

# ACBS2021 Scientific Program

Date: January 21, 2022 Venue: online (ZOOM)

**Opening ceremony** 9:00-9:15

**Oral presentation** 9:15-11:10, 13:15-17:45

## Session OA-I Fuels

Chair: Yoshimitsu Uemura

- 9:15 OA-1 Optimizing rice husk combustion conditions to obtain maximum combustion efficiency without crystallization of silica  
S.D.S. PIYATHISSA<sup>a\*</sup>, P.D. KAHANDAGE<sup>a</sup>, Thilanka ARIYAWANSHA<sup>a</sup>, NAMGAY<sup>a</sup>, Tofael AHAMED<sup>b</sup>, Ryozo NOGUCHI<sup>b</sup>  
(<sup>a</sup> Graduate School of Science and Technology, University of Tsukuba, Japan, <sup>b</sup> Faculty of Life and Environmental Sciences, University of Tsukuba, Japan)
- 9:30 OA-2 Facile synthesis of hollow HZSM-5 with mesoporous shell for in-situ catalytic upgrading of pyrolysis bio-oil  
Nichaboon CHAIHAD<sup>a</sup>, Aisikaer ANNIWAER<sup>a</sup>, Abuliti ABULITI<sup>a</sup>, Guoqing GUAN<sup>a,b\*</sup>  
(<sup>a</sup> Faculty of Science and Technology, Hirosaki University, Japan, <sup>b</sup> Institute of Regional Innovation (IRI), Hirosaki University, Japan)
- 9:45 OA-3 Steam co-gasification of brown coal and banana peel for hydrogen-rich gas Production  
Aisikaer ANNIWAER<sup>a</sup>, Nichaboon CHAIHAD<sup>a</sup>, Yutaka KASAI<sup>c</sup>, Abuliti ABUDULA<sup>a</sup>, Guoqing GUAN<sup>a,b\*</sup>  
(<sup>a</sup> Faculty of Science and Technology, Hirosaki University, Japan, <sup>b</sup> Institute of Regional Innovation (IRI), Hirosaki University, Japan, <sup>c</sup> Industrial Research Institute, Aomori Prefectural Industrial Technology Research Center, Japan)

(Break 10:00-10:10)

## Session OA-II Fuels

Chair: Masato Kouzu (Tokyo City University, Japan)

- 10:10 OA-4 Investigating effects of wood components on gas and tar formation in gasification by predicting wood components from ultimate analysis  
Zhaohe ZHOU, Hiroshi ENOMOTO\*, Ryo NAKAGAWA, Zheng ZONG  
(Division of Mechanical Science and Engineering, Kanazawa University, Japan)
- 10:25 OA-5 A performance analysis of heat transfer medias (heat carriers, HCs) considering the convection aspects in indirect gasification hydrogen process

Sota KOJIMA<sup>a</sup>, Haruka NAKAYAMA<sup>a</sup>, Mitsuo KAMEYAMA<sup>b</sup>, Hisashi KAMIUCHI<sup>b</sup>, Kiyoshi DOWAKI<sup>a</sup>  
(<sup>a</sup> Department of Industrial Administration, Graduate School of Science and Technology, Tokyo University of Science, Japan, <sup>b</sup> Japan Blue Energy Co., Ltd., Japan)

Chair: Mitsumasa Osada (Shinshu University, Japan)

10:40 OA-6 Gasification of glucose in supercritical water using carbon nanotube catalyst  
Mohammed Ahmed Mohammed ALI, Shuhei INOUE, Yukihiro MATSUMURA  
(Graduate School of Advanced Science and Engineering, Hiroshima University, Japan)

10:55 OA-7 Improvement of ethanol-steam-reforming performance mainly using  
Cu/ZnO/Al<sub>2</sub>O<sub>3</sub> catalyst  
Takuro NISHIMURA<sup>a\*</sup>, Toshio SHINOKI<sup>b</sup>, Takashi NOGUCHI<sup>a</sup>, Katsuya HIRATA<sup>a</sup>  
(<sup>a</sup> Department of Mechanical Engineering, Doshisha University, Japan, <sup>b</sup> Mitsubishi Electric Corporation, Japan)

(Break 11:10-11:20)

## Keynote lecture

Chair: Hiromi Yamamoto

(Central Research Institute of Electric Power Industry, Japan; Chairman of the Biomass Division, the Japan Institute of Energy)

11:20 PL1 Sustainability in Tropical Biomass Utilization  
Mohd Ali HASSAN  
(Universiti Putra Malaysia, Malaysia)

(Lunch 12:15-13:15)

## Session OB Biomass Material

Chair: Akihiro Hideno (Ehime University, Japan)

13:15 OB-1 Estimation of the solubility of biomass derived organic compounds in high-temperature water by machine learning  
Mitsumasa OSADA\*, Kotaro TAMURA  
(Faculty of Textile Science and Technology, Shinshu University, Japan)

13:30 OB-2 Reaction behavior of wood polysaccharides in an ionic liquid,  
1-ethyl-3methyl-imidazolium chloride

Akiomi HAYASHI, Takashi HOSOYA, Hisashi MIYAFUJI  
(Kyoto Prefectural University, Japan)

- 13:45 OB-3 Fabrication of lignosulfonate-chitosan film and its application to food packaging  
Yujie FANG<sup>a,b</sup>, Boran HU<sup>b\*</sup>, Halimatun Saadiah HAFID<sup>c</sup>, Minato WAKISAKA<sup>a\*</sup>  
(<sup>a</sup> Graduate School of Life Science and Systems Engineering, Kyushu Institute of  
Technology, Japan, <sup>b</sup> School of Food Science and Engineering, Yangzhou University,  
China, <sup>c</sup> Institute of Plantation Studies, Universiti Putra Malaysia, Malaysia)
- 14:00 OB-4 A brief examination for the Klason lignin measurement of torrefied woods  
Takahiro YOSHIDA  
(Forestry and Forest Products Research Institute, Japan)

(Break 14:15-14:25)

### **Session OC Chemical Production**

Chair: Takahiro Yoshida (Forestry and Forest Products Research Institute, Japan)

- 14:25 OC-1 Influence of algal slurry concentration of flash hydrolysis on oil extraction  
Kenshiro HASEGAWA, Chihiro FUSHIMI\*  
(Department of Chemical Engineering, Tokyo University of Agriculture and  
Technology, Japan)
- 14:40 OC-2 Ammonia production from highly reactive nitrogen in poultry litter  
Yuito SUGANUMA<sup>a</sup>, Takayuki ICHIKAWA<sup>a</sup>, Wookyung KIM<sup>a</sup>, Yutaka  
NAKASHIMADA<sup>b</sup>, Keiia NISHIDA<sup>a</sup>, Yukihiko MATSUMURA<sup>a\*</sup>  
(<sup>a</sup> Graduate School of Advanced Science and Engineering, Hiroshima University,  
Japan, <sup>b</sup> Graduate School of Integrated Science for Life, Hiroshima University, Japan)
- 14:55 OC-3 Experimental study on fast pyrolysis characteristics of hydrogenated lignin toward  
enhancing olefins yield  
Lijuan ZHANG, Cheolyong CHOI, Hiroshi MACHIDA, Koyo NORINAGA\*  
(Graduate School of Engineering, Nagoya University, Japan)
- 15:10 OC-4 The catalytic efficiency of Ni-Cu-Al catalysts on hydrogenation of furfural through  
thermocatalytic and electrocatalytic routes  
Upender Rao THUPPATI, Suchada SIRISOMMBOONCHAI, Cheolyong CHOI,  
Hiroshi MACHIDA, Koyo NORINAGA\*  
(Graduate School of Engineering, Nagoya University, Japan)
- 15:25 OC-5 Glucose APR operated in the presence of cresol functioning as a hydrogen acceptor  
Masato KOUZU, Katsuyuki MORI, Minato KOJIMA, Haruka ISHIDA,  
Monique-Joice Abrau AUGUIS  
(Graduated school of Integrative Science and Engineering, Tokyo City University,  
Japan)

(Break 15:40-15:50)

## **Session OD-I Sustainability Assessment**

Chair: Takaaki Furubayashi (Akita University, Japan)

- 15:50 OD-1 Emission model of conventional vs coffee biomass utilization on coffee production: A study Indonesia-Japan coffee export  
Devi Maulida RAHMAH<sup>a,c</sup>, Koko Iwan Agus KURNIAWAN<sup>a</sup>, Ryozo NOGUCHI<sup>b</sup>, Tofael AHAMED<sup>b</sup>  
(<sup>a</sup> Graduate School of Life and Environmental Science, University of Tsukuba, Japan, <sup>b</sup> Faculty of Life and Environmental Sciences, University of Tsukuba, Japan, <sup>c</sup> Faculty of Agro-Industrial Technology, Universitas Padjadjaran, Indonesia)
- 16:05 OD-2 Potential use of rice husk for mechanical paddy drying in Bhutan  
Namgay<sup>a</sup>, Pubudu Darshana KAHANDAGE<sup>b</sup>, Ryozo NOGUCHI<sup>b</sup>, Tofael AHAMED<sup>b</sup>  
(<sup>a</sup> Graduate School of Science and Technology, Degree Program in Life and Earth Sciences, University of Tsukuba, Japan, <sup>b</sup> Faculty of Life and Environmental Sciences, University of Tsukuba, Japan)
- 16:20 OD-3 Exploration the availability, utilization and prospective value addition of rice husk in Sri Lanka  
Pubudu Darshana KAHANDAGE<sup>a,b\*</sup>, S.D.S. PIYATHISSA<sup>a</sup>, Thilanka ARIYAWANSHA<sup>a</sup>, R.A.A.S. RATHNAYEKE<sup>b</sup>, Tofael AHAMED<sup>c</sup>, Ryozo NOGUCHI<sup>c</sup>  
(<sup>a</sup> Graduate School of Science and Technology, University of Tsukuba, Japan, <sup>b</sup> Department of Agricultural Engineering, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka, <sup>c</sup> Faculty of Life and Environmental Sciences, University of Tsukuba, Japan)
- 16:35 OD-4 Estimation of the plant height for energy crops using UAV-SfM method  
Fumio Hasegawa  
(The University of Tokyo, Japan)

(Break 16:50-17:00)

## **Session OD-II Sustainability Assessment**

Chair: Fumio Hasegawa (The University of Tokyo, Japan)

- 17:00 OD-5 The future of oil palm plantation in Central Kalimantan as a source of biofuel raw material: A fair competition with other crop commodities  
Reza ARIESCA<sup>a,d</sup>, Andi Adriana We Tenri SAU<sup>b\*</sup>, Arief Ameir Rahman SETIAWAN<sup>a,c\*</sup>, Ryozo NOGUCHI<sup>c\*</sup>, Tofael AHAMED<sup>c\*</sup>  
(<sup>a</sup> Graduate School of Science and Technology, University of Tsukuba, Japan, <sup>b</sup> Indonesian Ministry of Environment and Forestry, Indonesia, <sup>c</sup> Faculty of Life and Environmental Sciences, University of Tsukuba, Japan, <sup>d</sup> Indonesian Coordinating Ministry for Economic Affairs, Indonesia, <sup>e</sup> Indonesian Institute of Sciences, Indonesia)

- 17:15 OD-6 Potential utilization of oil palm biomass for cofiring in Indonesia: A life cycle assessment based calculation to estimate biomass purchasing price for power plant  
Arief Ameir Rahman SETIAWAN<sup>a,d\*</sup>, Sasa Sofyan MUNAWAR<sup>d</sup>, Reza ARIESCA<sup>a,c</sup>,  
Deni PURNOMO<sup>d</sup>, Agusta Samodra PUTRA<sup>d</sup>, Kiman SIREGAR<sup>c</sup>, Edi Iswanto  
WILOSO<sup>d</sup>, Tofael AHAMED<sup>b</sup>, Ryozo NOGUCHI<sup>b</sup>  
(<sup>a</sup> Graduate School of Science and Technology, University of Tsukuba, Japan, <sup>b</sup> Faculty  
of Life and Environmental Sciences, University of Tsukuba, Japan, <sup>c</sup> Coordinating  
Ministry for Economic Affairs, Indonesia, <sup>d</sup> National Research and Innovation Agency,  
Indonesia, <sup>e</sup> University of Syiah Kuala, Indonesia)
- 17:30 OD-7 Current situation and reduction potential of life-cycle greenhouse gas emissions of  
palm kernel shell power generation  
Issei SATO<sup>a\*</sup>, Takanobu AIKAWA<sup>b</sup>, Chun Sheng GOH<sup>c</sup>, Chihiro KAYO<sup>a</sup>  
(<sup>a</sup> Graduate School of Agriculture, Tokyo University Agriculture and Technology,  
Japan, <sup>b</sup> Renewable Energy Institute, Japan, <sup>c</sup> Jeffrey Sachs Center on Sustainable  
Development, Sunway University, Malaysia)

**Closing ceremony 17:45-18:00**