♦Event Overview♦

Monday, July 23
15:00~18:00 Registration Hour
16:00~18:00 Welcome Party (Room C)

Tuesday, July 24		
7:10~17:00 Registration Hour		
8:00~17:30 Exhibition Hour		
8:20~9:20 Opening Remark & Plenary Lecture PL-1 (Room A)		
Room A	**Room B**	**Room C**
9:30~10:45 EE1 Exhaust Emissions and Measurement 1	9:30~10:45 GE1 Gas Engine 1	9:30~10:45 MS1 Modeling and Simulation 1
10:45~11:05 Technical Session Break		
11:05~12:20 EE2 Exhaust Emissions and Measurement 2	11:05~12:20 GE2 Gas Engine 2	11:05~12:20 MS2 Modeling and Simulation 2
12:20~13:50 Lunch Break		
13:50~15:55 OS1-1 Ultimate thermal efficiency 1	13:50~15:55 FL1 Fuels 1	13:50~15:55 MS3 Modeling and Simulation 3
15:55~16:15 Technical Session Break		
16:15~17:30 OS1-2 Ultimate thermal efficiency 2	16:15~17:30 FL2 Fuels 2	16:15~17:30 SP1 Spray and Spray Combustion 1
17:30~17:50 Technical Session Break		
	17:50~18:40 LE1 Lubricants, Engine and Engine Components	17:50~18:40 EC1 Engines Control
19:00~21:00 Reception (Room A)		

Wednesday, July 25		
8:00~17:00 Registration Hour		
8:00~17:30 Exhibition Hour		
8:20~9:10 Plenary Lecture PL-2 (Room A)		
Room A	**Room B**	**Room C**
9:20~11:00 OS2-1 EGR combustion 1	9:20~11:00 OS3-1 Application of chemical kinetics to combustion modeling 1	9:20~11:00 CT1 Combustion, Thermal and Fluid Science
11:00~11:20 Technical Session Break		
11:20~12:35 OS2-2 EGR combustion 2	11:20~12:35 OS3-2 Application of chemical kinetics to combustion modeling 2	11:20~12:35 SI1 Spark-Ignition Engine Combustion 1
12:35~14:00 Lunch Break		
14:00~14:50 Plenary Lecture PL-3 (Room A)		
14:50~15:00 Technical Session Break		
15:00~18:00 Executive Panel Session (Room A)		
18:30~20:30 Banquet (Room B+C)		

Thursday, July 26		
8:00~17:00 Registration Hour		
8:00~17:30 Exhibition Hour		
Room A	**Room B**	**Room C**
8:20~10:00 SI2 Spark-Ignition Engine Combustion 2	8:20~10:00 CI1 Compression Ignition Engine Combustion 1	8:20~10:00 MD1 Measurement and Diagnostics 1
10:00~10:20 Technical Session Break		
10:20~12:00 HC1 HCCI Combustion 1	10:20~12:00 CI2 Compression Ignition Engine Combustion 2	10:20~12:25 MD2 Measurement and Diagnostics 2
12:25~13:30 Lunch Break		
13:30~15:10 HC2 HCCI Combustion 2	13:30~15:10 SP2 Spray and Spray Combustion 2	13:30~14:45 OS4 Plasma-assisted combustion
15:10~15:30 Technical Session Break		
15:30~16:45 HC3 HCCI Combustion 3	15:30~16:45 SP3 Spray and Spray Combustion 3	
16:50~18:30 Closing Remarks & Farewell Party (Room C)		

♦Technical Session Program♦

Tuesday, July 24

8:20~9:20 **Room A**

Opening Remark: Eiichi Murase (Chairperson of Organizing Committee)
Plenary Lecture (PL-1): Toyota's Challenges for Sustainable Mobility
Yoshihiko Matsuda (Toyota Motor Corporation)
Chairperson: Jiro Senda (Doshisha Univ.)

Room A	Room B	Room C
9:30~10:45 EE1 Exhaust Emissions and Measurement 1	**9:30~10:45GE1 Gas Engine 1**	**9:30~10:45 MS1 Modeling and Simulation 1**
Chairperson: Takaaki Kitamura (Japan Automobile Research Institute)	**Chairperson: Osamu Moriue (Kyushu Univ.)**	**Chairperson: Atsushi Teraji (Nissan Motor Co., Ltd.)**
EE1-1: NOx Reduction Characteristics of DME-SCR System for Diesel Engines *Gen Shibata, Keisuke Tanaka, Yuhi Chiba, Hideyuki Ogawa and Masahide Shimokawabe* (Hokkaido Univ.)	**GE1-1: Performance and Emission Characteristics of HCNG Engine for Heavy Duty Vehicles** *Cheolwoong Park, Changgi Kim, Young Choi* (Korea Inst. of Machinery and Materials) *Yasuo Moriyoshi* (Chiba Univ.)	**MS1-1: Numerical analysis and statistical description of the primary breakup in fuel nozzles of large two stroke engines for the application in CFD engine simulations** *Sebastian Hensel, Kai Herrmann, Reiner Schulz and German Weisser* (Wärtsilä Switzerland Ltd)
EE1-2: Thermal Decomposition Behavior of Urea in Heating Processes *Tomohiko Furuhata, Hironobu Wachi, Yoshio Zama and Masataka Arai* (Gunma Univ.)	**GE1-2: Flame Development and THC of CNG with Hydrogen Addition using Gas-jet Ignition with Two-stage Injection** *Mas Fawzi Mohd Ali, Tomoshi Kaida, Yusuke Ido, Yuzuru Nada and Yoshiyuki Kidoguchi* (The Univ. of Tokushima)	**MS1-2: A Study on Practical Use of Diesel Combustion Calculation** *Taizo Kitada, Masato Kuchita and Shinji Hayashi* (Mitsubishi Motors Corporation)
EE1-3: Aromatic Additive Effects on Soot Formation in a Fischer-Tropsch Diesel (FTD) Spray Flame via Laser Spectroscopy *Tetsuya Aizawa, Mohd Fareez Edzuan Bin Abdullah, Akira Inoue, Yutaro Ishidzuka, Natsuki Taki* (Meiji Univ.), *Hidenori Kosaka* (Tokyo Inst. Tech.)	**GE1-3: Effect of Engine oil mist on Cyclic Variation of a Diesel Engine with Hydrogen** *Jun Matsubara, Takashi Yagenji, Toru Miyamoto, Takehiko Seo, Masato Mikami* (Yamaguchi Univ.), *Hajime Kabashima* (Honda R&D Co., Ltd.)	**MS1-3: A Unified Detailed Tabulated Chemistry Approach to Predict Pollutant Emissions for both Compression-Ignition and Spark-Ignition engines** *Sabre Bougrine, Guillaume Bernard, Romain Lebas and Stéphane Richard* (IFP Energies nouvelles)
10:45~11:05 **Technical Session Break**		
11:05~12:20 EE2 Exhaust Emissions and Measurement 2	**11:05~12:20 GE2 Gas Engine 2**	**11:05~12:20 MS2 Modeling and Simulation 2**
Chairperson: Yoshiyuki Kidoguchi (The Univ. of Tokushima)	**Chairperson: Hiroshi Tajima (Kyushu Univ.)**	**Chairperson: Jin Kusaka (Waseda Univ.)**
EE2-1: Application of tunable diode laser absorption spectroscopy with optical hollow fiber to engine exhaust gas measurement *Akira Adachi, Deguchi Yoshihiro and Shinichirou Konishi* (The Univ. of Tokushima)	**GE2-1: CFD and X-ray Investigation of the Characteristics of Under-Expanded Gaseous Jets** *Riccardo Scarcelli, Alan L. Kastengren, Christopher F. Powell, Thomas Wallner, and Nicholas S. Matthias* (Argonne National Laboratory)	**MS2-1: Simulation of Diesel surrogate fuels performance under engine conditions using 0D engine – fuel test bench** *Michal Pasternak, Fabian Mauss, Andrea Matrisciano, Lars Seidel* (Brandenburg University of Technology)
EE2-2: Analysis of CO Emission Sources in Diesel Combustion with Multiple Injections *Takayuki Fuyuto, Reiko Ueda, Yoshiaki Hattori, Kazuhiro Akihama* (Toyota Central R&D Labs., Inc.), *Hideki Aoki, Tsutomu Umehara* (Toyota Industries Corporation), *Hisaki Ito and Akio Kawaguchi* (Toyota Motor Corporation)	**GE2-2: Laser-Induced Fluorescence to Visualize Gas Mixture Formation in an Optically Accessible Hydrogen Engine** *Thomas Mederer, Michael Wensing and Alfred Leipertz* (Friedrich-Alexander Universität Erlangen-Nürnberg)	**MS2-2: A combined Eulerian Lagrangian spray atomization (ELSA) coupled with ECFM-CLEH Combustion model for DI-Diesel combustion modelling with a special emphasis on low temperature NO formation** *Gaëtan Desoutter, Marc Zellat, Anna Desportes, Driss Abouri and Jeremy Hira* (CD-adapco)
EE2-3: Transient EGR Ratio Measurement by Heated NDIR Method and Analysis of Engine EGR Response Time *Tomoshi Yoshimura, Ichiro Asano, Masaru Miyai and Hiroshi Nakamura* (HORIBA, Ltd.)	**GE2-3: Combustion Analysis for Natural Gas/Diesel Dual Fuel Engine** *Taku Tsujimura* (AIST), *Kenji Aoyagi, Naoki Kurimoto and Yoshiaki Nishijima* (DENSO CORPORATION)	**MS2-3: Conditional Moment Closure with a Progress Variable Approach** *Harry Lehtiniemi, Anders Borg* (LOGE AB), *and Fabian Mauss* (Brandenburg University of Technology)

12:20~13:50 **Lunch Break**		
13:50~15:55 OS1-1 **Ultimate thermal efficiency 1**	**13:50~15:55 FL1** **Fuels 1**	**13:50~15:55 MS3** **Modeling and Simulation 3**
Chairperson: Yuzo Aoyagi **(New ACE Institute Co., Ltd.)**	**Chairperson: Bianca Maria Vaglieco** **(Istituto Motori-CNR)**	**Chairperson: Makoto Koike** **(Toyota Central R&D Labs Inc.)**
OS1-1: Application of a Dedicated EGR Configuration to a V6 Engine (A novel concept for high efficiency gasoline engines) *Jess Gingrich, Darius Mehta, Terry Alger* (Southwest Research Institute), *and Michael Czekala, Michael Shelby* (Ford Motor Company)	**FL1-1: Kinetic Study of Methyl Oleate Oxidation Using a Semi-Detailed Mechanism** *Junfeng Yang* (Chalmers University of Technology), *Chitralkumar V. Naik* (Reaction Design Inc.), *Valeri I. Golovitchev* (Chalmers University of Technology) *and Ellen Meeks* (Reaction Design Inc.)	**MS3-1: Strategies for Reducing the Computational Time Required for Diesel Engine Simulations with KIVA** *Benjamin A. Cantrell, Rolf D. Reitz, Christopher J. Rutland, Yusuke Immamori* (University of Wisconsin-Madison)
OS1-2: A Heat Balance Analysis of the HCCI Combustion Using the Blowdown Supercharge System *Tatsuya Kuboyama, Yasuo Moriyoshi (*Chiba Univ.*), Toshio Yamada* (IDAJ), *Koichi Hatamura* (Hatamura Engine Research Office), *Junichi Takanashi and Yasuhiro Urata* (Honda R&D)	**FL1-2: Examination of Particulate Emissions from Alcohol Blended Fuel Combustion in a Gasoline Direct Injection Engine** *Kyeong Lee, Heeje Seong, William Church, and Steve McConnell* (Argonne National Laboratory)	**MS3-2: Application of a Conditional Moment Closure Combustion model to a large two-stroke marine Diesel engine reference experiment** *Michele Bolla, Yuri M. Wright and Kostantinos Boulouchos* (ETH Zurich)
OS1-3: Thermal Efficiency improvement by increasing compression Ratio and Reducing Cooling Loss *Hiroyuki Yamashita, Hidefumi Fujimoto, Masahiko Fujimoto, Tatsuya Tanaka and Hiroyuki Yamamoto* (Mazda Motor Corporation)	**FL1-3: An experimental and modelling approach to the determination of auto-ignition of diesel fuel, dodecane and hexadecane spray flames at high pressure** *Alvaro Diez, Terese Løvås and Roy J. Crookes* (Queen Mary University of London)	**MS3-3: CAE tool chain for the prediction of pre-ignition risk in gasoline engines** *J. Ewald, M. Budde* (FEV GmbH), *B. Morcinkowski* (RWTH Aachen University), *R. Beykirch, Ph. Adomeit* (FEV GmbH)
OS1-4: Low Cooling Heat Loss and High Efficiency Diesel Combustion using Restricted In-Cylinder Flow *Takeshi Hashizume, Shinobu Ishiyama, Takashi Ogawa, Terutoshi Tomoda* (Toyota Motor Corporation), *Masaaki Kono* (Nippon Soken, Inc.), *and Kazuhisa Inagaki* (Toyota Central R&D Labs., Inc.)	**FL1-4: Effects of fuel composition on spray ignition under engine relevant conditions** *Thomas Vogel, Michael Wensing* (Friedrich-Alexander-University of Erlangen-Nuremberg)	**MS3-4: A CPU Efficient SI In-Cylinder Combustion and Knock Prediction Model Utilizing a Stochastic Reactor Approach, Turbulent Flame Propagation and Detailed Chemistry** *Cathleen Perlman, Simon Bjerkborn, Karin Fröjd* (LOGE AB) *and Fabian Mauss* (Brandenburg University of Technology)
OS1-5: Fuel Economy Effectiveness of Exhaust Heat Recovery System Using Thermoelectric Generator in a Series Hybrid and its Additional Benefits *M. Ohtani, M. Mori, M. Sorazawa, T. Yamagami and S. Takahashi* (Honda R&D Co Ltd)	**FL1-5: Effects of Fuel Composition on Flame Lift-off Length and Pollutant Formation in Dual-component Fuel Spray** *Masanori Okada, Daisuke Shigetomi, Masashi Matsumoto* (Doshisha Univ.), *Yoshimitsu Kobashi* (Kanazawa Institute of Technology) *and Jiro Senda* (Doshisha Univ.)	**MS3-5: Coupling of G-Equation Combustion Model with Reduced Chemical Kinetics for Knock Prediction in DISI Engines (Combustion and Knock Prediction in Gasoline Engines)** *Andreas Manz, Christian Krüger* (Daimler AG), *Fabian Mauss* (Brandenburgische Technische Universität Cottbus*), Yongjun Liang, Giorgio De Paola* (CD-adapco)
15:55~16:15 **Technical Session Break**		
16:15~17:30 OS1-2 **Ultimate thermal efficiency 2**	**16:15~17:30 FL2** **Fuels 2**	**16:15~17:30 SP1** **Spray and Spray Combustion 1**
Chairperson: Jess Gingrich **(Southwest Research Institute)**	**Chairperson: Koji Yamane** **(The Univ. of Shiga Prefecture)**	**Chairperson: Masato Mikami** **(Yamaguchi Univ.)**
OS1-6: High Thermal Efficiency and Low Exhaust Emissions by Injection Nozzle Selection under High & Low Pressure Loop EGR *Yuzo Aoyagi, Takayuki Adachi, Masayuki Kobayashi, Tetsuya Murayama and Munemasa Hashimoto,* (New ACE Institute Co., Ltd.), *Yuichi Goto, Hisakazu Suzuki* (National Traffic Safety and Environment Laboratory)	**FL2-1: The Impact of Fuels and Fuelling Strategy on Enabling of Clean Combustion in a Diesel Engine** *Xiaoye Han, Kelvin Xie, Graham T. Reader, Xiang Chen* (University of Windsor), *Jimi Tjong* (Ford Motor Company), *Meiping Wang, and Ming Zheng* (University of Windsor)	**SP1-1: Modeling Spray and Mixing Processes in High Pressure Multiple-injection CRDI Engines (Modeling CRDI Engines)** *Pramod S Mehta, S Rajkumar and Shamit Bakshi* (Indian Institute of Technology Madras)

OS1-7: A Study on the Applicability of a Mechanical Supercharger to a Diesel Engine for the Commercial Vehicle *Naoya Ishikawa, Hikaru Itoh, Junichiro Nitta* (Isuzu Advanced Engineering Center, Ltd.)	**FL2-2: Numerical Study on Soot Precursor of JP-8 Surrogate under Diesel Conditions Using a Two-Stage Lagrangian (TSL) Model** *Khanh D. Cung, Anqi Zhang, and Seong-Young Lee* (Michigan Technological University)	**SP1-2: Chemical Thermodynamics Modeling of Vaporization and Ignition Processes in Dual-Component Fuel Spray** *Masashi Matsumoto* (Doshisha Univ.), *Chang Eon-Lee* (Inha Univ.), *Daisuke Shigetomi, Masanori Okada* (Doshisha Univ.), *Yoshimitsu Kobashi* (Kanazawa Institute of Technology), *Jiro Senda* (Doshisha Univ.)
OS1-8: Supermulti-jets colliding for realizing the Ultimate Engine (proposed by shock tube analysis, computation, and theoretical thought) *Ken Naitoh, Shinichi Tanaka, Takehito Emoto, Yusuke Kainuma, Mistuhide Kurihara, Dai Shimizu, Shouhei Nonaka, Makoto Iseno, Tomoaki Kubota, Seiji Hashimoto* (Waseda Univ.)	**FL2-3: Effect of biofuels on particle formation and emission from research CR diesel engine** *Ezio Mancaruso, Silvana Di Iorio, Bianca Maria Vaglieco* (Istituto Motori - CNR)	**SP1-3: Effect of KH-MTAB Breakup Model on LES of Diesel Spray under High Ambient Density Condition** *Koji Kitaguchi, Soichi Hatori, Tsukasa Hori and Jiro Senda* (Doshisha Univ.)
17:30~17:50 **Technical Session Break**		
	17:50~18:40 LE1 **Lubricants, Engine and Engine Components**	**17:50~18:40 EC1** **Engines Control**
	Chairperson: Taizo Kitada (Mitsubishi Motors Corporation)	**Chairperson: Yuuichi Kamada (UD Tracks Corporation)**
	LE1-1: Friction of Con-rod Bearings: Valuation Using Elastohydrodynamic Lubrication Model *Toshihiro Ozasa* (Osaka Electro-Communication Univ.)	**EC1-1: A Control Strategy Analysis for Clean and Efficient Combustion in Compression Ignition Engines** *Usman Asad, Ming Zheng, Jimi Tjong, Meiping Wang* (University of Windsor)
	LE1-2: A Prediction Formula for Heat Transfer Coefficient on Combustion Chamber Walls in Internal Combustion Engines (Investigation of Characteristic of Local Heat Transfer Coefficient by Three Dimensional Combustion Simulation) *Masahiko Emi* (Nissan Motor Co., Ltd.), *Yuta Aoki* (TPR Co., Ltd), *Shuji Kimura* (Nissan Motor Co., Ltd.), *and Yoshiteru Enomoto* (Tokyo City Univ.)	**EC1-2: Model-Based Control for Ignition Timing of Premixed Compression Ignition Combustion in a Diesel Engine** *Yoshie Kakuda, Sang-kyu Kim, Daisuke Shimo, Keiji Maruyama, Takayoshi Hashimoto, Hiroshi Hayashibara, Masayuki Tetsuno* (Mazda Corporation)

Wednesday, July 25

8:20~9:10 **Room A**

Plenary Lecture (PL-2): History and Diagnostics of Irregular Combustion in Spark Ignition Engines

Ulrich Spicher (Karlsruhe Institute of Technology)

Chairperson: Yasuo Moriyoshi (Chiba Univ.)

Room A	Room B	Room C
9:20~11:00 OS2-1 **EGR combustion 1**	**9:20~11:00 OS3-1** **Application of chemical kinetics to combustion modeling 1**	**9:20~11:00 CT1** **Combustion, Thermal and Fluid Science**
Chairperson: Tomohiko Furuhata (Gunma Univ.)	**Chairperson: Hiromitsu Ando (Univ. of Fukui)**	**Chairperson: Hiroshi Kawanabe (Kyoto Univ.)**
OS2-1: Optical Engine Indication based on IR-Measurement Techniques *Heinrich Voges, Olaf Thiele, Stefan Seefeldt and Thomas Berg* (LaVision GmbH)	**OS3-1: KUCRS – Detailed Kinetic Mechanism Generator for Versatile Fuel Components and Mixtures** *Akira Miyoshi* (Univ. of Tokyo)	**CT1-1: Experimental and modeling study of the effects of equivalence ratio on the benzene formation chemistry of one-dimensional laminar premixed n-heptane flames** *Gen Chen, Wu Yu, Jin Fu and Zuohua Huang* (IXi'an Jiaotong Univ.), *Jiuzhong Yang, Zhandong Wang and Fei Qi* (University of Science and Technology of China)

OS2-2: Experimental Investigation of Flame Propagation and Combustion Characteristics of Methane - Air Mixtures under EGR conditions in a Constant-Volume Combustion Vessel *Seung Hyun Yoon, Anqi Zhang, Khanh D. Cung, Jaclyn E. Johnson, Jeffrey D. Naber, and Seong-Young Lee* (Michigan Technological Univ.)	**OS3-2: Global Reaction Mechanism of Alkanes** *Hiromitsu Ando, Yasuyuki Sakai* (Univ. of Fukui), *Kazunari Kuwahara* (Osaka Institute of Technology), *Masanori Furutani* (Nagoya Institute of Technology) *and Muyou Syuu* (Univ. of Fukui)	**CT1-2: Three Dimensional Measurement of Vectors of the Flamelet Motion and Gas Velocity in a Turbulent Premixed Flame** *Yasuko Yoshida, Junichi Furukawa* (Tokyo Metropolitan College of Technology), *Vaishali Amin and Forman A. Williams* (University of California)
OS2-3: Influence of Charge Constituents on the Cycle-by-Cycle Variations of DME HCCI Engine *Kazuhiko Yamashita, Dongwon Jung and Norimasa Iida* (Keio Univ.)	**OS3-3: Chemical Kinetics Study on Effect of Pressure on Hydrocarbon Ignition Process** *Kazunari Kuwahara, Yoshihiro Hiramura, Shintaro Ohmura* (Osaka Institute of Technology), *Masahiro Furutani* (Nagoya Institute of Technology), *Yasuyuki Sakai, Hiromitsu Ando* (Univ. of Fukui)	**CT1-3: Chemiluminescence Spectroscopy of C_2 Swan Band to Explore the Flame Temperature** *Hideki Hashimoto* (Kyushu Univ.), *Tekona Shinagawa and Junichi Furukawa* (Tokyo Metropolitan College of Technology)
OS2-4: Diesel Particulate Fouling In EGR Coolers *Ho Teng* (AVL Powertrain Engineering, Inc.)	**OS3-4: Correlations Between Ignition Delay Times and Research Octane Number of Alkanes** *Yasuyuki Sakai, Hiromitsu Ando* (Univ. of Fukui), *Kazunari Kuwahara* (Osaka Institute of Technology), *and Masanori Furutani* (Nagoya Institute of Technology)	**CT1-4: Diagnostics of Incylinder Flow during Compression using PIV and Analysis using Proper Orthogonal Decomposition** *Avishek Ranjan, S R Chakravarthy, T N C Anand and Pramod S Mehta* (Indian Institute of Technology Madras)
11:00~11:20 **Technical Session Break**		
11:20~12:35 OS2-2 EGR combustion 2	**11:20~12:35 OS3-2 Application of chemical kinetics to combustion modeling 2**	**11:20~12:35 SI1 Spark-Ignition Engine Combustion 1**
Chairperson: Masataka Arai (Gunma Univ.)	**Chairperson: Akira Miyoshi (Univ. of Tokyo)**	**Chairperson: Choongsik Bae (Korea Advanced Institute of Science and Technology)**
OS2-5: Soot Emission Reduction Using Cooled EGR for a Boosted Spark-Ignition Direct-Injection (SIDI) Engine *Jianye Su, Min Xu, Yuyin Zhang, David L.S. Hung, Tie Li* (Shanghai Jiao Tong Univ.)	**OS3-5: Comparison of PRF and Toluene/n-heptane Mixture in the Mechanism of Compression Ignition Using Transient Species Measurements and Simplified Model Analysis** *Mohd Adnin bin Hamidi, Hiroyuki Kosaki, Shingo Hinata, and AtsumuTezaki* (University of Toyama)	**SI1-1: Understanding of The Combustion Characteristics of Rotary Engine through Combustion Analysis** *Jyong-Ho Yun, Yuichiro Yasunaga, Ryo Itonaka, Tatsuo Ito, Shinya Ueki* (Mazda Motor Corporation)
OS2-6: Experimental Study of Intake Air Temperature Effects on NOx and Soot Emissions in a Direct Injection Diesel Engine *Jae-min Lee, Kyung-wook Choi and Ki-hyung Lee* (Hanyang Univ.)	**OS3-6: Multi-Fuel and Mixed-Mode IC Engine Combustion Simulation with a Detailed Chemistry based Progress Variable Library Approach** *Tao Bo, Rajesh Rawat, Richard Johns* (CD-adapco), *and Fabian Mauss* (Brandenburg University of Technology)	**SI1-2: One-dimensional Flame Propagation and Auto-ignition of End Gas in Constant Volume Vessel** *Yukihide Nagano* (Kyushu Univ.), *Tetsuya Ohira* (SUZUKI MOTOR CORPORATION), *Masayuki Oonaka, Yu Uyama and Toshiaki Kitagawa* (Kyushu Univ.)
OS2-7: Recirculation control logic for Diesel Low Pressure Loop EGR System *Akira Yamashita, Hisashi Ohki, Koichiro Nakatani and Terutoshi Tomoda* (Toyota Motor Corporation)	**OS3-7: Numerical Analysis of Effect of Intermediate Species Diffusion on Low Temperature Oxidation Process in a Homogeneous n-Heptane Mixture** *Atsushi Teraji* (Nissan Motor Co., Ltd.), *Takashi Ishihara and Yukio Kaneda* (Nagoya University)	**SI1-3: Influence of flame propagation velocity on knocking intensity in a super rapid compression machine** *Taiga Hibi, Toshiki Ito, Tomohiro Seimiya, Masato Katsumata and Mitsuaki Tanabe* (Nihon Univ.)
12:35~14:00 **Lunch Break**		
14:00~14:50 **Room A** **Plenary Lecture (PL-3): Recent Advances in Autoignition Kinetics of Automotive Fuels** **Charles K. Westbrook (Lawrence Livermore National Laboratory)** **Chairperson: Hiromitsu Ando (Univ. of Fukui)**		
14:50~15:00 **Technical Session Break**		

15:00~18:00 **Room A**

Executive Panel Session

Powertrain for passenger vehicles: What will be the mainstream in 2030?
-Can Internal Combustion Engines survive in the Low CO_2 period?-

Moderator: Hajime FUJIMOTO (Doshisha Univ., Prof. Emeritus)

Speakers/Panelists:

Günter FRAIDL (AVL List GmbH)
Combustion engines for future powertrain systems

Yusuke HASEGAWA (Honda R&D Co., Ltd.)
Towards realization of "joy of mobility" and "sustainable society" for 2030
-Honda's Challenges in the Future Mobility Technology-

Ryozo HIRAKU (NISSAN MOTOR CO., LTD.)
View of power-train technology for 2030

Satoru ITO (Bosch Corporation)
Diesel contribution to future clean power train

Stefan PISCHINGER (FEV GmbH)
The internal combustion engine - the key for future propulsion

Toshifumi TAKAOKA (Toyota Motor Corporation)
Toyota's Strategy for Next Generation Powertrain

Thursday, July 26		
Room A	**Room B**	**Room C**
8:20~10:00 SI2 **Spark-Ignition Engine Combustion 2**	**8:20~10:00 CI1** **Compression Ignition Engine Combustion 1**	**8:20~10:00 MD1** **Measurement and Diagnostics 1**
Chairperson: Tetsuya Ohira (Suzuki Motor Corporation)	**Chairperson: Takuji Ishiyama (Kyoto Univ.)**	**Chairperson: Hirohide Furutani (National Institute of Advanced Industrial Science and Technology)**
SI2-1: The Influence of Injection Pressures of up to 800 bar on Catalyst Heating Operation in Gasoline Direct Injection Engines *Florian Schumann, Heiko Kubach and Ulrich Spicher* (Karlsruhe Institute of Technology)	**CI1-1: Induced Effect of Spark Discharge on Autoignition in Low Compression Ratio Diesel Engines** *Chihiro Kondo, Koji Yamane, Naoto Kumazawa and Kiyoshi Kawasaki* (The Univ. of Shiga Prefecture)	**MD1-1: Morphology of JIS#2 and Fischer-Tropsch Diesel (FTD) Soot in Spray Flames via Transmission Electron Microscopy (TEM)** *Hiroki Nishigai, Katsufumi Kondo, Teruo Yamaguchi and Tetsuya Aizawa* (Meiji Univ.)
SI2-2: Effects of the injection timing on spray and combustion characteristics in a spray-guided DISI engine under the lean-stratified operation *Heechang Oh and Choongsik Bae* (Korea Advanced Institute of Science and Technology)	**CI1-2: Ignition Behavior of Marine Diesel Sprays (Investigation of Marine Diesel Ignition and Combustion at Engine-Like Conditions by means of OH* Chemiluminescence and Soot Incandescence)** *Andreas Schmid, Beat von Rotz* (Wärtsilä Switzerland Ltd.), *Rolf Bombach* (Paul Scherrer Institute), *German Weisser, Kai Herrmann* (Wärtsilä Switzerland Ltd.) *and Konstantinos Boulouchos* (ETH Zürich)	**MD1-2: Simultaneous spatial resolved measurement of vapor mass fraction and temperature of an evaporating fuel spray under DI-SI-engine conditions with planar laser-induced fluorescence** *Johannes Trost, Lars Zigan, Alfred Leipertz* (Univ. of Erlangen-Nuremberg)
SI2-3: Development of Non-dimensional Drop Size Correlations of SIDI Multi-hole Sprays Using Phase Doppler Interferometry and High Speed Imaging *Zhenkan Wang , Min Xu, David L. S. Hung, Yuyin Zhang, Wei Zeng* (Shanghai Jiao Tong University), *Ming Li* (Vehicle and Motive Power Engineering College)	**CI1-3: Combustion and emission formation of gasoil and LCO (light cycle oil) water-in-fuel emulsions in nitrogen enriched air** *Dino Imhof, Haruhiko Aoyagi, Hiroshi Tajima and Koji Takasaki* (Kyushu Univ.)	**MD1-3: Visualization of Particulate Matter in a Heavy Duty Diesel Engine via Laser Optical Techniques** *Stephen Busch, Martin Roßbach, Uwe Wagner, Rainer Suntz, Amin Velji* (Karlsruhe Institute of Technology), *Henning Bockhorn* (Engler-Bunte-Institute Division of Combustion Technology) *and Ulrich Spicher* (Karlsruhe Institute of Technology)

SI2-4: Evaporation and Mixture Formation Processes of Ethanol/Gasoline Blended Fuel Spray Injected by Hole-Type Injector for D.I. Gasoline Engine *Kiyotaka Sato* (Mazda Motor Corp.), *Masaharu Chato* (Univ. of Hiroshima), *Yoshitaka Wada, Tatsuya Fujikawa* (Mazda Motor Corp.), *Kenta Kitamitsu* (Mazda E&T Co., LTD.), *Keiya Nishida and Zezheng Li* (Univ. of Hiroshima)	**CI1-4: Energy Saving and Environmental Load Reduction of Diesel Engine with Nano Air-Bubbles Mixed into Gas Oil** *Yasuhito Nakatake, Shintaro Kisu, Kenta Shigyo* (Kurume National College of Tech.) *and Takashi Watanabe* (Kurume Institute of Tech.)	**MD1-4: In-cylinder Surface Thermometry using Laser Induced Phosphorescence (New Measurements and comparisons of Alternative Approaches)** *Martin Algotsson, Christoph Knappe, Martin Tunér, Mattias Richter, Bengt Johansson, Marcus Aldén* (Lund Univ.)
10:00~10:20 **Technical Session Break**		
10:20~12:00 HC1 **HCCI Combustion 1**	**10:20~12:00 CI2** **Compression Ignition Engine Combustion 2**	**10:20~12:25 MD2** **Measurement and Diagnostics 2**
Chairperson: Ryo Hasegawa (Toyota Motor Corporation)	**Chairperson: Naoki Shimazaki (Isuzu Advanced Engineering Center, Ltd.)**	**Chairperson: Tets Aizawa (Meiji Univ.)**
HC1-1: Quasi-Dimensional Modeling of Partly Homogeneous and Homogeneous Diesel Combustion *Dominik Rether, Michael Grill, Michael Bargende* (Research Institute of Automotive Engineering and Vehicle Engines Stuttgart)	**CI2-1: A Study on V-type Intersecting Hole Nozzle for Diesel Engines** *Quan Dong, Wuqiang Long* (Dalian Univ. of Technology), *Liyun Fan* (Harbin Engineering University), *Tsuneaki Ishima and Hisanobu Kawashima* (Gunma Univ.)	**MD2-1: Development of 2D temperature and concentration measurement method using tunable diode laser absorption spectroscopy** *Deguchi Yoshihiro, Daisuke Yasui, and Akira Adachi* (The Univ. of Tokushima)
HC1-2: Influence of Fuel Properties on Operational Range and Combustion Characteristics of Premixed Diesel Combustion with High Volatility Fuel *Qian Xiong, Kazuki Inaba, Tie Li, Gen Shibata, Hideyuki Ogawa* (Hokkaido Univ.), *Toshiyuki Hirose and Naoki Kono* (Japan Petroleum Energy Center)	**CI2-2: Liquid Spray Penetration Length during Late Post Injection in an Optical Light-Duty Diesel Engine** *Guillaume Lequien, Öivind Andersson, Bengt Johansson, Rikard Wellander, Joakim Rosell, Mattias Richter, Marcus Aldén* (Lund Univ.)	**MD2-2: In-cylinder Turbulent Flow Characteristics during Compression Stroke and Effect of Engine Speed in an Optical Engine** *Atsushi Nishiyama, Yunosuke Fukunishi, Yoshihiro Wachi and Yuji Ikeda* (Imagineering, Inc.)
HC1-3: Jet-Jet Interaction in Diesel Engine Combustion *R. Solsjö, M. Jangi, C. Chartier, Ö. Andersson, X.S. Bai* (Lund Univ.)	**CI2-3: Numerical Simulation of the Effect of Enhanced Combustion Zone Mixing on NOx Reduction by Decreasing Residence-Time-Scales in High Temperature Zones in Diesel Engines** *Masaru Kubo, Yutaka Tabe and Takemi Chikahisa* (Hokkaido Univ.)	**MD2-3: Quantitative in-cylinder fuel measurements in a heavy duty diesel engine using Structured Laser Illumination Planar Imaging (SLIPI)** *Johan Sjöholm, Clément Chartier, Elias Kristensson, Edouard Berrocal, Yann Gallo, Mattias Richter, Öivind Andersson, Marcus Aldén, Bengt Johansson* (Lund Univ.)
HC1-4: The Impact of Injection Timing on Mixture Preparation and Chemical Kinetics in Low-Temperature Diesel Combustion *Paul C. Miles, Benjamin R. Petersen, Dipankar Sahoo* (Sandia National Laboratories)	**CI2-4: Development of Combustion Chamber Shape to Reduce NOx and CO2 Emissions by Enhancing In-cylinder Gas Mixing in a Diesel Engine** *Sang-kyu Kim, Daisuke Shimo, Motoshi Kataoka* (Mazda Motor Corporation) *and Keiya Nishida* (Univ. of Hiroshima)	**MD2-4: Application of the Optical Connectivity Method to a Real Size Heavy Duty CIDI-Injector (Application of the Optical Connectivity Method)** *Max Kaiser, Ansgar Heilig, Friedrich Dinkelacker* (Leibniz Univ. Hannover)
		MD2-5: An Investigation of DME HCCI Combustion Using Spectroscopic Analysis *Fumitsugu Tsuru, Dongwon Jung and Norimasa Iida* (Keio Univ.)
12:25~13:30 **Lunch Break**		
13:30~15:10 HC2 **HCCI Combustion 2**	**13:30~15:10 SP2** **Spray and Spray Combustion 2**	**13:30~14:45 OS4** **Plasma-assisted combustion**
Chairperson: Paul C. Miles (Sandia National Laboratories)	**Chairperson: Akihiko Azetsu (Tokai Univ.)**	**Chairperson: Kimitoshi Tanoue (Ohita Univ.)**
HC2-1: Spectrum Analysis of Chemiluminescence of a Low Sooting PCCI Diesel Engine Operating with Moderately Early Injection Timing *Robert Kiplimo, Eiji Tomita, Nobuyuki Kawahara* (Okayama Univ.) *and Sumito Yokobe* (Mitsui Engineering & Shipbuilding Co., Ltd)	**SP2-1: Analysis of Needle Eccentricity Effects on Internal Flow and Spray Characteristics of Enlarged VCO Diesel Injector** *Katsuyuki Ohsawa, Kazuhiro Kitamura, Motoki Hiratsuka, Tetsuya Oda, Takahiro Sumi* (Tottori Univ.)	**OS4-1: A Study on the Effect and Mechanism of Plasma Assisted Gasoline HCCI Combustion by Low Temperature Plasma** *Taisuke Shiraishi* (Nissan Motor Co., Ltd.)

HC2-2: Study on Auto-ignition Characteristics of Ethanol and ETBE Blended Fuels in a Gasoline HCCI Engine *Takashi Kaminaga, Takashi Youso, Masahisa Yamakawa* (Mazda Motor Corporation)*, Satoshi Ito, Akira Hozumi* (COSMO OIL CO., LTD.)*, Jin Kusaka* (Waseda Univ.)	**SP2-2: Velocity distribution inside a diesel spray under high ambient density condition** *Yoshio Zama, Wataru Ochiai, Tomohiko Furuhata and Masataka Arai* (Gunma Univ.)	**OS4-2: Experimental Study of the Performance of HF Electric Field Applied-Type Ignition System in SI Engine** *Takeshi Serizawa, Hiroaki Oi, Katsumi Uchida, Yuta Shima* (Daihatsu Motor Co., Ltd.)*, and Fumio Okumura* (Diamond Electric Mfg. Co.,LTD.)
HC2-3: Analysis of PCCI Combustion of Light Cycle Oil Reducing NOx Emission from Large Marine Engines *Hiroshi Tajima, Daisuke Tsuru, Satoshi Kawauchi and Ryosuke Ishibashi* (Kyushu Univ.)	**SP2-3: Injection rate and spray characteristics of a piezo injector for multiple injection (Experimental study of a piezo injector through visualization test)** *Hee-bum Park, Yung-jin Kim, Sang-ki Park and Ki-hyung Lee* (Hanyang Univ.)	**OS4-3: Combustion Improvement by Using Combination of High Performance Ignition System and Microwave Plasma System** *Atsushi Nishiyama, Yoshihiro Wachi, Yuji Ikeda* (Imagineering, Inc.)*, Takeshi Serizawa and Hiroaki Oi* (Daihatsu Motor Co., Ltd.)
HC2-4: Comparison of gasoline homogeneous charge induced ignition (HCII) by diesel and gasoline/diesel hybrid fuel (GDHF) *YU Chao, WANG Jianxin, WANG Zhi, SHUAI Shijin* (Tsinghua Univ.)	**SP2-4: Evaluation of the liquid length via diffused back-illumination imaging in vaporizing diesel sprays** *Julien Manin* (Sandia National Laboratories)*, Michele Bardi* (CMT – Motores Térmicos) *and Lyle M. Pickett* (Sandia National Laboratories)	
15:10~15:30 Technical Session Break		
15:30~16:45 HC3 HCCI Combustion 3	**15:30~16:45 SP3 Spray and Spray Combustion 3**	
Chairperson: Nobuyuki Kawahara (Okayama Univ.)	**Chairperson: Hidenori Kosaka (Tokyo Institute of Tech.)**	
HC3-1: Multi-Cycle LES based Analysis of Cycle-to-Cycle Variations of Combustion Processes in HCCI Engine *Dmitry Goryntsev, Amsini Sadiki and Johannes Janicka* (Technical Univ. of Darmstadt)	**SP3-1: Spray, Ignition and Combustion Characteristics of Biodiesel and Diesel Fuels Injected by Micro-Hole Nozzle under Ultra-High Injection Pressure** *Olawole Abiola Kuti (The Federal University of Technology), Jingyu Zhu, Keiya Nishida (Univ. of Hiroshima), Xiangang Wang (Changan Automobile Corporation) and Zuohua Huang (Xi'an Jiaotong Univ.)*	
HC3-2: CFD Analysis of the Combustion Process and Emission Characteristics for a DI-PCCI Engine *Hiroshi Kawanabe and Takuji Ishiyama* (Kyoto Univ.)	**SP3-2: Influence of Ambient Condition and Nozzle Hole on Spray and Combustion Characteristics in Medium Speed Engines** *Yutaka Masuda, Takayuki Hirose* (IHI Corporation)*, Hirohide Furutani* (National Institute of Advance Industrial Science and Technology) *and Yasuhide Watanabe* (Niigata Power Systems Co., Ltd.)	
HC3-3: Studies on the Direct Control of the Start of HCCI Combustion with Rapid Compression Expansion Machine *Yoshinobu Komai, Fumihiro Nakashima, Hideki Hashimoto, Osamu Moriue and Eiichi Murase* (Kyushu Univ.)	**SP3-3: Influence of Orifice Diameter on Spray and Combustion using a Fast Diesel Common Rail Injector** *Akira Kato, Katsuya Matsuura, Takahiro Katano, Shigenori Haraguchi and Yasuhiro Yoshimi* (Honda R&D Co., Ltd.)	
16:50~18:30 **Room C** **Closing Remarks**		