



**GP-RSS**

International Joint Graduate Program in Resilience and Safety Studies

# **The 7<sup>th</sup> International Symposium on Water Environment Systems ---with Perspective of Global Safety (November 14<sup>th</sup> – 16<sup>th</sup>, 2019)**

**Department of Civil and Environmental Engineering  
Graduate School of Engineering  
Tohoku University**



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**Department of Civil and Environmental Engineering,  
Graduate School of Engineering, Tohoku University**

**<http://www.eng.tohoku.ac.jp/>**

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# Schedule

Nov. 14th, 2019

15:00~17:30 | Registration

## Venue

Graduate School of Engineering, Aobayama campus, Tohoku University

### Lectures and oral presentations

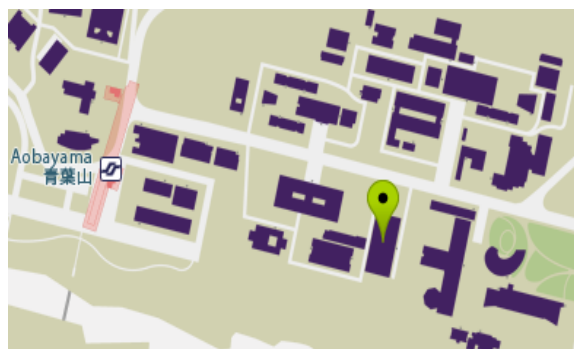
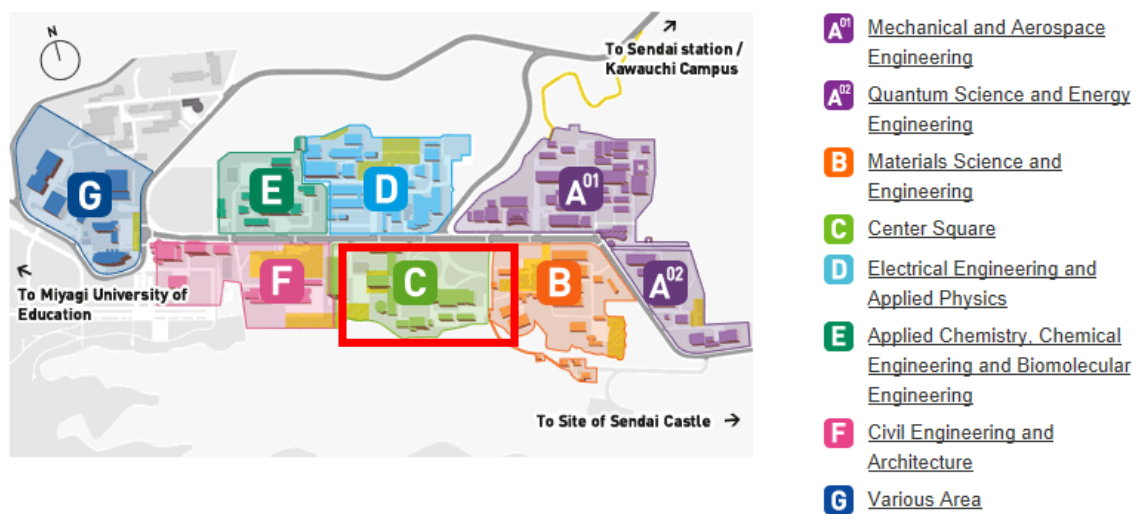
Room 110, Engineering Laboratory Complex building (総合研究棟) (C10)

### Posters exhibition

Room 201, Engineering Laboratory Complex building (総合研究棟) (C10)

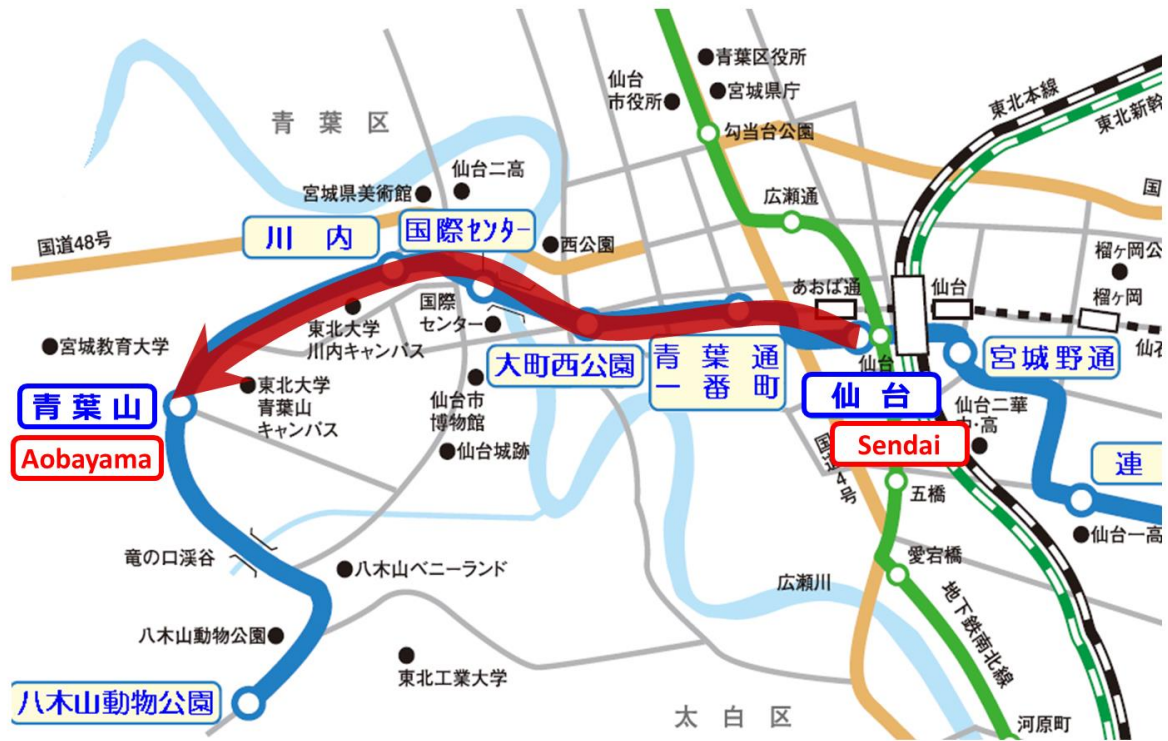
### Net-work party

Center hall Aoba restaurant (工学部中央棟)



Engineering Laboratory Complex building(総合研究棟)

## Access to Aobayama Campus (Subway)



Map of East-west line subway(地下鉄 東西線) in Sendai

Please take this subway line and get off on the stop **Aobayama (青葉山)** .

### Tips

If you start from Sendai Station, please make sure you are entering **East-west line subway (地下鉄 東西線)** rather than South-north line subway (地下鉄 南北線) nor JR station.

Nov. 15th, 2019

The 7<sup>th</sup> International Symposium on Water Environment Systems

Place: Room 101, Engineering Laboratory Complex building, Tohoku University

8:55 ~ 9:00	<b>Opening address</b>
<b>Section I</b>	<b>Keynote speeches</b>
9:00 ~ 9:30	Anaerobic treatment of a low pH high strength dissolved organic wastewater in a membrane bioreactor Ekama GA <i>University of Cape Town</i>
9:30 ~ 10:00	Moving inventions to innovations in wastewater and sludge treatment Guang-Hao CHEN <i>The Hong Kong University of Science and Technology</i>
10:00 ~ 10:05	<b>Coffee break</b>
<b>Section II</b>	<b>Biological treatment</b>
10:05 ~ 10:20	Source water odor in one reservoir in hot and humid areas of southern China: diagnosis and possible mitigation measures Chao RONG, Jianwei YU, Xiaobo Han, Jinsong ZHANG <i>Harbin Institute of Technology Shenzhen Graduate School &amp; Shenzhen Water Affairs (Group) Co.</i>
10:20 ~ 10:35	Human health risk of Legionella pneumophila infection caused by the groundwater usage in a decentralized drinking water system Arief Nurul UMAM, Mohan AMARASIRI, Daisuke SANO <i>Tohoku University</i>

10:35 ~ 10:50	<p>Applicability of anaerobic dynamic membrane bioreactor (AnDMBR) for domestic wastewater treatment at short HRTs</p> <p>Yisong HU, Yuan YANG, Xiaochang C. WANG &amp; Yu-You LI</p> <p><i>Xi'an University of Architecture and Technology &amp; Tohoku University</i></p>
10:50 ~ 10:55	<b>Coffee break</b>
10:55 ~ 11:10	<p>Startup and performance of a novel one-stage partial nitrification-anammox system for reject water treatment</p> <p>Yunzhi QIAN, Huaji MA, Yongzhi CHI, Hongying YUAN, Yanmei DING</p> <p><i>Tohoku University</i></p>
11:10 ~ 11:25	<p>Effects of phosphate and Ca/P ratio on the Anammox-hydroxyapatite (HAP) crystallization process</p> <p>Lan LIN, Yanlong ZHANG, Tong OUYANG, Yu-You LI</p> <p><i>Tohoku University &amp; Xiamen University</i></p>
11:25 ~ 11:40	<p>Sulfate in anaerobic co-digester accelerates methane production from food waste and waste activated sludge</p> <p>Feixiang Zan, Tianwei Hao</p> <p><i>The Hong Kong University of Science and Technology</i></p>
11:40 ~ 11:45	<b>Coffee break</b>
11:45 ~ 12:00	<p>Trace metal element supplementation impact in methane fermentation of fish processing wastewater</p> <p>Eli Hendrik SANJAYA, Yu-You LI</p> <p><i>Tohoku University &amp; State University of Malang (Universitas Negeri Malang)</i></p>
12:00 ~ 12:15	<p>Experimental study on filtrate of thermal hydrolysis of sludge as an additional carbon source for denitrification</p> <p>Lu HAN, Yun HAN, Yuan GAO</p>

		<i>Xi'an University of Architecture and Technology &amp; Tohoku University</i>
12:15 ~ 12:30		Co-digestion of cow and sheep manure: Performance evaluation and relative microbial activity Yu Li, Jing Zhao, Gert-Jan Euverink <i>University of Groningen</i>
12:30 ~ 12:45		Anaerobic co-digestion of paper waste and sewage sludge: The effects of paper waste ratio Aijun ZHU, Yu Qin, Jing WU, Yu-You LI <i>Tohoku University</i>
12:45 ~ 12:55		<b>Group photo</b>
13:00 ~ 15:00		<b>Poster exhibition</b>

Place: **Room 201**, Engineering Laboratory Complex building, Tohoku University

- Estimation of vulnerable spots for overtopping by using 3-D point cloud data generated by UAV-SfM approach  
Masakazu Hashimoto, Shosuke Sato, Ken Ichikawa, Susumu Naradate, Kaori Amaya, Keiji Sato, Arata Nasuno  
*Tohoku University*
- Understanding flood hazard and crop yield loss relationship using hydrodynamic and remote sensing model  
Vempi Satriya, Daisuke Komori  
*Tohoku University*
- Assessing the impact of human-induced land-use change on natural water cycle at watershed scale based on land surface model  
Linghao Meng, Daisuke Komori  
*Tohoku University*



- Estimation of the flood damage caused by Climate change and effect of the adaptation  
Tao Yamamoto, So Kazama, Yoshiya Touge, Tsuyoshi Tada, Takeshi Yamashita  
*Tohoku University*
- Analysis of Flood Inundation Area in Naruse River Basin by RRI Model Toward Consideration of Paddy Field Dams  
Chai Yi Kai, Yoshiya Touge, So Kazama  
*Tohoku University*
- Introduction of Collaborative Fields Projects in Eastern Africa  
Toshikazu Tanaka, Yoshiya Touge, Jacqueline Muthoni Mbugua  
*Tohoku University*
- Hydrological Analysis for seasonal change of fire event in Edo era in Miyagi Prefecture  
Runa Inoue, Yoko Yasuda, Yoshiya Touge  
*Tohoku University*
- Stepwise regulation of endogenous free ammonia to improve short-chain fatty acids production from waste activated sludge alkaline fermentation  
Min YE, Yu-You LI  
*Tohoku University*
- Gradual deterioration in methanogenic degradation of N, N-dimethylformamide under the anaerobic condition  
Tianjie WANG, Zhe KONG, Yu-You LI  
*Tohoku University*
- Antibacterial effect of food waste hydrolysate on Escherichia Coli  
Yuanyuan REN, Qunhui WANG, Yu-You LI



*Tohoku University & University of Science and Technology  
Beijing*

- Anammox-dependent nitrogen removal process using up-flow fixed-bed bioreactor

Ying SONG, Yu-You LI

*Tohoku University*

- Anaerobic digestion of milk waste and sewage sludge by using hollow fiber anaerobic membrane reactor

Ziang HE, Xueqin LU ,Chenglei XIE, Yu-You LI

*Tohoku University*

- Effect of thermal pretreatment on digestion of sewage sludge in an anaerobic membrane bioreactor

Guangze GUO, Yemei LI, Yu-You LI

*Tohoku University*

- Impact of HRT on the performance of AnMBR treating municipal sewage

Runda Du, Jiayuan JI, Yujie CHEN, Yu-You LI

*Tohoku University*

### **Section III**

### **Global safety**

15:00 ~ 15:30

Manifold Analysis of Pacific Islands Climate Data

Ming-Che HU, Yi-Hsuan Shih, Tai-Yi Liu

*National Taiwan University*

15:30 ~ 16:00

A preliminary study on development flood early warning system in Southeast Sulawesi Province

Nurul Fajar Januriyadi

*Universitas Pertamina*

16:00 ~ 16:25

Application of a large ensemble climate simulation for flood risk assessment

		Satoshi Watanabe <i>University of Tokyo</i>
16:25	~ 16:50	Data Assimilation Research for Global Weather Prediction: Past Achievements and Future Perspectives Shunji Kotsuki <i>Chiba University</i>
16:50	~ 17:05	<b>Coffee break</b>
17:05	~ 17:30	Spatial Representativity of AMeDAS Gauge Rainfall over Radar/Raingauge-Analysed Precipitation Masafumi Yamada <i>Kyoto University</i>
17:30	~ 17:50	Estimating Irrigated Area through a Combined Use of MODIS and Land Surface Model in the Amu Darya Delta Jacqueline Muthoni Mbugua, Yoshiya Touge, So Kazama <i>Tohoku University</i>
17:50	~ 18:10	Estimating fire severity map based on representative plots in Kamaishi 2017 forest fire Grace Puyang Emang, Yoshiya Touge, So Kazama <i>Tohoku University</i>
18:10	~ 18:20	<b>Closing speech</b>
18:30	~ 20:00	<b>Dinner party</b>

Nov. 16th, 2019

## Technical Tour: Energy recovery & New technology

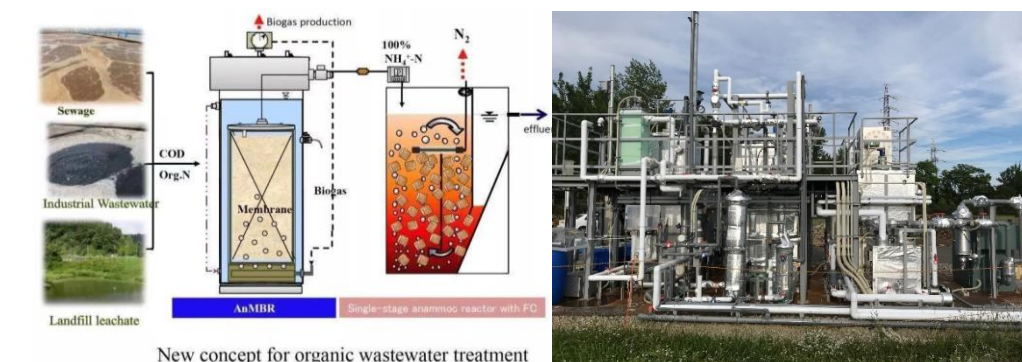
Place: Sendai Senen Sewage Treatment Plant

Biogas typically refers to a gas produced by the anaerobic digestion of organic matter including manure, sewage sludge, municipal solid waste and other biodegradable waste. The biogas for electricity system of Senen sewage treatment plant was implemented in 2018 with 7 electric generator installed. The total electric generation and yearly generation is 350 kW and 1,880,000 kWh respectively, which could supply electricity consumption of 407 generations (4618 kWh/Year/household). The emission of CO<sub>2</sub> can be reduced by 1040t-CO<sub>2</sub>/year.



- The biogas for electricity system in Senen sewage treatment plant

AnMBR and One-stage Anammox is a new technology to develop an energy-positive innovative sewage treatment system integrating an anaerobic membrane bioreactor (AnMBR) and anaerobic ammonium oxidation (Anammox) process. The pilot plant in Senen sewage treatment plant has a working volumes of 20 L for the AnMBR and 7 L for One-stage Anammox reactor and completed with a capacity of 20 m<sup>3</sup>/d after a 140-day operation.



- Pilot plant of AnMBR and One-stage Anammox in Senen sewage treatment plant