh-Bénard convection in a thin vertical layer

Sota Takano*, Yuji Tasaka, Takatoshi Yanagisawa, and Yuichi Murai

Transport of microplastics by surface flow induced by bubble plume

Takuya Wada*, Yasufumi Horimoto, Hyun Jin Park, Yuji Tasaka, and Yuichi Murai

Effective viscosity of particle suspensions in unsteady shear flow

Hiroshi Chin*, Akihide Takano, Kohei Ohie, Yasufumi Horimoto, Hyun Jin Park, Yuji Tasaka and Yuichi Murai

Note

Lunch @ Cafedegohan (12:00-12:50, March 7)

Invited persons only

Plenary Talks (13:00-16:00, March 7)

Each speaker has 25-min presentation, 4-min question and 1-min switching time.

Chair: Yuichi Murai

Applications of Maillard reaction: from time temperature indicators to antibacterial substances

Shigenobu Koseki*

In-line rheometry and Raman spectroscopy for process control in viscoelastic protein melt extrusion processing

Erich J. Windhab*

Dissecting the biosynthetic machinery in DHA synthases and its application

Shohei Hayashi, Yasuharu Satoh, Yasushi Ogasawara, and Tohru Dairi*

Structure, rheology, and digestion of stimuli responsive emulsions

Peter Fischer*

Mechanical characterization of cells and Bio-MEMS

Toshiro Ohashi*

Make Flow Metering Scientific

Yasuhi Takeda*

Students' Short Presentations (16:30-18:30, March 7)

Each speaker has 8-min presentation, 2-min question and 1-min switching time.

Chair: Yuji Tasaka and Hyun Jin Park

The discovery of the existence of α -L-glucosidase in nature

Hye-jin Kang*, Rikako Shishiuchi, Takayoshi Tagami, Yoshitaka Ueda, Atsuo Kimura, and Masayuki Okuyama

Microphase-separated structures from biobased Saccharide-Terpenoid hybrid materials

Chaehun Lee*, Brian J Ree, Kai Chen, Ryoya Komaki, Satoshi Katsuhara, Takuya Yamamoto, Kenji Tajima, Hsin-Lung Chen, Toshifumi Satoh, and Takuya Isono

Static and dynamic properties of CFRP prepared by EDRM

Md Tansirul Islam*, Shinya Honda, Kazuaki Katagiri, Katsuhiko Sasaki, and Rio Takeda

Utilizing mycelial network for novel materials and food

Ciatta Wobill*, Peter Fischer

Taurocholic acid induces leakiness in the distal small intestine in rats

Hongxia Liu*, Satoshi Ishizuka

Engineering of bacterial polyester synthase for reinforcing activity toward 3-hydroxyhexanoyl-CoA

Phan Thi Hien*, Yumi Hosoe, Maureen Guex, Masayoshi Tomoi, Manfred Zinn, Hiroya Tomita, and Ken'ichiro Matsumoto

Non-solvent induced phase separation based PCL-Fish collagen scaffold for bone and articular cartilage regeneration

Hatice Kübra Bilgili*, and Masahiro Todoh

Multi-scale 3D printing and related neuroinspired food structure design

Johannes Burkard*, Lucas Kohler, Christoph Denkel, Erich J. Windhab

Bioactivity evaluation of betaxanthins purified from yellow beets

Yuya Goto*, Takashi Kato, Makoto Hashimoto, Yasuko Sakihama

Engineering Escherichia coli for high production of tyrosol

Ning Shen*, Yasuharu Satoh, Yasushi Ogasawara, and Tohru Dairi

Development of PEFC low Pt-loading graphene catalyst layer by electrospray method for increasing output power

Masaya Okano*, Suguru Uemura, and Yutaka Tabe

+ **Group photo (18:30-18:40)**

Note

Dinner @ Aburiya (19:00-21:00, March 7)

Invited persons only

SYMPOSIUM DAY 2 (March 8, Wednesday)

Interdisciplinary symposium (10:30-12:45, March 8)

Each speaker has 12-min presentation, 3-min question and 1-min switching time.

Chair: Yasufumi Horimoto

Versatile aliphatic polyester biosynthesis system for producing random and block copolymers using engineered enzymes

Ken'ichiro Matsumoto*

Difference in texture and nanostructure of Gouda-type cheese with and without homogenization of milk

Masato Ohnuma*, Isaumu Kaneda, and Takashi Tochihara

CFD-assisted dispersing flow optimization in a novel ultra-high-pressure device

Laura Wiest and Erich J. Windhab*

Purification and characterization of α -glucosidase from porcine blood

Takayoshi Tagami*, Chihiro Biwa, Ken Watanabe, and Masayuki Okuyama

Interdisciplinary collaboration research on food swallowability for safe and better texture

Yuji Tasaka*, Kohei Ohie, Kosuke Takahashi, Haruko Chiba, Satomi Kumagai, Shigenobu Koseki, Taiki Yoshida and Yuichi Murai

Tribology of chocolate and its texture-sweetness interaction in oral processing

Lucas Kohler*, Johannes Burkard, and Erich J. Windhab

Power of colored beets and Betalain pigments

Yasuko Sakihama*

Irregular motion of a falling sphere in a hydrogel suspension

Ichiro Kumagai*, Shuya Akai, and Kei Kurita

Note

Lunch @ Marchecafelab (12:45-13:45, March 8)

Invited persons only

Laboratory Tour (14:00-15:45, March 8)

For ETH members only

14:00-14:30

Laboratory of Agricultural and Food Process Engineering, Faculty of Agriculture

Kento Koyama

14:45-15:15

Laboratory of Space Systems, Faculty of Engineering

Harunori Nagata

15:15-15:45

Laboratory of Applied BioChemistry, Graduate Sch. of Chemical Science and Engineering

Yasushi Ogasawara

Closing (16:00-16:30, March 8)

Footprints of ETH-HU collaborations to date and future expectations

Yuichi Murai

Note

Farewell Dinner (18:00-20:30, March 8)

To be separated to professors' group and students' group
(Corresponding student: Akihide Takano)