

# Program of the 32nd ILASS-Japan Symposium

## Venue

Rinko-kan, Shinmachi-Campus, Doshisya University  
(Konoedenomotecho 159-1, Kamigyo-ku, Kyoto, 602-0047 JAPAN)

## Special Lecture

November 27 (Monday) 10 : 00 ~ 11 : 00 (Room A)

Chair: Yoshimitsu Kobashi (Okayama University)

"Development of Liquid Ammonia Spray Combustion Technology for Gas Turbines"

Prof. E.C. Okafor (Kyushu University)

## Invited Lecture

November 28 (Tuesday) 9 : 00 ~ 10 : 00 (Room A)

Chair: Jun Hayashi (Kyoto University)

" Spray Combustion Research Activities at Sejong University for Advanced Energy and Propulsion Systems"

Prof. Hyung Sub Sim (Sejong University, KOREA)

# Table of Lectures and Technical sessions

November 27(Monday)

Time	Room A	Room B	Exhibition
8:30-	Registration		
9:45-10:00	Opening (Room A)		
10:00-11:00	Special lecture (Room A)		
	「Development of Liquid Ammonia Spray Combustion Technology for Gas Turbines」 Prof. Ekenechukwu C. Okafor (Kyushu University)		
11:00-12:40	Lunch		Exhibition
12:40-13:55	A11 : Gasoline spray	B11 : Atomization Process/Two-phase flow	
13:55-14:10	Break		
14:10-15:50	A12 : Diesel Spray	B12 : Measurement I	
15:50-16:00	Break		
16:00-17:20	ILASS-Japan General Assembly Meeting (Room A)		

November 28 (Tuesday)

Time	Room A	Room B	Exhibition
8:30-	Registration		
9:00-10:00	Invited Lecture (Room A)		
	「Spray Combustion Research Activities at Sejong University for Advanced Energy and Propulsion Systems」 Prof. Hyung Sub Sim (Sejong University, KOREA)		
10:00-10:10	Break		
10:10-11:50	A21 : Atomization Process/Equipment	B21 : Atomization Process/Model	Exhibition
11:50-13:00	Lunch		
13:00-14:40	A22 : Wall impingement/Evaporation	B22 : Atomization Process/Twin fluid	
14:40-14:50	Break		
14:50-16:30	A23 : Alternative fuel	B23 : Measurement II	
16:30-16:50	Closing (Room A)		
16:50-17:10	Award Ceremony of Best Presentations (Room A)		

# Program of Technical sessions

**November 27 (Monday)**

**A11 : Gasoline Spray 12:40-13:55 Room A**

**Chair : Tsukasa Hori (Osaka Univ.)**

- 【A-111】 Particle size analysis of low-temperature spray in DISI engine using super high spatial resolution photography  
※Kohei Akaishi, Akira Adachi, Dai Matsuda, Eriko Matsumura, Jiro Senda
- 【A-112】 Momentum exchange and atomization characteristics of direct injection gasoline spray in low ambient density  
※Atsuya Kawamura, Dai Matsuda, Kanako Nishimura, Eriko Matsumura, Jiro Senda

**A12 : Diesel Spray 14:10-15:50 Room A**

**Chair: Daisuke Tsuru (Kyushu Univ.)**

- 【A-121】 Simulation of diesel spray with a novel high-velocity liquid jet breakup model  
※Dai Matsuda, Kohei Akashi, Eriko Matsumura, Jiro Senda
- 【A-122】 Influence of the configuration of an enlarged multi-hole diesel nozzle with lifting motion of needle valve on internal flow and sprays  
※Haru Ogaki, Sayaka Shiozaki, Tetsuya Oda
- 【A-123】 Study on spray and combustion characteristics of fatty acid methyl esters mixed with ethanol  
※Yuya Ikuta, Shoi Koshikawa, Jiro Senda, Eriko Matsumura

**B11 : Atomization process/Two-phase flow 12:40-13:55 Room B**

**Chair : Hiroyasu Saitoh (Shibaura Inst. Tech.)**

- 【B-111】 Effects of accompanying gas flow on liquid film formed on the superheated wall surface  
※Kakeru Mizukoshi, Noritaka Sako, Jun Hayashi, Yu Daimon, Hiroshi Kawanabe
- 【B-112】 Prediction model for 3D structure and dry-out point of wavy liquid film sheared by gas flow  
※Chihiro Inoue
- 【B-113】 Spray distribution in Imping-jet atomization  
※Mitsunori Itoh, Yuki Iwaki, Erika Uchiyama, Yoshiki Matsuura, Yasuhito Kano

**B12 : Measurement I 14:10-15:50 Room B**

**Chair : Jun Hayashi (Kyoto Univ.)**

- 【B-121】** High-speed schlieren imaging of molten metal atomization by supersonic gas flow  
※Nao Uchida, Taikou Tanimoto, Zhenying Wang, Chihiro Inoue, Jun Horiuchi, Takuya Takashita
- 【B-122】** Visualization of droplet impingement phenomena with experiment and PIV-DDM analysis in urea SCR dosing system  
※Jyo Ono, Tetsuo Nohara, Hiroki Onoue, Masayuki Ochiai
- 【B-123】** Evaluation of spatial distribution of internal flow velocity in diesel spray by laser sheet  
※Aki Mahara, Keisuke Komada, Shohei Yamamoto, Hironobu Ueki
- 【B-124】** On the accuracy of size measurement of submicron particles using scattered light intensities  
※Ryota Saito, Hiroaki Kobayashi, Juan C Gonzalez Palencia, Mikiya Araki

## November 28(Tuesday)

### A21 : Atomization process/Equipment 10:10-11:50 Room A

Chair : Motohiro Oshima (Toyama Inst. Tech. Univ.)

- 【A-211】 Development of experimental equipment for shock induced droplet atomization with improved controllability  
※Makoto Asahara, Kodai Iwasaki, Kazuma Iwatsuki, Takeshi Miyasaka
- 【A-212】 Classification of breakup regimes in a jet nebulizer by sound  
※Hideto Katou, Minoru Shirota, Hiroaki Wada
- 【A-213】 Numerical simulation of disintegration of urine jet  
※Riki Kaneko, Takuo Kobayashi, Kang Donghyuk, Takeshita Hideki, Homma Shunji
- 【A-214】 Atomization and generation of focused liquid jet at the gas-liquid interface by collision of liquid-filled flasks  
※Hiroya Watanabe, Kohei Yamagata, Yuto Yokoyama, Hiroaki Kusuno, Yoshiyuki Tagawa

### A22 : Wall Impingement/Evaporation 13:00-14:40 Room A

Chair : Yoshimitsu Kobashi (Okayama Univ.)

- 【A-221】 Relationship between wall surface roughness and wall heat transfer from a jet flame after impingement on a wall  
※Naoki Takahashi, Yoshio Zama, Fumihiko Kawaharazuka, Noboru Uchida
- 【A-222】 Spread and evaporation of liquid film formed by fuel spray impingement on walls having various surface roughness properties  
※Kazuki Yamaguchi, Hiroki Hori, Yoshihiro Kobayashi, Masataka Arai
- 【A-223】 Effects of ambient pressure and temperature on unsteadiness of single droplet evaporation of fuels  
※Koyo Nakagawa, Hiroshi Nomura, Yusuke Suganuma
- 【A-224】 Spray development and atomization processes under different jet modes  
※Akari Shimono, Dai Matuda, Kanako Nishimura, Eriko Matsumura, Jiro Senda, Yoshiya Inoue, Kazuo Kurata

### A23 : Alternative Fuel 14:50-16:30 Room A

Chair : Yoshio Zama (Gunma Univ.)

- 【A-231】 Study of injection system for stable combustion in spark-ignition hydrogen engines  
※Go Yokomizo, Kanako Nishimura, Eriko Matsumura, Jiro Senda, Keizo Takeda
- 【A-232】 Spray characteristics of NH<sub>3</sub>/ diesel fuel mixtures  
※Yuki Koga, Yohei Fujiwara, Tsukasa Hori, Fumiteru Akamatsu
- 【A-233】 Spray characteristics of hydrocarbon-containing liquid ammonia  
※Daisuke Tsuru, Takuya Wakasugi, Hiroshi Tashima
- 【A-234】 The flashing spray simulation of super-heated 2-methylbutane with OpenFOAM  
※Motohiro Oshima, Katsuyuki Nakayama

**B21 : Atomization Process/Modelling 10:10-11:50 Room B**

**Chair : Yoichi Ogata(Hiroshima Univ.)**

- 【B-211】 Prediction of spray tip penetration in internal combustion engines  
※Kanako Nishimura, Dai Matsuda, Kohei Akaishi, Eriko Matsumura, Jiro Senda
- 【B-212】 Elucidation of spray structure in crossflow by deep learning analysis of ligaments and droplets  
※Wenjing XING, Sushil RAUT, Yicheng DENG, Kazunori Sato, Keiya Nishida, Yoichi Ogata
- 【B-213】 State evaluation of single-component two-phase jet by theoretical model based on thermodynamics and visualization experiment  
※Kenichi Togashi, Makoto Asahara
- 【B-214】 Spatio-temporal feature extraction of single droplet atomization by singular value decomposition  
※Kodai Iwasaki, Makoto Asahara, Kota Nakata, Takeshi Miyasaka, Donghyuk Kang

**B22 : Atomization Process/Twin Fluid Atomizer 13:00-14:40 Room B**

**Chair : Chihiro Inoue (Kyushu Univ.)**

- 【B-221】 Internal flow of mixing port and breakup process of liquid jet of twin-fluid atomizer  
※Yicheng Deng, Wenjing Xing, Sushil Raut, Kazunori Sato, Keiya Nishida, Yoichi Ogata, Yu Jin, Xianyin Leng
- 【B-222】 Atomization mode and spray characteristics of twin-fluid atomizers  
※Takumi Sugi, Akira Sou, Yoshitaka Wada, Yoshiharu Ueki
- 【B-223】 Numerical analysis on the breakup process of twin-fluid atomizers  
※Rena Majima, Syuichiro Nishide, Akira Sou, Yoshitaka Wada, Yoshiharu Ueki
- 【B-224】 Investigation of breakup of shear-thinning liquid jet in an air crossflow  
※Shota Nakashima, Maki Miyamoto, Minoru Shirota, Shuichi Iwata, Yasuhiro Saito

**B23 : Measurement II 14:50-16:30 Room B**

**Chair : Keisuke Komada (Fukuoka Inst. Tech.)**

- 【B-231】 Investigation of quantification in a rotary immersion system.  
※Yukihiko Kaneko, Rikio Watanabe
- 【B-232】 Visualization and simulation of developing process of fuel gas jet in PCWT  
※Yiren Qian, Tetsuhisa Mikami, Hirota Takata, Takahiro Yamaguchi, Takuya Inaoka, Hiroshi Tashima
- 【B-233】 X-ray phase contrast analysis of liquid core structures in superheated sprays  
※Weidi Huang, Mitsuharu Oguma, Kotaro Tanaka