

# International Workshop of Energy Conversion 2023



## IWEC2023 Program (tentative)

Kambaikan Building, **Muromachi Campus**,  
**Doshisha University**, Kyoto

< March 15, Wednesday >

### Reception and Welcome party

13:00-18:30 Reception at reception desk  
19:00-20:30 Welcome party



< March 16, Thursday >

### Opening ceremony

09:00-09:10 **Opening**  
09:10-09:20 **Opening speech**  
Prof. Minoru Inaba  
Director of Energy Conversion Research Center, Doshisha University  
  
09:20-09:30 Short break (Preparation of talk)

### Session 1: Energy Storage and Transportation of Energies 1

09:30-09:50 **A fractional step lattice Boltzmann method for interfacial behaviors of magnetic multiphase flows**  
X. Li<sup>1</sup>, Z.-Q. Dong<sup>1</sup>, X.-R. Zhuang<sup>2</sup>, L.-P. Wang<sup>1</sup>, X.-D. Niu<sup>3</sup>, H. Yamaguchi<sup>4</sup>, P. Yu<sup>1\*</sup>  
<sup>1</sup>Department of Mechanics and Aerospace Engineering, Southern University of Science and Technology, Shenzhen, China  
<sup>2</sup>School of Mechanical and Electrical Engineering, Shenzhen Polytechnic, Shenzhen  
<sup>3</sup>College of Engineering, Shantou University, Shantou, China  
<sup>4</sup>Energy Conversion Research Center, Doshisha University, Kyoto, Japan

- 09:50-10:10     **Heat transfer characteristics in Rayleigh-Bénard convection of temperature sensitive magnetic fluid with fluid-particle interaction**  
M.-F. Chen
- 10:10-10:30     **Convection in bidisperse porous media**  
S. Saravanan
- 10:30-10:50     Coffee break

**Session 2: High Efficiency Energy Conversion Systems**

- 10:50-11:10     **Development of La<sub>0.6</sub>Sr<sub>0.4</sub>CoO<sub>3-δ</sub> anode for oxygen generation by molten salt electrolysis**  
S. Tanaka<sup>1</sup>, Y. Suzuki<sup>1</sup>, T. Fukumoto<sup>2</sup>, T. Goto<sup>2</sup>  
<sup>1</sup>Office for Research Initiatives and Development, Doshisha University, Kyoto, Japan  
<sup>2</sup>Faculty of Science and Engineering, Doshisha University, Kyoto, Japan
- 11:10-11:30     **Experiment study on the exhaust-gas heat exchanger for small and medium-sized fishing marine diesel engine**  
G. Xi, X. Wang  
Nantong Institute of Technology, Nantong, China
- 11:30-11:50     **Solar energy to electric energy**  
P. Kandaswamy

**Session 3: Keynote lecture**

- 11:50-12:20     **Numerical simulations of ferrofluid droplets and surface instabilities in ferrofluid layers**  
X.-D. Niu<sup>1,2</sup>, J.-X. Zhou<sup>1,2</sup>, H.-W. Xiao<sup>1,2</sup>, A. Khan<sup>1,2</sup>, M.-F. Chen<sup>3</sup>, D.-C. Li<sup>4</sup>, H. Yamaguchi<sup>5</sup>  
<sup>1</sup>Key Laboratory of Intelligent Manufacturing Technology, Shantou University, Guangdong, China  
<sup>2</sup>College of Engineering, Shantou University, Guangdong, China  
<sup>3</sup>College of Physics and Electromechanics Engineering, Longyan University, Longyan, China  
<sup>4</sup>Department of Mechanical Engineering, Tsinghua University, Beijing, China  
<sup>5</sup>Energy Conversion Research Center, Doshisha University, Kyoto, Japan
- 12:20-13:30     Lunch

**Session 4: Energy Conversion and Related Research Topics 1**

- 13:30-13:50     **Medium scale distribution chains for hydrogen**

P. Neksa<sup>1,2</sup>, M. Z. Saeed<sup>2</sup>, S. Trædal<sup>1</sup>, I. Snustad<sup>1</sup>, I. Koshelkov<sup>2</sup>, L. D. Jacobsen<sup>2</sup>

<sup>1</sup>SINTEF Energy Research, Trondheim, Norway

<sup>2</sup>NTNU, Department of Energy and process engineering, Trondheim, Norway

13:50-14:10 **Recycling of fisheries waste**

H. Kobatake, S. Tanaka, Y. Suzuki, T. Goto

Doshisha University, Kyotanabe, Japan

14:10-14:30 **Reduction in energy consumption in water purification technology with water**

T. Kuwahara

Department of Mechanical Engineering, Nippon Institute of Technology, Saitama, Japan

14:30-14:50 **Neural Networks and support vector regression in building energy prediction**

F. Magoules

14:50-15:10 Coffee break

### **Session 5: Flow and Heat transfer Session**

15:10-15:30 **Talk 12**

H. Yamasaki

15:30-15:50 **Heat transport characteristics of a closed two phase thermosyphon by water with air mixed (effect of the internal structure)**

T. Kitamura, T. Kubota, S. Shuchi

Department of Mechanical Engineering, Akita Prefectural University, Akita, Japan

15:50-16:10 **Talk 14**

P. Yu

16:10-16:30 Coffee break

### **Session 6: Energy Storage and Transportation of Renewable Energies 2**

16:30-16:50 **Prediction of nozzle jet using physics-informed neural networks**

Y.-Z. Wang

16:50-17:10 **Energy storage method based on carbon dioxide**

Y. Nie

17:10-17:30 **Innovative approach to recover thermal storage tanks losses during standstill demands period. A numerical study.**

H. Elarga

17:30-17:40 Announcement

18:00-20:30     **Banquet**

< March 17, Friday >

**Session 7: Energy Storage and Transportation of CO<sub>2</sub>**

09:30-09:50     **CERN CO<sub>2</sub> primary cooling – Project roadmap and first operational units**

P. Barroca<sup>1</sup>, A. Hafner<sup>1</sup>, B. Verlaet<sup>2</sup>, P. Hanf<sup>2</sup>

<sup>1</sup>Norwegian University of Science and Technology

<sup>2</sup>European Organization for Nuclear Research (CERN), Geneva, Switzerland

(NTNU), Trondheim, Norway

09:50-10:10     **Performance improvement strategies for CO<sub>2</sub> based experimental Rankine cycle for better sustainability**

O. Kizilkan

10:10-10:30     **MW-scale supercritical CO<sub>2</sub> power generation system and efficiency**

**L. Chen**

10:30-10:50     Coffee break

**Session 8: Energy Conversion and Related Research Topics 2**

10:50-11:10     **One-step reduction process of silica to silicon by molten salt electrolysis**

Y. Suzuki<sup>1</sup>, S. Tanaka<sup>1</sup>, T. Goto<sup>2</sup>

<sup>1</sup>Organization for Research Initiatives and Development, Doshisha University, Kyoto, Japan

<sup>2</sup>Department of Science of Environment and Mathematical Modeling Graduate School of Science and Engineering, Kyoto, Japan

11:10-11:30     **PM removal characteristics in magnetic fluid filter with dielectric barrier discharge**

Y. Asaka, T. Kuwahara

Department of Mechanical Engineering, Nippon Institute of Technology, Saitama, Japan

11:30-11:50     **Talk 23**

Y. Iwamoto

11:50-12:10     **Status of clean cooling systems**

A. Hafner

12:10-13:30     Lunch

**Session 9: Keynote lecture**

13:30-14:00 **Keynote lecture 25**

H. Yamaguchi

**Closing ceremony**

14:00-14:10 **Closing speech**

Prof. Hiroshi Yamaguchi

Organizer of IWEC 2023, Doshisha University

14:10-14:20 **Closing**