

Digital Summer

School IBEE

Interface for Bio-resource &
Environmental Engineering

July 30, 2021

Digital summer school IBEE is organized mainly for two reasons. One is the necessity to discuss the idea to encourage DDP (Double Degree Program between National Taiwan University (NTU) and University of Tsukuba (UT) in the domain of Bio-resources and environmental engineering. The other is the active discussion in more research oriented will open the possibility of collaboration between the related laboratory. Actually, we are planning for JSPS-NSFC Joint Seminar next year. The digital summer school is essentially the pre-seminar of this meeting. For these purposes, the easiest is to introduce each other what are going on currently. Approximately one hour or a bit more is allocated to each four laboratories to introduce their current activity. Four representative young presenters will give a very fresh talk of current activity for approximately 30 min. and another thirty minutes are allocated for the introduction of each laboratory. Ten minutes should be remained for Q&A. The end of school, a mixer in which we would like to discuss about future plans will be organized. We are calling for participants for the two categories.

Program

AM 10:00 **Opening**

10:00 - 10:05 Opening remarks

Yasuhisa Adachi, University of Tsukuba

10:05 - 10:35

Shu-Yuan (Sean) Pan, National Taiwan University

Development of Cascade Separation Processes for Humic Substance and Nutrient Recovery from Piggery Wastewater for a Circular Bioeconomy

10:35 - 11:05

Yui Lin, Green Technology Lab at National Taiwan University

Electro-neutralization and concentration for acidic salt-containing wastewater reuse

11:35 - 12:30 **Lunch Break**

12:30 - 13:30

Gen Den (Tian Yuan), University of Tsukuba

Biogas recirculation in anaerobic digestion system of sewage sludge

Zhongfang Lei, University of Tsukuba

Lab. Introduction (Bioresource Process Engineering Laboratory)

Granulation of algae and bacteria / Usage and fundamental of Nano-bubbles in water and waste water treatment system

13:30 - 13:45 **Break**

13:45 - 14:45

Takuya Sugimoto, University of Tsukuba

Nanobubble transport in a saturated porous medium with the coexistence of deposited colloidal particles

Ezral and Gao, University of Tsukuba

Lab. Introduction (Environmental Colloid Engineering)

14:45 - 15:15 **Break**

15:15 - 15:45

Hongtao Wang, Activity of UNEP-TONGJI Institute of Environment for Sustainable Development,

Enhanced dewatering of waste activated sludge by electrolysis in combination with persulfate: effects and mechanisms

15:45 - 16:00

Jing SUN, UNEP-TONGJI Institute of Environment for Sustainable Development,

Ferrate effectively removes antibiotic resistance genes from wastewater through combined effect of microbial DNA damage and coagulation

16:00 - 16:15

Hideyuki Sugioka, Shinshu University,

Lab. Introduction (Complex thermal fluid Lab.)

1) Hideyuki Sugioka

Approach from the interface aiming at microfluidic systems and microrobots for the environment and healthcare.

2) Yusuke Someya and Hideyuki Sugioka

BL ratchet pump using thermal energy

3) Saki Hatanaka, Yusuke Someya, and Hideyuki Sugioka

Light-driven BL ratchet pump

4) Mitsuhiro Tanaka and Hideyuki Sugioka

Micro swimmer using thermal interface phenomenon

5) Wataru Tomita, Mitsuhiro Tanaka, and Hideyuki Sugioka

Metachronal motion of thermal cilia

6) Hiroki Yoshijima and Hideyuki Sugioka

Metachronal motion of ICEO cilia

7) Koshi Ueno and Hideyuki Sugioka

Integrated fluidic circuit consisting of the pump and valve using ICEO

16:15 - 16:45

Student short presentation and On-line Mixer

(Chaired by Yasuhisa Adachi, This can be extended to 17:30)

Closing **Toshiharu Enomae**, University of Tsukuba

Organizing Committee

Chair

Yasuhisa Adachi (University of Tsukuba)

Advisory Board

Hongtao Wang (UNEP TONGJI Institute of Environment for Sustainable Development)

Shu-Yuan (Sean) Pan (National Taiwan University)
Lei Zhongfang (University of Tsukuba)
Yuji Yamashita (University of Tsukuba)
Hideyuki Sugioka (Shinshu University)

Registration

Simply done by sending e-mail to colloid@envr.tsukuba.ac.jp

Attn: Susumu Sakurai

Category A: Those who would like to give a short presentation. We will accept presentation also from by other laboratory.

Resister by July 20 with your name, belonging, and title of your presentation.

Name_____,e-mail_____,affiliation_____.

Title of your presentation_____.

Category B: Those who will just listen to the program. (Q&A and participation on-line mixer is possible.) Resister by July 20 with your name, belonging.

Name_____,e-mail_____,affiliation_____.

Final program will be announced by July 26.

Notice

Participation of undergraduate students are welcome. But we strongly recommend to take the following courses in advance. The course will be carried out online. Zoom code will be announced manaba.

EG60161

Environmental Colloid Engineering

Lectured by Yasuhisa Adachi

EG60421

Soil and Water Bio-Engineering

Lectured by Pan Shu-Yuan

Those who want to join above course, please send an e-mail to
adachi.yasuhisa.gu@u.tsukuba.ac.jp