

## ● TECHNICAL SESSION PROGRAM MATRIX ●

ROOM	Sunday, July 22	Monday, July 23					Tuesday, July 24				
	15:30-17:00	8:40-10:00	10:15-12:15	13:45-15:45	16:00-18:00	18:15-19:45	8:30-9:20	9:30-11:30	13:00-15:00	15:15-17:15	
Lobby	Registration Desk (15:00-18:30)	Registration Desk (8:15-18:30)					Registration Desk (8:15-16:00)				
TERRSA Hall	Opening Remarks (8:40-9:10) Keynote Speech (9:10-10:00) A Strategy for Mitigating Climate Change		TWS-A Clean Light-Duty Diesel Vehicles			Reception Party Sponsored by DENSO Free of Charge	Keynote Speech Efficiency of Gasoline HCCI Engines				
	Engine Exhibition					Engine Exhibition					
E-2A		C4 Direct Injection SI Engines	C9 New Combustion Systems in SI & Diesel Engines	C3 Diagnostic in SI & Diesel Engines			C2 Diesel Combustion 1	C2 Diesel Combustion 2	C2 Diesel Combustion 3 (15:15-17:45)		
E-2B		C1 Mixture Preparation, Combustion and Emission 1	C1 Mixture Preparation, Combustion and Emission 2	C1 Mixture Preparation, Combustion and Emission 3			M3 Fuel Consumption and Emission in Driving Mode	TWS-B (13:00-16:00) Injector Deposit (Future and Needs for Additives in Fuels)			
E-2D	Welcome Party (17:00-18:30) Restaurant SUZAKU	L1 Light Duty Engine Lubricants	Break (12:15-13:45)	L2 Heavy Duty Engine Lubricants	Coffee Break (15:45-16:00)		L8-1 New Lubricants and Additive Development 1	Break (11:30-13:00)	L8-2 New Lubricants and Additive Development 2	L3 Power Train Tribology	
E-2C		E1 Future Automotive Catalysts and Converter Technologies 1				E2 Future Automotive Catalysts and Converter Technologies 2			E6 Advanced Emission Aftertreatment for Diesel Engines 1	E7 Advanced Emission Aftertreatment for Diesel Engines 2	E11 Advanced Emission Aftertreatment for Diesel Engines 3
W-3B		C5 HCCI Combustion 1	C5 HCCI Combustion 2	C5 HCCI Combustion 3			C5 HCCI Combustion 4	C5 HCCI Combustion 5	C5 HCCI Combustion 6		
E-3A		TWS-D Hydrogenated Biodiesel Fuels	F3 Fuel Properties for SI and CI Engines 2	F6 GTL and DME			F8 Bio Diesel 1	F9 Bio Diesel 2	F10 Bio Diesel 3		
E-3B		F2 Fuel Properties for SI and CI Engines 1	F4 Fuel Cell				F14 Gaseous Fuels in SI Engines 1	F15 Gaseous Fuels in SI Engines 2			
W-3A		M1+M2 PM and Oil Measurement	M1 Measurement and Control of Noise & Vibration 1	M1 Measurement and Control of Noise & Vibration 2			C6 Diesel Spray and Mixture Formation 1	C6 Diesel Spray and Mixture Formation 2	C6 Diesel Spray and Mixture Formation 3		
2F Lobby		Machinery Exhibition					Machinery Exhibition				

## ● TECHNICAL SESSION PROGRAM MATRIX ●

Wednesday, July 25					Thursday, July 26				ROOM
8:30-9:20	9:30-11:30	13:00-15:00	15:15-17:15	18:00-20:30	8:30-10:20	10:40-12:10	13:30-15:20	15:30-16:30	
<b>Registration Desk (8:15-16:00)</b>					<b>Registration Desk (8:15-14:00)</b>				Lobby
<b>Keynote Speech</b> Enabling Mobility Technology - Energy, Fuels, and Lubricants of the Future				<b>Banquet Sponsored by HORIBA</b>  Attendee and Spouse / JPY5,000 Student / JPY2,000	<b>Executive Panel Sessions A</b>  Future for Automotive Fuels	<b>Executive Panel Sessions B</b>  Future for Bio Fuels	<b>Executive Panel Sessions C</b>  Future for Automotive Technologies	<b>Executive Panel Sessions D</b>  Total Discussion	TERRSA Hall
<b>Engine Exhibition</b>					<b>Engine Exhibition</b>				
	<b>C8</b> Modeling of Diesel Engines 1								E-2A
		<b>E8</b> PM Characterization in Exhaust Gas of Diesel Engines 1		<b>E9</b> PM Characterization in Exhaust Gas of Diesel Engines 2					E-2B
	<b>L5</b> Fuel Economy and Environmental Impacts of Power Train Lubricants	Break (11:30-13:00)	<b>TWS-C</b> Studies on Diesel Engine Oil for Stringent Emissions Regulations and Lubricant Impacts of Bio-fuel	Coffee Break (15:00-15:15)	<b>L6</b> Lubricants Testing and New Test Methods			Break (12:10-13:30)	E-2D
	<b>C7</b> Modeling of SI Engines		<b>E4</b> Advanced Emission Aftertreatment for SI Engines 1		<b>E5</b> Advanced Emission Aftertreatment for SI Engines 2				E-2C
	<b>C5</b> HCCI Combustion 7		<b>C5</b> HCCI Combustion 8		<b>C5</b> HCCI Combustion 9				W-3B
	<b>F11</b> Bio Diesel 4		<b>F16</b> Gaseous Fuel in Diesel Engines		<b>F7</b> Oxygenated Diesel Fuels				E-3A
	<b>F12</b> Bio Ethanol 1		<b>F13</b> Bio Ethanol 2						E-3B
	<b>E3</b> Effects of Fuels and Lubricants for Aftertreatment Systems								W-3A
<b>Machinery Exhibition</b>					<b>Machinery Exhibition</b>				2F Lobby

## ● TECHNICAL SESSIONS ●

### Monday, July 23

#### C4: Direct Injection SI Engines

Room - E-2A

Chairpersons:

Michihiko Tabata, Mazda Motor Corporation

Thanos Megaritis, Brunel University

10:15

JSAE 20077024 / SAE 2007-01-1850

#### Spray and Mixture Properties of Hole-Type Injector for D. I. Gasoline Engine - Comparison of Experiment and CFD Simulation -

Kiyotaka Sato, Keiya Nishida, University of Hiroshima;

Tadashi Tadokoro, Masahisa Yamakawa, Hideaki Yokohata, Mazda Motor Corporation

10:45

JSAE 20077199 / SAE 2007-01-1851

#### An Injector Specific Analytic-Phenomenological Spray Propagation Model for the Application-Oriented Simulation of Direct Injection SI Engines

Frank Schuerg, Stefan Arndt, David Pfeifferle, Robert Bosch GmbH; Bernhard Weigand, University of Stuttgart

11:15

JSAE 20077258 / SAE 2007-01-1852

#### Generation of Robust and Well-Atomized Swirl Spray

Seoksu Moon, Hyeonsook Yoon, Choongsik Bae, Korea Advanced Institute of Science and Technology; Essam F. Abo-Serie, Coventry University

11:45

JSAE 20077150 / SAE 2007-01-1910

#### Numerical Simulation on Multi-Injection Nozzle Applied to Ignition Chamber GDI Engine

Jiang-ping Tian, Wu-qiang Long, Lei Fu, Bao-guo Du, Xian-yin Leng, Xin Su, Dalian University of Technology

#### C9: New Combustion Systems in SI & Diesel Engines

Room - E-2A

Chairpersons:

Yoshihiro Iwashita, Toyota Motor Corporation

Nebojsa Milovanovic, Delphi Diesel System

13:45

JSAE 20077158 / SAE 2007-01-1911

#### Characteristics of Combustion in Lean Mixtures Initiated by an Imploding Detonation Plug

Kazuro Hotta, Yuki Yoshikawa, Kiyotaka Okuma, Osamu Moriue, Eiichi Murase, Kyushu University

14:15

JSAE 20077210 / SAE 2007-01-1912

#### Methane/CNG Combustion in a DI Radical-Ignition Rotary Engine with Low-Heat Rejection

David A. Blank, HCRI Technologies International

14:45

JSAE 20077252 / SAE 2007-01-1913

#### Pre-Ignition Characterization of Partially-Stratified Natural Gas Injection

E.C. Chan, R.L. Evans, M.H. Davy, University of British Columbia; S. Cordiner, Università degli Studi di Roma "Tor Vergata"

15:15

JSAE 20077218 / SAE 2007-01-1914

#### Optimization of a Dual-Intake/Exhaust/EGR System with the Exhaust-Pulse Ejector for a Heavy-Duty Turbocharged Diesel Engine

Shuichi Nakamura, Kenichirou Imaoka, Kensuke Sugahara, Tomoyasu Harada, Hisashi Akagawa, Nissan Diesel Motor Co., Ltd.

#### C3: Diagnostic in SI & Diesel Engines

Room - E-2A

Chairpersons:

Ken Naitoh, Waseda University

Eiji Tomita, Okayama University

16:00

JSAE 20077326 / SAE 2007-01-1847

#### Ultrafast and Quantitative X-Tomography and Simulation of Hollow-Cone Gasoline Direct-Injection Sprays

Xin Liu, Kyoung-Su Im, Yujie Wang, Jin Wang, Argonne National Laboratory; Mark W. Tate, Alper Ercan, Daniel R. Schuette, Sol M. Gruner, Cornell University

16:30

JSAE 20077303 / SAE 2007-01-1848

#### Gas Temperature Measurement in a DME-HCCI Engine using Heterodyne Interferometry with Spark-Plug-In Fiber-Optic Sensor

Changhee Lee, Nobuyuki Kawahara, Eiji Tomita, Kenji Inoshita, Okayama University

17:00

JSAE 20077099 / SAE 2007-01-1849

#### Residual Gas Fraction Measurement inside Engine Cylinder using Infrared Absorption Method with Spark-Plug Sensor

Nobuyuki Kawahara, Eiji Tomita, Yutaka Tanaka, Okayama University

#### C1: Mixture Preparation, Combustion and Emission 1

Room - E-2B

Chairpersons:

Toshiaki Kitagawa, Kyushu University

Jiro Senda, Doshisha University

10:15

JSAE 20077121 / SAE 2007-01-1825

#### Fluorescent-PIV Spray/Air Interaction Analysis of High-Pressure Gasoline Injector

L. Le Moyne, P. Guibert, University Pierre et Marie Curie; R. Roy, B. Jeanne, PSA PEUGEOT CITROEN

10:45

JSAE 20077146 / SAE 2007-01-1826

#### Multi-Component Fuel Imaging in a Spray-Guided Spark-Ignition Direct-Injection Engine

Rui Zhang, Volker Sick, University of Michigan

11:15

JSAE 20077203 / SAE 2007-01-1827

#### 3D Analysis of Vapor and Liquid Phase of GDI Injectors using Laser Induced Exciplex Fluorescence Tomography in a High Pressure/High Temperature Spray Chamber

Philipp Rogler, Roman Grzeszik, Stefan Arndt, Robert Bosch GmbH; Manfred Aigner, Institute of Combustion Technology, German Aerospace Center

#### C1: Mixture Preparation, Combustion and Emission 2

Room - E-2B

Chairpersons:

Jiro Senda, Doshisha University

Toshiaki Kitagawa, Kyushu University

13:45

JSAE 20077169 / SAE 2007-01-1828

#### Propagation and Quench of Premixed Turbulent Flames

Toshiaki Kitagawa, Andrew Smallbone, Tetsuo Oonishi, Kyushu University

14:15 JSAE 20077267 / SAE 2007-01-1829

#### **Knock Characteristics and Their Control with Hydrogen Injection using a Rapid Compression/Expansion Machine**

Sung-Sub Kee, Masahiro Shioji, Kyoto University; Ali Mohammadi, Toyota Motor Europe; Muneyuki Nishi, Saibu Gas Company; Yohei Inoue, Kyoto University

14:45 JSAE 20077191 / SAE 2007-01-1830

#### **Optimization of Internal Combustion Processes using an On-Board Fuel Micro Analyzer**

Johan Fournel, Alain Lunati, SP3H; Jean Baptiste Dementhon, Aaqius & Aaqius

### **C1: Mixture Preparation, Combustion and Emission 3**

Room - E-2B

Chairpersons:

Toshiaki Kitagawa, Kyushu University

Keiya Nishida, Hiroshima University

16:00 JSAE 20077031 / SAE 2007-01-1831

#### **Investigation of the Influence of Compression Ratio, Intake Air Temperature and Swirl in Intake Passage on Random Cyclic Pressure Variations in Spark-Ignition Engines**

T.K. Chandrashekar, R. Harish Kumar, Sri Siddhartha Institute of Technology; A.J. Antony, P.A. College of Engineering

16:30 JSAE 20077312 / SAE 2007-01-1832

#### **Railplug Ignition Operating Characteristics and Performance: A Review**

Matthew J. Hall, Ronald D. Matthews, Ofodike O. Ezekoye, The University of Texas at Austin

17:00 JSAE 20077049 / SAE 2007-01-1833

#### **Cranking-Startup Intake Port and In-Cylinder Mixture Preparation Behavior in a CFR Gasoline Engine**

L. J. Hamilton, J. S. Cowart, United States Naval Academy

### **L1: Light Duty Engine Lubricants**

Room - E-2D

Chairpersons:

Shinichi Shirahama, Nippon Oil Corporation

Alain Paul Gauthier, TOTAL

10:15 JSAE 20077141 / SAE 2007-01-1960

#### **Role of Certain OCP Viscosity Modifiers in Gel Formation and Filter Blocking Tendencies of Engine Oils**

Jai G. Bansal, Kwok-Leung Tse, Stuart P. Briggs, Infineum USA LP

10:45 JSAE 20077197 / SAE 2007-01-1961

#### **Formulation Impacts on Sequence IIIG Viscosity Increase**

A.B. Boffa, S. Hirano, Chevron Oronite Company LLC

11:15 JSAE 20077276 / SAE 2007-01-1962

#### **Evaluation of Low Phosphorus Engine Oil Containing MoDTC**

Satoru Yoshida, Yasushi Naitoh, Japan Energy Corporation

11:45 JSAE 20077289 / SAE 2007-01-1963

#### **Fluid-Dynamic Analysis of a High Performance Engine Lubricant Circuit**

Adolfo Senatore, Massimo Cardone, Dario Buono, Università di Napoli Federico II; Agostino Dominici, Ferrari S.p.A.

### **L4: Current Development of CVT and AT Fluids**

Room - E-2D

Chairpersons:

Makoto Maeda, JATCO Ltd.

Richard J. Vickerman, The Lubrizol Corporation

13:45 JSAE 20077048 / SAE 2007-01-1974

#### **Test Methods for Determining Anti-Shudder Durability of Automatic Transmission Fluids**

Joe Noles, Raymond F. Watts, Masahiro Ishikawa, Hirokazu Saito, Infineum USA LP

14:15 JSAE 20077280 / SAE 2007-01-1975

#### **Advanced ATF Technology Meets Future Global OEM Needs**

Hyun-Soo Hong, William D. Abraham, Masahiko Ikeda, Craig D.

Tipton, The Lubrizol Corporation

14:45 JSAE 20077325 / SAE 2007-01-1976

#### **Study of Low Viscosity ATF with Extending Gear Fatigue Life**

Hiroshi Fujita, Yutaka Takakura, Toshiaki Ikeda, Idemitsu Kosan Co., Ltd.

### **L2: Heavy Duty Engine Lubricants**

Room - E-2D

Chairpersons:

Satoshi Ogano, ExxonMobil Yugen Kaisha

Ewa Bardasz, The Lubrizol Corporation

16:00 JSAE 20077071 / SAE 2007-01-1964

#### **Investigation of Soot Contaminated Lubricant Wear Mechanisms**

D.A. Green, R. Lewis, The University of Sheffield

16:30 JSAE 20077204 / SAE 2007-01-1965

#### **Correlations among Ash-Related Oil Species in the Power Cylinder, Crankcase and the Exhaust Stream of a Heavy-Duty Diesel Engine**

Simon A.G. Watson, Wenwei Huang, Victor W. Wong, Massachusetts Institute of Technology

17:00 JSAE 20077237 / SAE 2007-01-1966

#### **API CJ-4: Diesel Oil Category for Pre-2007 Engines and New Low Emission Engines using Cooled Exhaust Gas Recirculation and Diesel Particulate Filters**

J. A. Mc Geehan, Chevron; J. Moritz, Intertek; G. Shank, Volvo; S. Kennedy, ExxonMobil; D. Stehouwer, Cummins; M. Urbank, Shell; M. Belay, Detroit Diesel; S. Goodier, Castrol; A. Cassim, Caterpillar; B. Runkle, Ashland; H. DeBaun, International; S. Harold, CIBA; K. Chao, John Deere; S. Herzog, RohMax; R. Stockwell, GM Powertrain; C. Passut, Afton; P. Fetterman, Infineum; D. Taber, ConocoPhillips; L. Williams, Lubrizol; W. M. Kleiser, Oronite; J. Zalar, TMC. Statisticians; P. Scinto, Lubrizol; E. Santos, Infineum; J. A. Rutherford, Oronite

### **E1: Future Automotive Catalysts and Converter Technologies 1**

Room - E-2C

Chairpersons:

Gen Shibata, Nippon Oil Corporation

Diane Lance, BP

10:15 JSAE 20077090 / SAE 2007-01-1915

#### **NOx Aftertreatment System for Diesel Engine Emission using Thermal Desorption and Plasma Reduction Combined Process**

Keiichiro Yoshida, Masaaki Okubo, Tomoyuki Kuroki, Toshiaki Yamamoto, Osaka Prefecture University

Technical Sessions  
Monday, July 23

10:45 JSAE 20077117 / SAE 2007-01-1916

**Effect of TiO<sub>2</sub> on the Reduction Performance of NO<sub>x</sub> Storage and Reduction Catalysts for Lean-Burn Natural Gas Vehicle**

Byungchul Choi, Jongwoo Jeong, Chonnam National University; Choonhee Lee, NGVI Inc.

11:15 JSAE 20077093 / SAE 2007-01-1917

**Passive NO<sub>x</sub> Reduction Activity of a Silver Catalyst Under Real Diesel-Engine Exhaust Conditions**

K. Theinnoi, A. Tsolakis, The University of Birmingham; V. Houel, R. R. Rajaram, Johnson Matthey Technology Centre

11:45 JSAE 20077346 / SAE 2007-01-1918

**New Approach for Pore Structure and Filtration Efficiency Characterization**

S. Fukushima, K. Ohno, Ibiden Co. Ltd.; N. Vlachos, A.G. Konstandopoulos, Aerosol and Particle Technology Laboratory, CERTH/CPERI

**E2: Future Automotive Catalysts and Converter Technologies 2**

Room - E-2C

Chairpersons:

Yoshiyuki Kidoguchi, Tokushima University  
Athanasios Konstandopoulos, APTL/CERTH/CPERI

16:00 JSAE 20077241 / SAE 2007-01-1919

**Study on Low Temperature Oxidation of Diesel Particulate Matters by Oxygen Storage Component for the Catalyzed Diesel Particulate Filter**

Kenji Suzuki, Koichiro Harada, Hiroshi Yamada, Kenji Okamoto, Akihide Takami, Mazda Motor Corporation

16:30 JSAE 20077251 / SAE 2007-01-1920

**New DOC for Light Duty Diesel DPF System**

Tetsuya Watanabe, Kazuhito Kawashima, Yoshio Tagawa, Keisuke Tashiro, Mitsubishi Motors Corporation; Hiroshi Anoda, Kazuyuki Ichioka, Satoshi Sumiya, Geng Zhang, Johnson Matthey Japan Incorporated

17:00 JSAE 20077233 / SAE 2007-01-1921

**Novel Base Metal-Palladium Catalytic Diesel Filter Coating with NO<sub>x</sub> Reducing Properties**

Keld Johansen, Søren Dahl, Guri Mogensen, Søren Pehrson, Haldor Topsøe A/S; Jesper Schramm, Anders Ivarsson, Technical University of Denmark

**C5: HCCI Combustion 1**

Room - W-3B

Chairpersons:

Norimasa Iida, Keio University  
Bengt Johansson, Lund University

10:15 (Oral Only) JSAE 20077298 / SAE 2007-01-1853

**Fuel Property Effects on Performance and Emissions of Heavy Duty HCCI Combustion**

Paul Bessonette, ExxonMobil Research and Engineering

10:45 JSAE 20077205 / SAE 2007-01-1854

**An Experimental Investigation on the Emission Characteristics of HCCI Engine Operation using N-Heptane**

Hailin Li, W. Stuart Neill, Wally Chippior, National Research Council Canada; Lisa Graham, Trevor Connolly, Environment Canada; Joshua D. Taylor, National Renewable Energy Laboratory

11:15 JSAE 20077035 / SAE 2007-01-1855

**Operation Strategy of a Dual Fuel HCCI Engine with VGT**

Carl Wilhelmsson, Per Tunestål, Bengt Johansson, Lund University

11:45 JSAE 20077167 / SAE 2007-01-1856

**The Effect of Swirl on Spark Assisted Compression Ignition (SACI)**

Håkan Persson, Bengt Johansson, Lund University; Alfredo Remón, Simon Bolivar University

**C5: HCCI Combustion 2**

Room - W-3B

Chairpersons:

Norimasa Iida, Keio University  
Bengt Johansson, Lund University

13:45 JSAE 20077136 / SAE 2007-01-1857

**An Investigation of Air-Assist Injection Timings and Durations in a GDI CAI Engine**

John A. Gaynor, Robert Fleck, Robert G. Kenny, Robert J. Kee, Queen's University Belfast; Geoffrey Cathcart, Orbital Engine Corporation

14:15 JSAE 20077115 / SAE 2007-01-1858

**On HCCI Engine Knock**

Morgan M. Andreae, Wai K. Cheng, Massachusetts Institute of Technology; Thomas Kenney, Ford Research and Advanced Engineering; Jialin Yang

14:45 JSAE 20077050 / SAE 2007-01-1859

**Effects of Variations in Market Gasoline Properties on HCCI Load Limits**

John P. Angelos, Morgan M. Andreae, William H. Green, Wai K. Cheng, Massachusetts Institute of Technology; Thomas Kenney, Ford Powertrain Research and Advanced Engineering; Yi Xu, BP

15:15 JSAE 20077134 / SAE 2007-01-1860

**A Study on the Effects of Compression Ratio, Engine Speed and Equivalence Ratio on HCCI Combustion of DME**

Troels Dyhr Pedersen, Jesper Schramm, Technical University of Denmark

**C5: HCCI Combustion 3**

Room - W-3B

Chairpersons:

Kazuhisa Inagaki, Toyota Central R&G Labs., Inc.  
Norimasa Iida, Keio University

16:00 JSAE 20077281 / SAE 2007-01-1862

**Effects of Fuel Volatility on Combustion Characteristics of PCCI Diesel Engine**

Bansei Kobayashi, Shinji Najima, Masato Mikami, Naoya Kojima, Yamaguchi University; Tomohiro Kanda, Honda R&D Co., Ltd.

16:30 JSAE 20077112 / SAE 2007-01-1863

**Ignition Characteristics of Methanol and Natural-Gas in a HCCI Engine Assisted by DME**

Sukho Jung, Masahiro Ishida, Hironobu Ueki, Daisaku Sakaguchi, Nagasaki University

17:00 JSAE 20077176 / SAE 2007-01-1864

**Numerical Analysis of Auto-Ignition Process in a Non-Homogeneous Mixture**

Hiroshi Kawanabe, Takuji Ishiyama, Kyoto University

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### F3: Fuel Properties for SI and CI Engines 2

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Room - E-3A

Chairpersons:

David J. Rickeard, Automotive Fuel Consultant  
Hideshi Aiko, Toyota Motor Corporation

13:45 JSAE 20077263 / SAE 2007-01-2005

#### Combustion Quality of Marine Residual Fuels Measured by Constant Volume Combustion Chamber Method

A. Takeda, F. Hirata, A. Otsuka, A. Hagiwara, H. Miyano, Nippon Yuka Kogyo Co., Ltd.; H. Nakatani, E. Shimizu, T. Ura, T. Kato, D. Suzuki, NYK Line

14:15 JSAE 20077316 / SAE 2007-01-2006

#### Measurements of Laminar Flame Velocity and Markstein Length for Standard Gasoline and a Corresponding Reference Fuel Mixture (PRF87)

Sven Jerzembeck, Norbert Peters, Institute of Technical Combustion

14:45 JSAE 20077060 / SAE 2007-01-2007

#### The Impact of RON on SI Engine Thermal Efficiency

Koichi Nakata, Daisuke Uchida, Atsuharu Ota, Shintaro Utsumi, Katsunori Kawatake, Toyota Motor Corporation

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### F6: GTL and DME

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Room - E-3A

Chairpersons:

Mitsuru Konno, Ibaraki University  
Shinichi Goto, National Institute of Advanced Industrial Science and Technology

16:00 JSAE 20077299 / SAE 2007-01-2013

#### Effects of Flame Structure and Inert Gases on Extinction Properties in DME Diffusion Flames

Kimitoshi Tanoue, Wataru Mieno, Tomohiro Miyahara, Junji Umeda, Takayuki Tajiri, Fumio Shimada, Oita University

16:30 JSAE 20077096 / SAE 2007-01-2014

#### Improvement of Exhaust Gas Emission in Marine Diesel Engine by Blending DME

Tomohisa Dan, Masataka Hashimoto, Ichiro Asano, Akira Kunikawa, Kobe University

17:00 JSAE 20077072 / SAE 2007-01-2015

#### Injection, Combustion and (Nano) Particle Emissions of a Modern HD-Diesel Engine with GTL, RME & ROR

J. Czerwinski, Y. Zimmerli, T. Neubert, University of Applied Sciences; A. Heitzer, Swiss Petrol Union; M. Kasper, Matter Engineering AG

17:30 JSAE 20077080 / SAE 2007-01-2016

#### Fuel Properties and Engine Performance of Dimethyl Ether-Blended Biodiesel Fuels

Takeshi Okamoto, Toshihiro Nakasato, Mitsuru Konno, Ibaraki University

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### F2: Fuel Properties for SI and CI Engines 1

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Room - E-3B

Chairpersons:

Haruhisa Ohta, Nippon Oil Corporation  
Hideyuki Ogawa, Hokkaido University

10:15 JSAE 20077145 / SAE 2007-01-2000

#### Influence of Cetane Number on Euro III Engine Emissions

Carlos Vinicius Costa Massa, Manuel Beser Diaz, Raissa Maria Cotta Ferreira da Silva, Adriana de Souza Ferreira, Sérgio Antônio Monteiro Fontes, PETROBRAS

10:45 JSAE 20077144 / SAE 2007-01-2001

#### Diesel Detergent Additive Responses in Modern, High-Speed, Direct-Injection, Light-Duty Engines

R. Barbour, D. Arters, J. Dietz, M. Macduff, A. Panesar, R. Quigley, Lubrizol Limited, Fuel, Refinery and Oilfield Group

11:15 JSAE 20077188 / SAE 2007-01-2004

#### GTL Fuel Impact on DI Diesel Emissions

Koji Kitano, Seitaro Misawa, Masaaki Mori, Ichiro Sakata, Toyota Motor Corporation; Richard H. Clark, Shell Global Solutions

Written Only JSAE 20077273 / SAE 2007-01-2002

#### A Detailed Kinetic Study on the Effect of DTBP on PRF Combustion in HCCI Engines

Ashutosh Gupta, David L. Miller, Nicholas P. Cernansky, Drexel University

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### F4: Fuel Cell

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Room - E-3B

Chairpersons:

Zhili Chen, Tokai University  
Shogo Watanabe, Japan Automobile Research Institute

13:45 JSAE 20077308 / SAE 2007-01-2008

#### Development of Fuel Consumption Measurement Method for Fuel Cell Vehicle - Flow Method Corresponding to Pressure Pulsation of Hydrogen Flow -

Masaru Yano, Eiji Kuroda, Hisao Tagami, Keisuke Kuroda, Shogo Watanabe, Japan Automobile Research Institute

14:15 JSAE 20077245 / SAE 2007-01-2009

#### High-Pressure Hydrogen Tank for FCHV

Hirokazu Otsubo, Motohiro Mizuno, Yoshimasa Negishi, Nobuyuki Ogami, Toyota Motor Corporation

14:45 JSAE 20077301 / SAE 2007-01-2010

#### Impact of Hydrogen Fuel Impurities on PEMFC Performance

Daichi Imamura, Daizo Ebata, Yoshiyuki Hshimasa, Motoaki Akai, Shogo Watanabe, Japan Automobile Research Institute

15:15 JSAE 20077268 / SAE 2007-01-2011

#### High-Pressure Metal Hydride Tank for Fuel Cell Vehicles

D. Mori, K. Hirose, N. Haraikawa, T. Takiguchi, T. Shinozawa, T. Matsunaga, Toyota Motor Corporation; K. Toh, K. Fujita, A. Kumano, H. Kubo, Toyota Industries Corporation

Written Only JSAE 20077124 / SAE 2007-01-2012

#### Adaptive Airflow Control of the PEM Fuel Cell System

Mirosław Wendeker, Arkadiusz Malek, Jacek Czarnigowski, Lublin University of Technology; Rodolfo Tacani, University of Trieste; Pierre Boulet, Florin Breaban, Institut Universitaire de Technologie de Béthune

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### M1+M2: PM and Oil Measurement

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Room - W-3A

Chairpersons:

Masayuki Adachi, Horiba Instruments Inc.  
Kresimir Gebert, International Truck and Engine Corporation

10:15 JSAE 20077231 / SAE 2007-01-2060

#### Inter-Correlations between Smoke Opacity, Legal Particulate Sampling (LPS) and TEOM, during Transient Operation of a Diesel Engine

J. Black, P.G. Eastwood, K. Tufail, T. Winstanley, Ford Motor Company; Y. Hardalupas, A.M.K.P. Taylor, Imperial College London

Technical Sessions  
Monday, July 23

10:45 JSAE 20077076 / SAE 2007-01-2061

**Improvement of PM Combustion Method for Low-Mass PM Measurement in Engine Emission**

Tomoshi Yoshimura, Masayoshi Shinohara, Shigeru Nakatani, Nobutaka Kihara, HORIBA Ltd.

11:15 JSAE 20077077 / SAE 2007-01-2062

**Application of Real-Time Total Sulfur Analysis with UVF Method to Oil Consumption Measurement**

Shinichi Murakami, Hiroshi Nakamura, Masaru Miyai, Shigeru Nakatani, Nobutaka Kihara, HORIBA, Ltd.

11:45 JSAE 20077047 / SAE 2007-01-2063

**Robust Approaches for Mean and Variance Outliers Detection in Round Robin Tests**

Pierre Pestiaux, TOTAL FRANCE Research Center of Gonfreville; Christine Pic, Le Havre University

Written Only JSAE 20077119 / SAE 2007-01-2064

**Research on Cooling System for 4-Cylinder Diesel Engine**

You-chang Li, Xiao-hong Gao, Dan Chen, Wuhan University of Technology

Written Only JSAE 20077354 / SAE 2007-01-2067

**The Use of a Water/Lube Oil Heat Exchanger and Enhanced Cooling Water Heating to Increase Water and Lube Oil Heating Rates in Passenger Cars for Reduced Fuel Consumption and CO<sub>2</sub> Emissions during Cold Start**

Gordon E. Andrews, Ali. M. Ounzain, Hu Li, Margaret Bell, James Tate, Karl Ropkins, The University of Leeds

**M1: Measurement and Control of Noise & Vibration 1**

Room - W-3A

Chairpersons:

Nobuyuki Kawahara, Okayama University

Kresimir Gebert, International Truck and Engine Corporation

13:45 JSAE 20077220 / SAE 2007-01-2076

**Effect of Combustion Process on DI Diesel Engine Combustion Noise**

Ping Wang, Xi-geng Song, Dong-xin Xue, Hai-tao Zhou, Xiao-wen Ma, Dalian University of Technology; Yu-lin Ge, CNPC Jinzhou Petrochemical Corporation

14:15 JSAE 20077264 / SAE 2007-01-2077

**Model Based Diagnosis: Failure Detection and Isolation by State Comparison with Model Behaviors**

Kazuhide Togai, Kazuo Kido, Mitsubishi Motors Corporation; Hiroki Yamaura, Mitsubishi Automotive Engineering Co., Ltd.; Zhenchun Xia, Guozhong Wang, MB SIM Technology Co., Ltd.

14:45 JSAE 20077240 / SAE 2007-01-2078

**Knock and Misfire Detection using Ion Current Measurement for Ultra Lean Burn Medium Speed Gas Engine**

Kenji Yoshimura, Yoshiro Tokunaga, Dai Hashimoto, Hideaki Sakurai, Kawasaki Heavy Industries, Ltd.

**M1: Measurement and Control of Noise & Vibration 2**

Room - W-3A

Chairpersons:

Yoshio Maeda, Honda R&D Co., Ltd.

Kresimir Gebert, International Truck and Engine Corporation

16:00 JSAE 20077056 / SAE 2007-01-2079

**A Simple Method of Analysis and Modeling of Cycle-to-Cycle Variation of Engine Work – the Example of Indicated Pressure**

Jacek Czarnigowski, Lublin University of Technology

16:30 JSAE 20077085 / SAE 2007-01-2081

**A Study of Parameters Affecting Noise on a Heavy Duty DI Engine**

Sven Ahlander, Krister Fredriksson, Volvo Technology Corporation; Wolfgang Kropp, Chalmers University

17:00 JSAE 20077127 / SAE 2007-01-2074

**Testing Non-Uniformity of the Combustion Process in a Radial Aircraft Engine**

Jacek Czarnigowski, Mirosław Wendeker, Piotr Jakliński, Konrad Pietrykowski, Antoni Nazarewicz, Michal Geca, Tomasz Zyska, Lublin University of Technology

Written Only JSAE 20077043 / SAE 2007-01-2080

**Idle Speed Stabilization by Neural Network Model-Based Control of Ignition in SI Engine**

Jacek Czarnigowski, Mirosław Wendeker, Piotr Jakliński, Lublin University of Technology; Pierre Boulet, Florin Breaban, Institut Universitaire de Technologie de Béthune

Written Only JSAE 20077250 / SAE 2007-01-2069

**Experiment and Simulation Analysis on Heat Load of Heavy-Duty Vehicle Diesel Engine**

Zhaowen Wang, Ronghua Huang, Xiaobei Cheng, Yiwei Huang, Huazhong University of Science and Technology; Jun Qin, Yuwei Zhong, Huailin Su, Yu Lin Diesel Engine Machinery Corporation

## Tuesday, July 24

### C2: Diesel Combustion 1

Room - E-2A

Chairpersons:

Hidenori Kosaka, Tokyo Institute of Technology

Thanos Megaritis, Brunel University

9:30 JSAE 20077221 / SAE 2007-01-1834

#### Various Effects of EGR on Combustion and Emissions on an Automotive DI Diesel Engine : Numerical and Experimental Study

Alain Maiboom, Xavier Tautzia, Jean-François Héret, Mickaël Cormerais, Ecole Centrale de Nantes; Mourad Tounsi, Thierry Jaine, Stéphane Blanchin, PSA Peugeot-Citroën

10:00 JSAE 20077091 / SAE 2007-01-1840

#### Investigation of Alternative Combustion Crossing Stoichiometric Air Fuel Ratio for Clean Diesels

Gary D. Neely, Shizuo Sasaki, Southwest Research Institute; Hiroshi Sono, Honda R&D Company, Ltd.

10:30 JSAE 20077304 / SAE 2007-01-1841

#### Development and Application of a 0D D.I. Diesel Combustion Model for Emissions Prediction

F.-A. Lafossas, M. Marbaix, P. Menegazzi, IFP

11:00 JSAE 20077166 / SAE 2007-01-1842

#### Experimental Validation of a Surrogate Fuel for Diesel

J. Weber, H.W. Won, N. Peters, Institut für Technische Verbrennung

### C2: Diesel Combustion 2

Room - E-2A

Chairpersons:

Thanos Megaritis, Brunel University

Naoki Shimazaki, Isuzu Advanced Engineering Center, Ltd.

13:00 JSAE 20077038 / SAE 2007-01-1836

#### On the Origin of Unburned Hydrocarbon Emissions in a Wall Guided, Low NOx Diesel Combustion System

Julian T. Kashdan, Sylvain Mendez, Gilles Bruneaux, IFP

13:30 JSAE 20077143 / SAE 2007-01-1837

#### On the Cyclic Variability and Sources of Unburned Hydrocarbon Emissions in Low Temperature Diesel Combustion Systems

Will F. Colban, Paul C. Miles, Sandia National Laboratories; Seungmook Oh, Korea Institute of Machinery and Materials

14:00 JSAE 20077260 / SAE 2007-01-1838

#### Analysis of Combustion Regimes in Compression Ignited Engines Using Parametric $\phi$ -T Dynamic Maps

Valeri I. Golovitchev, Alper T. Calik, Luca Montorsi, Chalmers University of Technology

14:30 JSAE 20077183 / SAE 2007-01-1839

#### Experimental Analysis of the Operating Parameter Influence on the Application of Low Temperature Combustion in the Modern Diesel Engines

Carlo Beatrice, Giovanni Avolio, Chiara Guido, Istituto Motori – Consiglio Nazionale delle Ricerche

### C2: Diesel Combustion 3

Room - E-2A

Chairpersons:

Naoki Shimazaki, Isuzu Advanced Engineering Center, Ltd.

Hidenori Kosaka, Tokyo Institute of Technology

15:15 JSAE 20077229 / SAE 2007-01-1843

#### Application of Model Fuels to Engine Simulation

E. Meeks, J. M. Deur, D. Hodgson, M. V. Petrova, K. V. Pudupakkam, C. Wang, C. K. Westbrook, Reaction Design; A. M. Dean, Colorado School of Mines; W. H. Green, Massachusetts Institute of Technology; M. Koshi, University of Tokyo; U. Maas, Universität Karlsruhe

15:45 JSAE 20077152 / SAE 2007-01-1844

#### Effects of CO<sub>2</sub> and N<sub>2</sub> Mixing into Ambient Air on Flame Temperature and Soot Formation in Intermittent Spray Combustion

Akihiko Azetsu, Hiroaki Ito, Tokai University

16:15 JSAE 20077275 / SAE 2007-01-1845

#### A Study on Effect of Heterogeneity of Oxygen Concentration of Mixture in a Combustion Chamber on Combustion and Emissions of Diesel Engine

Hidenori Kosaka, Kentaro Nishida, Tetsuya Aizawa, Tokyo Institute of Technology

16:45 JSAE 20077272 / SAE 2007-01-1846

#### Basic Study and Engine Trial on Diesel NOx Reduction by Controlling Mixing

Yutaka Tabe, Takemi Chikahisa, Hokkaido University

### M3: Fuel Consumption and Emission in Driving Mode

Room - E-2B

Chairpersons:

Yutaka Tabe, Hokkaido University

Kresimir Gebert, International Truck and Engine Corporation

9:30 JSAE 20077046 / SAE 2007-01-2073

#### Analysis and Evaluation of the Urban Bus Driving Cycle on Fuel Economy

Qiwei Wu, Haiqiang Liu, Lin Lu, Wuhan University of Technology

10:00 JSAE 20077355 / SAE 2007-01-2065

#### Study of Thermal Characteristics, Fuel Consumption and Emissions during Cold Start using an On-Board Measuring Method for SI Car Real World Urban Driving

Hu Li, Gordon E. Andrews, Dimitrios Savvidis, Basil Daham, Karl Ropkins, Margaret Bell, James Tate, The University of Leeds

10:30 JSAE 20077353 / SAE 2007-01-2066

#### Analysis of Driving Parameters and Emissions for Real World Urban Driving Cycles using an On-Board Measurement Method for a EURO 2 SI Car

Hu Li, Gordon E. Andrews, Adnan A. Khan, Dimitrios Savvidis, Basil Daham, Margaret Bell, James Tate, Karl Ropkins, The University of Leeds

Written Only JSAE 20077282 / SAE 2007-01-1947

#### European CO<sub>2</sub> Change from the Increased Percentage of Diesel Passenger Cars in European Union

Efthimios Zervas, Democritus University of Thrace

### L8-1: New Lubricants and Additive Development 1

Room - E-2D

Chairpersons:

Masabumi Masuko, Tokyo Institute of Technology  
Tze-Chi Jao, Afton Chemical Corporation

9:30 JSAE 20077110 / SAE 2007-01-1985

#### Influence of Polymethacrylate Viscosity Index Improvers on Friction and Wear of Lubricant Formulations

Michael Müller, RohMax Additives GmbH; Jingyan Fan, Hugh Spikes, Imperial College

10:00 JSAE 20077133 / SAE 2007-01-1986

#### Automatic Transmission Fluid Development: Reaching New Levels of Friction Durability

Samuel H. Tersigni, Lee D. Saathoff, Christopher Cleveland, Afton Chemical, Inc.; Mark S. Jones, Afton Chemical, Ltd.; Kenji Yatsunami, Afton Chemical Japan Corporation

10:30 JSAE 20077138 / SAE 2007-01-1987

#### Extended-Drain Field Testing of Group III-Based Lubricants in Heavy-Duty Transmissions and Axles

Jack A. Zakarian, Michael J. Haire, Chevron Products Company

11:00 JSAE 20077208 / SAE 2007-01-1988

#### Limited Slip Additive Testing and Development: New Products with Improved Thermal Stability

Paula Vettel, David Lindsay, D. A. Stuart Company

### L8-2: New Lubricants and Additive Development 2

Room - E-2D

Chairpersons:

Jiro Magarifuchi, Chevron Japan Ltd.  
Derek Mackney, The Lubrizol Corporation

13:00 JSAE 20077283 / SAE 2007-01-1989

#### Effect of Coexistent Additives on the Friction Characteristics and Tribofilm Formation of Zinc Dialkyldithiophosphate

Saiko Aoki, Masabumi Masuko, Akihito Suzuki, Tokyo Institute of Technology

13:30 JSAE 20077288 / SAE 2007-01-1990

#### Low Volatility ZDDP Technology: Part 1 – Engines and Lubricant Performance in Field Applications

Ewa A. Bardasz, Elizabeth Schiferl, William Nahumck, Jack Kelley, Lewis Williams, The Lubrizol Corporation; Michael J. Riley, Carolyn P. Hubbard, Ford Motor Company

14:00 JSAE 20077300 / SAE 2007-01-1991

#### Operational Performance of Eco-Friendly Engine Oils Formulated with the Sulfur-Free Additive ZP

Tepei Tsujimoto, Akira Yaguchi, Kazuhiro Yagishita, Nippon Oil Corporation

14:30 JSAE 20077305 / SAE 2007-01-1992

#### Development of Long Life Engine Oil Using Substituent Additive for ZnDTP

Hirota Yamasaki, Motoharu Ishikawa, Hideki Kamano, Hiroaki Koshima, Shinya Iizuka, Idemitsu Kosan Co., Ltd.

### L3: Power Train Tribology

Room - E-2D

Chairpersons:

Yoshitaka Tamoto, Idemitsu Kosan Co., Ltd.  
Hitoshi Hamaguchi, Degussa Japan Co., Ltd.

15:15 JSAE 20077002 / SAE 2007-01-1967

#### Cold Engine Cranking Torque Requirement Analysis

Quanbao Zhou, John Houldcroft, Jaguar Cars Ltd.

15:45 JSAE 20077067 / SAE 2007-01-1968

#### Computing the Main Journal Bearings Dynamic Coefficients in a Six-Cylinder In-line Diesel Engine

B. Tang, Dalian University of Technology

16:15 JSAE 20077103 / SAE 2007-01-1969

#### Wear Analysis of DLC Coating in Oil Containing Mo-DTC

Takatoshi Shinyoshi, Yoshio Fuwa, Yoshinori Ozaki, Toyota Motor Corporation

16:45 JSAE 20077324 / SAE 2007-01-1970

#### A Test Method for Evaluating Material Combinations of Automotive Camshaft and Follower Components Subjected to Lubricated Sliding Simulating Variable Valve Actuation

Simon C. Tung, Angelo Quintana, General Motors Research and Development Center; Shekhar G. Wakade, Edward Becker, General Motors Powertrain; Steven White, University of Michigan

### E6: Advanced Emission Aftertreatment for Diesel Engines 1

Room - E-2C

Chairpersons:

Shigeo Muranaka, Nissan Motor Co., Ltd.  
Sivanandi Rajadurai, ACS Industries

9:30 JSAE 20077265 / SAE 2007-01-1933

#### Study on Emission Reducing Method with New Lean NO<sub>x</sub> Catalyst for Diesel Engines

Katsuji Wada, Norio Suzuki, Naohiro Satoh, Tomoko Morita, Satoshi Yamaguchi, Hiroshi Ohno, Honda R&D Co., Ltd.

10:00 JSAE 20077064 / SAE 2007-01-1934

#### Fuel-Borne Catalyst Assisted DPF Regeneration on a Renault Truck MD9 Engine Outfitted with SCR

Gabriel Plassat, ADEME; Guy Pichon, Régis Vonarb, Volvo Powertrain France; Laurent Rocher, Rhodia; Jean-Claude Fayard, Comela; Emmanuel Joubert, Aaqius & Aaqius; Brigitte Martin, Jacques Lavy, Institut Français du Pétrole

Written Only JSAE 20077131 / SAE 2007-01-1935

#### The Application of the PUREM SCR System on YC6L350-40 HD Diesel Engine

Jun Qin, Lin Lu, Bingshan Liu, Wuhan University of Technology

### E7: Advanced Emission Aftertreatment for Diesel Engines 2

Room - E-2C

Chairpersons:

Terunao Kawai, National Traffic Safety & Environment Laboratory  
Gen Shibata, Nippon Oil Corporation

13:00 JSAE 20077094 / SAE 2007-01-1937

#### Investigation of Alternative Combustion, Airflow-Dominant Control and Aftertreatment System for Clean Diesel Vehicles

Shizuo Sasaki, Jayant Sarlashkar, Gary D. Neely, Junmin Wang, Qilong Lu, Southwest Research Institute; Hiroshi Sono, Honda R&D Company, Ltd.

13:30 JSAE 20077092 / SAE 2007-01-2070

#### An Airflow-Dominant Control System for Future Diesel Engines

Jayant Sarlashkar, Shizuo Sasaki, Gary D. Neely, Junmin Wang, Southwest Research Institute; Hiroshi Sono, Honda R&D Company, Ltd.

14:00 JSAE 20077291 / SAE 2007-01-1938

#### **Diesel Engine Transient Control and Emissions Response during a European Extra-Urban Drive Cycle (EUDC)**

J. Black, P.G. Eastwood, K. Tufail, T. Winstanley, Ford Motor Company; Y. Hardalupas, A.M.K.P. Taylor, Imperial College London

14:30 JSAE 20077118 / SAE 2007-01-1939

#### **Thermal Aging Behavior of SiC Substrate in the Presence of Ash Materials and Alkali Metals**

Byungchul Choi, Hanyong Kang, Chonnam National University; Geonseog Son, Cheolwon Hwang, Ordeg Co., Ltd.

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### **E11: Advanced Emission Aftertreatment for Diesel Engines 3**

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Room - E-2C

Chairpersons:

Noboru Uchida, Hino Motors, Ltd.

Terunao Kawai, National Traffic Safety & Environment Laboratory

15:15 JSAE 20077333 / SAE 2007-01-1950

#### **Sustained Soot Oxidation in Catalytically Coated Filters**

A.G. Konstandopoulos, Aristotle University; S. Lorentzou, C. Pagkoura, CERTH/CPERI; K. Ohno, K. Ogyu, T. Oya, Ividen Co., Ltd.

15:45 JSAE 20077334 / SAE 2007-01-1951

#### **Advanced Catalyst Coating Technology for Porous Substrates**

A.G. Konstandopoulos, Aristotle University; S. Lorentzou, C. Pagkoura, CERTH/CPERI; J. Boettcher, Honda R&D Europe (Deutschland) GmbH

16:15 JSAE 20077342 / SAE 2007-01-1952

#### **Summary Report of Japan Clean Air Program Diesel and Diesel Fuel Activities**

Toshiaki Kakegawa, Hino Motors Ltd.; Takashi Kaneko, Nippon Oil Corporation; Shinji Hara, Isuzu Motors Limited; Shigeo Sembokuya, Idemitsu Kosan Co., Ltd.; Osamu Nakamura, Tonen General Sekiyu K.K.; Masahiko Shibuya, Showa Shell Sekiyu K.K.; Hiroyuki Itoyama, Nissan Motor Co., Ltd.; Masanori Okada, Toyota Motor Corporation; Gen Sugiyama, Japan Automobile Research Institute; Tsutomu Hasegawa, Japan Petroleum Energy Center

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### **C5: HCCI Combustion 4**

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Room - W-3B

Chairpersons:

Eiji Tomita, Okayama University

Kresimir Gebert, International Truck and Engine Corporation

9:30 JSAE 20077063 / SAE 2007-01-1866

#### **Improvements in Low Temperature Diesel Combustion with Blending ETBE to Diesel Fuel**

Tie Li, Hiroyuki Izumi, Toshio Shudo, Hideyuki Ogawa, Hokkaido University; Yukihiro Okabe, Toyota Motor Corporation

10:00 JSAE 20077037 / SAE 2007-01-1867

#### **Improving Ethanol Life Cycle Energy Efficiency by Direct Utilization of Wet Ethanol in HCCI Engines**

Daniel L. Flowers, Salvador M. Aceves, Lawrence Livermore National Laboratory; Joel Martinez Frias, University of California

10:30 JSAE 20077081 / SAE 2007-01-1868

#### **Performance of Two/Four Stroke Gasoline HCCI Engine with Electromagnetic Valve Train**

Kyoung-Oh Kim, Hiroyuki Sakai, Tatsuo Kobayashi, Toyota Motor Corporation; Michio Nakano, Toyota Central R&D Labs. Co., Ltd.

11:00 JSAE 20077120 / SAE 2007-01-1869

#### **Development of a Turbulence Controlled Rapid Compression Machine for HCCI Combustion**

P. Guibert, A. Keromnes, G. Legros, University Pierre et Marie Curie

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### **C5: HCCI Combustion 5**

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Room - W-3B

Chairpersons:

Kazuhiro Akihama, Toyota Central R&D Labs., Inc.

Kresimir Gebert, International Truck and Engine Corporation

13:00 JSAE 20077178 / SAE 2007-01-1870

#### **An Investigation of the Effect of Thermal Stratification on HCCI Combustion by using Rapid Compression Machine**

Hiroaki Nakano, Ock Taek Lim, Norimasa Iida, Keio University

13:30 JSAE 20077053 / SAE 2007-01-1872

#### **Characteristics of Combustion Stability and Emission in SCCI and CAI Combustion Based on Direct-Injection Gasoline Engine**

Changhee Lee, Eiji Tomita, Okayama University; Kihyung Lee, Hanyang University

14:00 JSAE 20077130 / SAE 2007-01-1873

#### **A Study on HCCI (Homogeneous Charge Compression Ignition) Gasoline Engine Supercharged by Exhaust Blow Down Pressure**

Koichi Hatamura, Hatamura Engine Research Office

14:30 JSAE 20077069 / SAE 2007-01-1874

#### **The Effects of Injection Conditions and Combustion Chamber Geometry on Performance and Emissions of DI-PCCI Operation in a Diesel Engine**

Naoto Horibe, Ken Takahashi, Sung-Sub Kee, Takuji Ishiyama, Masahiro Shioji, Kyoto University

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### **C5: HCCI Combustion 6**

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Room - W-3B

Chairpersons:

Kazuhiro Akihama, Toyota Central R&D Labs., Inc.

Eiji Tomita, Okayama University

15:15 JSAE 20077007 / SAE 2007-01-1875

#### **Numerical Simulation and Experimental Study on the N-Heptane HCCI Combustion with Port Injection of Reaction Additive**

Lü Xingcai, Ji Libin, Zu Linlin, Huang Zhen, Korea University

15:45 JSAE 20077321 / SAE 2007-01-1876

#### **An Investigation of Combustion Control using EGR for Small and Light HCCI Engine Fuelled with DME**

Yoshihiko Kanoto, Tetsuo Ohmura, Norimasa Iida, Keio University

16:15 JSAE 20077156 / SAE 2007-01-1877

#### **Influence of Compression Ratio on Performance and Variations in Each Cylinder of Multi-Cylinder Natural Gas Engine with PCCI Combustion**

Hiroyuki Ohtsubo, Kazuyuki Yamauchi, Tohru Nakazono, YANMAR Co., Ltd.; Koji Yamane, Kiyoshi Kawasaki, The University of Shiga Prefecture

16:45

JSAE 20077171 / SAE 2007-01-1878

### **Numerical Investigation of Recompression and Fuel Reforming in a SIDI-HCCI Engine**

C. Felsch, T. Sloane, J. Han, H. Barths, A. Lippert, General Motors Corporation

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### **F8: Bio Diesel 1**

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Room - E-3A

Chairpersons:

Koji Yamane, Kiyoshi Kawasaki, The University of Shiga Prefecture

9:30

JSAE 20077123 / SAE 2007-01-2020

### **Highly Homogeneous Compression Ignition in a Direct Injection Diesel Engine Fuelled with Diesel and Biodiesel**

Adam Weall, Nick Collings, University of Cambridge

10:00

JSAE 20077065 / SAE 2007-01-2021

### **Combustion Characteristics of Diesel Engine with Coconut Oil Ethyl Ester**

E. Kinoshita, T. Myo, K. Hamasaki, S. Nishi, Kagoshima University

10:30

JSAE 20077083 / SAE 2007-01-2022

### **Measuring the Performance and the Environmental Effects of Four-Stroke Diesel Engines Operated on the Same Plant Oil Methyl ester Mixtures in Two Laboratories**

Dimitrios Savvidis, Vassilios Grammatikis, John Triandafyllis, TEI of Thessaloniki; Mark Pecqueur, Karel de Grote-Hogeschool; Fokion Vosniakos, TEI of Thessaloniki

11:00

JSAE 20077358 / SAE 2007-01-2023

### **A Study of the Effects of 30% Biodiesel Fuel on Soot Loading and Regeneration of a Catalytic DPF**

Pascal Barbier, Bertrand Fasolo, Rodica Faucon, Jacques Vandenplas, Renault

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### **F9: Bio Diesel 2**

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Room - E-3A

Chairpersons:

Rodica Faucon, Renault SAS

Koji Yamane, The University of Shiga Prefecture

13:00

JSAE 20077087 / SAE 2007-01-2024

### **Fuel Properties and Chemical Compositions of Bio-Oils from Biomass Pyrolysis**

Piyarat Weerachanchai, Chaiyot Tangsathitkulchai, Malee Tangsathitkulchai, Suranaree University of Technology

13:30

JSAE 20077278 / SAE 2007-01-2025

### **Performance and Exhaust Gas Emissions of Using Biodiesel Fuel from Physic Nut (*Jatropha Curcas L.*) Oil on a Direct Injection Diesel Engine (DI)**

Iman K. Reksowardojo, Ichsan H. Lubis, Wishnu Manggala S.A., Tirta P. Brodjonegoro, Tatang H. Soerawidjaja, W. Arismunandar, Institut Teknologi Bandung; Nguyen Ngoc Dung, Kyoto University; H. Ogawa, Hokkaido University

14:00

JSAE 20077098 / SAE 2007-01-2026

### **Experimental Study of a Dual-Fuel Diesel Engine with Biodiesel and Low-Calorie Gas Fuels**

Kiyoshi Kawasaki, Koji Yamane, The University of Shiga Prefecture

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### **F10: Bio Diesel 3**

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Room - E-3A

Chairpersons:

Kiyoshi Kawasaki, The University of Shiga Prefecture

Rodica Faucon, Renault SAS

15:15

JSAE 20077154 / SAE 2007-01-2027

### **Oxidation Degradation and Acid Generation in Diesel Fuel Containing 5% FAME**

Gen Sugiyama, Akira Maeda, Keiichi Nagai, Japan Automobile Research Institute

15:45

JSAE 20077256 / SAE 2007-01-2028

### **Optimization of Engine System for Application of Biodiesel Fuel**

Daisuke Kawano, Hajime Ishii, Yuichi Goto, Akira Noda, National Traffic Safety and Environment Laboratory; Yuzo Aoyagi, New A.C.E Institute Co., Ltd.

16:15

JSAE 20077022 / SAE 2007-01-2029

### **Improvement of Emissions in a DI Diesel Engine Fuelled by Bio-Diesel Fuel and Waste Cooking Oil**

Wira Jazair, Toru Harada, Syunsuke Kubo, Yoshiyuki Kidoguchi, Kei Miwa, The University of Tokushima

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### **F14: Gaseous Fuels in SI Engines 1**

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Room - E-3B

Chairpersons:

Takuji Ishiyama, Kyoto University

Toshio Shudo, Hokkaido University

Written Only

JSAE 20077070 / SAE 2007-01-2041

### **A Study on EGR Utilization in Natural Gas SI Engines using a Two-Zone Combustion Model**

Amr Ibrahim, Saiful Bari, Frank Bruno, University of South Australia

9:30

JSAE 20077219 / SAE 2007-01-2042

### **Development of High Thermal Efficiency and Small Size Gas Engine System using Biomass Gas Fuel**

Yudai Yamasaki, Go Tomatsu, Yuki Nagata, Shigehiko Kaneko, The University of Tokyo

10:00

JSAE 20077170 / SAE 2007-01-2044

### **Exhaust Gas Fuel Reforming for IC Engines using Diesel Type Fuels**

A. Tsolakis, A. Abu-Jrai, K. Theinnoi, M.L. Wyszynski, H.M. Xu, University of Birmingham; A. Megaritis, Brunel University; R. Cracknell, Shell Global Solutions; S. E. Golunski, S.M. Peucheret, Johnson Matthey Technology Centre

10:30

JSAE 20077239 / SAE 2007-01-2045

### **Test of Blends of Hydrogen and Natural Gas in a Light Duty Vehicle**

Giovanni Pede, Ennio Rossi, Italian National Agency for New Technologies, Energy and the Environment (ENEA); Maria Chiesa, Catholic University of Brescia; Fernando Ortenzi, University "La Sapienza"

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### **F15: Gaseous Fuels in SI Engines 2**

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Room - E-3B

Chairpersons:

Tohru Nakazono, Yanmar Co., Ltd.

Takuji Ishiyama, Kyoto University

13:00

JSAE 20077209 / SAE 2007-01-2046

### **Efficiency-Optimized Operating Strategy of a Supercharged Hydrogen-Powered Four-Cylinder Engine for Hybrid Environments**

Henning Lohse-Busch, Thomas Wallner, Neeraj Shidore, Argonne National Laboratory

13:30 JSAE 20077159 / SAE 2007-01-2050

**Characteristics of Droplet and Icing Formation of an Injector for Liquid Phase LPG Injection System**

Cheolwoong Park, Changup Kim, Kyonam Choi, Keryong Kang, Korea Institute of Machinery and Materials

14:00 JSAE 20077086 / SAE 2007-01-2051

**Operational Parameters of LPG Fueled SI Engine - Comparison of Simultaneous and Sequential Port Injection**

Mirosław Wendeker, Piotr Jakliński, Jacek Czarnigowski, Lublin University of Technology; Pierre Boulet, Florin Breaban, Institut Universitaire de Technologie de Béthune

Written Only JSAE 20077088 / SAE 2007-01-2053

**CFD Model of Fuel Rail for LPG Systems**

Jacek Czarnigowski, Mirosław Wendeker, Piotr Jakliński, Michał Rola, Łukasz Grabowski, Konrad Pietrykowski, Lublin University of Technology

Written Only JSAE 20077084 / SAE 2007-01-2054

**The Effect of Injection Start Angle of Vaporized LPG on SI Engine Operation Parameters**

Piotr Jakliński, Jacek Czarnigowski, Mirosław Wendeker, Lublin University of Technology

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**C6: Diesel Spray and Mixture Formation 1**

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Room - W-3A

Chairpersons:

Akihiko Azetsu, Tokai University  
Patrick Gastaldi, Renault

9:30 JSAE 20077021 / SAE 2007-01-1889

**Effects of Group-hole Nozzle Specifications on Fuel Atomization and Evaporation of Direct Injection Diesel Sprays**

Jian Gao, Yuhei Matsumoto, Keiya Nishida, University of Hiroshima

10:00 JSAE 20077100 / SAE 2007-01-1890

**Effects of Micro-Hole and Ultra-High Injection Pressure on Mixture Properties of D.I. Diesel Spray**

Keiya Nishida, Wu Zhang, University of Hiroshima; Tetsuya Manabe, Japan Tobacco Inc.

10:30 JSAE 20077054 / SAE 2007-01-1891

**Liquid Phase Thermometry of Common Rail Diesel Sprays Impinging on a Heated Wall**

Mamoru Ueda, Keiji Shiota, Kazuaki Nagoshi, Daisuke Segawa, Shinji Nakaya, Toshikazu Kadota, Osaka Prefecture University; Mitsuhiro Tsue, Michikata Kono, The University of Tokyo; Tomohiro Kanda, Tatsuya Uchimoto, Honda R&D Co., Ltd.

11:00 JSAE 20077224 / SAE 2007-01-1892

**A Challenge to Vapor Distribution Measurement of Multi-Component Evaporating Fuel Spray via Laser Absorption-Scattering (LAS) Technique**

Yuyin Zhang, Yoshinobu Kotani, Akira Yoshida, Tokyo Denki University; Keiya Nishida, Hiroshima University

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**C6: Diesel Spray and Mixture Formation 2**

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Room - W-3A

Chairpersons:

Chuck Mueller, Sandia National Laboratories  
Keiya Nishida, Hiroshima University

13:00 JSAE 20077026 / SAE 2007-01-1893

**A Study on Droplets Evaporation at Diesel Spray Boundary during Ignition Delay Period**

Abdullah Adam, Naoki Inukai, Yoshiyuki Kidoguchi, Kei Miwa, The University of Tokushima; Seiji Miyashiro, Anan National College of Technology

13:30 JSAE 20077062 / SAE 2007-01-1894

**A Study of the Effect of Injection Pressure on Near-nozzle Droplet Atomization in Diesel Fuel Spray using Micro-probe L2F**

Hironobu Ueki, Masahiro Ishida, Daisaku Sakaguchi, Amida Oluwole, Nagasaki University

14:00 JSAE 20077223 / SAE 2007-01-1895

**Advanced Hybrid Electronic Unit Injector with Accumulator for Enhanced Multiple Injection and Ultra High Injection Pressure Capability**

Simon Tullis, Godfrey Greeves, David Draper, Nebojsa Milovanovic, Stefan Zuelch, Delphi Diesel Systems

14:30 JSAE 20077184 / SAE 2007-01-1896

**Influence of Injector Nozzle Design and Cavitation on Coking Phenomenon**

Bruno Argueyrolles, Stephan Dehoux, Patrick Gastaldi, Lysiane Grosjean, Franck Levy, Alexandre Michel, Daniel Passerel, Renault Powertrain Division

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**C6: Diesel Spray and Mixture Formation 3**

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Room - W-3A

Chairpersons:

Keiya Nishida, Hiroshima University  
Nebojsa Milovanovic, Delphi Diesel System

15:15 JSAE 20077306 / SAE 2007-01-1897

**Investigation of the Internal Flow Field of a Diesel Model Injector using Particle Image Velocimetry and CFD**

P.G. Aleiferis, Y. Hardalupas, D. Kolokotronis, A.M.K.P. Taylor, Imperial College London; T. Kimura, Honda R&D Co., Ltd.

15:45 JSAE 20077311 / SAE 2007-01-1898

**Investigation of Breakup Modeling of a Diesel Spray by Making Comparisons with 2D Measurement Data**

Yasuo Moriyoshi, Chiba University; Masahide Takagi, National Maritime Research Institute; Change-seong Ryu, Chiba University

16:15 JSAE 20077193 / SAE 2007-01-1899

**Instantaneous and Statistical Structures of Non-Evaporative Diesel Spray**

Shuji Kamata, Hiroki Nakagawa, Tsukasa Hori, Jiro Senda, H. Gen Fujimoto, Doshisha University

## Wednesday, July 25

### C8: Modeling of Diesel Engines 1

Room - E-2A

Chairpersons:

Jiro Senda, Doshisha University

Akihiko Azetsu, Tokai University

9:30 JSAE 20077153 / SAE 2007-01-1904

#### A New Phenomenological Model for Combustion and Performance Studies of Direct Injection Diesel Engines

Khashayar Ebrahimi, Majid Bazargan, Seyed Ali Jazayeri, K.N.Toosi  
University of Technology

10:00 JSAE 20077198 / SAE 2007-01-1905

#### Accurate Modelling of the Thermal Behaviour of a Diesel Engine by Means of CFD and its Validation

S. Etemad, T. Hagner, Volvo Car Corporation; C. F. Stein, F S  
Dynamics

10:30 JSAE 20077285 / SAE 2007-01-1907

#### 3D-CFD Modeling of Conventional and Alternative Diesel Combustion and Pollutant Formation – A Validation Study

P. Priesching, G. Ramusch, J. Ruetz, R. Tatschl, AVL List GmbH

Written Only JSAE 20077057 / SAE 2007-01-1908

#### Multi-Zone DI Diesel Spray Combustion Model and its Application for Matching the Injector Design with Piston Bowl Shape

A.S. Kuleshov, Bauman Moscow State Technical University

Written Only JSAE 20077030 / SAE 2007-01-1909

#### Study on Formaldehyde Emission in a DME-Fueled Direct-Injection Diesel Engine

Yu-sheng Zhang, Chun-lan Mo, Hai-ying Sun, Shao-ren Zhou,  
Huazhong University of Science and Technology

### E8: PM Characterization in Exhaust Gas of Diesel Engines 1

Room - E-2B

Chairpersons:

Yuichi Goto, National Traffic Safety & Environment Laboratory

Philip Price, Oxford University

13:00 JSAE 20077189 / SAE 2007-01-1941

#### Effect of Fuel Properties on Diesel PM Components

Tomohiko Furuhashi, Masataka Arai, Gunma University; Mitsuru Yaga,  
Nippon Steel Chemical Co., Ltd.; Jay Hwee Lee, Kwang Min Chun,  
Yonsei University

13:30 JSAE 20077196 / SAE 2007-01-1942

#### Nano-Size PM Emission from Laminar Diffusion Flame of Diesel Fuel

Toshihiro Sako, Tomohiko Furuhashi, Masataka Arai, Gunma University

Written Only JSAE 20077206 / SAE 2007-01-1943

#### Morphological Examination of Nano-Particles Derived from Combustion of Cerium Fuel-Borne Catalyst Doped with Diesel Fuel

Kyeong O. Lee, Juhun Song, Argonne National Laboratory

### E9: PM Characterization in Exhaust Gas of Diesel Engines 2

Room - E-2B

Chairpersons:

Yasuo Moriyoshi, Chiba University

Paul Richards, Innopsec Inc.

15:15 JSAE 20077179 / SAE 2007-01-1944

#### Particle Measurement Programme (PMP): Particle Size and Number Emissions before, during and after Regeneration Events of a Euro 4 DPF Equipped Light-Duty Diesel Vehicle

Barouch Giechaskiel, Rafael Munoz-Bueno, Lauretta Rubino, Urbano Manfredi, Panagiota Dilara, Giovanni De Santi, European Commission - DG JRC, IES, Transport and Air Quality Unit; Jon Andersson, Ricardo Consulting Engineers

15:45 JSAE 20077142 / SAE 2007-01-1945

#### Comprehensive Characterization of Particulate Emissions from Advanced Diesel Combustion

Christopher Kolodziej, Ekathai Wirojsakunchai, David E. Foster, University of Wisconsin; Niklas Schmidt, University of Wisconsin-Madison; Takeyuki Kamimoto, Tokai University; Terunao Kawai, National Traffic Safety and Environmental Laboratory; Mike Akard, Tomoshi Yoshimura, Horiba Instruments, Inc.

16:15 JSAE 20077173 / SAE 2007-01-1946

#### Development of an Official Test Method for On-Board PM Measurements from Heavy-Duty Diesel Engines in the European Union

L. Rubino, P. Bonnel, A. Krasenbrink, M. Carriero, J. Kubelt, I. Fumagalli, F. Montigny, G. De Santi, European Commission – DG Joint Research Centre

### L5: Fuel Economy and Environmental Impacts of Power Train Lubricants

Room - E-2D

Chairpersons:

Takashi Inoue, Toyota Motor Corporation

Derek Mackney, The Lubrizol Corporation

9:30 JSAE 20077045 / SAE 2007-01-1977

#### Study of Future Engine Oil (First Report): Future Engine Oil Scenario

Naoto Koyamaishi, Tetsushi Suzuki, Ryuichiro Kamioka, Motoichi Murakami, Minoru Yamashita, Teru Ogawa, Toyota Motor Corporation; Kenichi Komiya, Nippon Oil Corporation; Hiroshi Moritani, Toyota Central R&D Labs., Inc.

10:00 JSAE 20077101 / SAE 2007-01-1978

#### Challenge to the Diesel Engine Lubrication with Fuel

Hiroshi Moritani, Hiroharu Tokoro, Mamoru Tohyama, Hiroyuki Mori, Toshihide Ohmori, Toyota Central R&D Labs., Inc.; Motoichi Murakami, Toyota Motor Corporation

10:30 JSAE 20077162 / SAE 2007-01-1979

#### Development of 5W-30 GF-4 Fuel-Saving Engine Oil for DLC-Coated Valve Lifters

Sachiko Okuda, Takahiro Dewa, Takumaru Sagawa, Nissan Motor Co., Ltd.

11:00 JSAE 20077254 / SAE 2007-01-1980

#### A Study of Transmission Fluid Performance on Fuel Economy

Hideo Kurashina, Yuki Ito, Hidekatsu Isomura, Kazunori Yamaguchi, Mitsubishi Motors Corporation

## **L6: Lubricants Testing and New Test Methods**

Room - E-2D

Chairpersons:

Kazuteru Kotaka, Chevron Japan Ltd.

Alain Paul Gauthier, TOTAL

15:15

SAE 2007-01-1973 / JSAE 20077160

### **A Review of Solutions for the Mechanism of Oil Consumption in Internal Combustion Engines**

Mitsuhiro Soejima, Kyushu Sangyo University; Edward H. Smith, Ian Sherrington, University of Central Lancashire; Yutaro Wakuri, Kyushu University

15:45

SAE 2007-01-1981 / JSAE 20077055

### **Influence of Lubricant Formulations on Engine Oil Consumption using Radionuclide Technique**

Anne-Elline Gilles, Ludivine Pidot, Total Research Center of Solaise; Thierry Delvigne, Olivier Courtois, Benoît Deconninck, DSI - Delta Services Industriels

16:15

SAE 2007-01-1983 / JSAE 20077140

### **Rig and Road Tests used in Development of Temperature Reduction Automotive Gear Oils**

Tze-Chi Jao, David J. DeGonia, Chip Hewette, Cory Koglin, Afton Chemical Corporation; Blair J. Swanson, Gregory E. Woodside, American Axle & Manufacturing

16:45

SAE 2007-01-1984 / JSAE 20077202

### **Characterising Lubricating Oil Viscosity to Describe Effects on Engine Friction**

P.J. Shayler, A.J. Allen, D.K.W. Leong, University of Nottingham; I. Pegg, Ford Motor Company; A.J. Brown, J.-C. Dumenil, BP Global Lubricants Technology

## **C7: Modeling of SI Engines**

Room - E-2C

Chairpersons:

Tomoyuki Wakisaka, Osaka City University

Ken Naitoh, Waseda University

9:30

SAE 2007-01-1900 / JSAE 20077180

### **Residual Gas Fraction Measurement and Estimation in Spark Ignition Engine**

P. Giansetti, P. Higelin, Université d'Orléans

10:00

SAE 2007-01-1901 / JSAE 20077317

### **Numerical Simulation of Engines Fuelled by Hydrogen and Natural Gas Mixtures**

Stefano Cordiner, Vincenzo Mulone, Riccardo Scarcelli, Università di Roma Tor Vergata

Written Only

SAE 2007-01-1902 / JSAE 20077331

### **Multi-Objective Optimization of Combustion Process in a Compressed Natural Gas Direct Injection Engine using Coupled Code of CFD and Genetic Algorithm**

Wendy H. Kurniawan, Shahrir Abdullah, Zulkifli M. Nopiah, Kamaruzzaman Sopian, National University of Malaysia

Written Only

SAE 2007-01-1903 / JSAE 20077126

### **Model of Injection System for SI Radial Aircraft Engine**

Jacek Czarnigowski, Mirosław Wendeker, Piotr Jaklinski, Antoni Nazarewicz, Konrad Pietykowski, Michal Geca, Tomasz Zyska, Lublin University of Technology

## **E4: Advanced Emission Aftertreatment for SI Engines 1**

Room - E-2C

Chairpersons:

Hiroshi Kitagawa, Honda R&D Co., Ltd.

Paul Richards, Innopsec Inc.

13:00

SAE 2007-01-1927 / JSAE 20077102

### **Detection of Deteriorated Catalyst on Vehicle under Actual Operation Conditions : Application of FFT Analysis to Signal Wave by the Dual Oxygen Sensors Method**

Toshiro Yamamoto, Junko Tsuneyama, Yasuhiro Ogawa, National Traffic Safety and Environment Laboratory

13:30

SAE 2007-01-1928 / JSAE 20077109

### **Effects of Gasoline Vapour Pressure and Ethanol Content on Evaporative Emissions from Modern European Cars**

Giorgio Martini, Urbano Manfredi, Giorgos Mellios, Alois Krasenbrink, Giovanni De Santi, Institute for Environment and Sustainability; Steve McArragher, Neville Thompson, Jose Baro, Peter J. Zemroch, CONCAWE; Franco Boggio, Aldo Celasco, Fiat Powertrain Technology; Carlo Cucchi, ACEA; G.F. (Barry) Cahill, PSA Peugeot Citroën

14:00

SAE 2007-01-1929 / JSAE 20077051

### **Effects of Low-Purge Vehicle Applications and Ethanol-Containing Fuels on Evaporative Emissions Canister Performance**

Reid Clontz, Moe Elum, Peter McCrae, Roger Williams, MeadWestvaco Corporation

## **E5: Advanced Emission Aftertreatment for SI Engines 2**

Room - E-2C

Chairpersons:

Shinji Tsuji, Toyota Motor Corporation

Eiichi Murase, Kyushu University

15:15

SAE 2007-01-1930 / JSAE 20077207

### **US 2010 Emissions Capable Camless Heavy-Duty On-Highway Natural Gas Engine**

James P. Chiu, Southwest Research Institute; Joshua Taylor, National Renewable Energy Laboratory; Chun Tai, Todd Reppert, Volvo Powertrain North America; Lane Christensen, Sturman Industries, Inc.

15:45

SAE 2007-01-1931 / JSAE 20077213

### **Cold Start Particulate Emissions from a Second Generation DI Gasoline Engine**

Philip Price, Richard Stone, University of Oxford; Dave OudeNijeweme, Xiangdong Chen, Jaguar Cars

16:15

SAE 2007-01-1932 / JSAE 20077033

### **NOx Emission Aftertreatment Study on Lean Burn Gasoline Engine using Adsorber Reduction Catalyst**

Zhijun Li, Tianjin University; Zhengmao Ye, Habib Mohamadian, Southern University; Ying Zhang, Xiaoming Sun, Guangyu Zhang, Tianjin University

## **C5: HCCI Combustion 7**

Room - W-3B

Chairpersons:

Hiroshi Kawanabe, Kyoto University

Chuck Mueller, Sandia National Laboratories

9:30

SAE 2007-01-1879 / JSAE 20077175

### **Reduction of Detailed Elementary Reaction Schemes by Newly-Developed Automatic Scheme Reduction Tool "ASRT"**

Toyosei Yamauchi, Atsutaka Matsumoto, Yogo Takada, Tomoyuki Wakisaka, Osaka City University

10:00 JSAE 20077195 / SAE 2007-01-1880

### Two-Stage Fuel Direct Injection in a Diesel Fuelled HCCI Engine

Haiyun Su, Sebastian Mosbach, Markus Kraft, University of Cambridge; Amit Bhave, Reaction Engineering Solutions Ltd.; Sanghoon Kook, Choongsik Bae, Korea Advanced Institute of Science and Technology (KAIST)

10:30 JSAE 20077302 / SAE 2007-01-1881

### Study on the Effects of EGR Cooler Performance on Combustion Properties of the Pre-Mixed Compression Ignition Combustion by Multi Cylinder DI Diesel Engine

Naoya Ishikawa, Yasuhiro Ohkubo, Kazuaki Kudou, ISUZU Advanced Engineering Center, Ltd.

11:00 JSAE 20077356 / SAE 2007-01-1882

### Mechanism Controlling Autoignition Derived from Transient Chemical Composition Analysis in HCCI

Atsumu Tezaki, University of Toyama; Hiroyuki Yamada, National Traffic Safety and Environment Laboratory; Mitsuaki Ohtomo, Toyota Central R&D

## C5: HCCI Combustion 8

Room - W-3B

Chairpersons:

Hiroshi Kawanabe, Kyoto University

Tetsuya Aizawa, Tokyo Institute of Technology

13:00 JSAE 20077078 / SAE 2007-01-1883

### Two-Dimensional Temperature Measurements in Engine Combustion using Phosphor Thermometry

Ryo Hasegawa, Ichiro Sakata, Toyota Motor Corporation; Hiromichi Yanagihara, Toyota Motor Europe; Gustaf Särner, Mattias Richter, Marcus Aldén, Bengt Johansson, Lund University

13:30 JSAE 20077042 / SAE 2007-01-1884

### A Study of a Glow Plug Ignition Engine by Chemiluminescence Images

Vittorio Manente, Per Tunestål, Bengt Johansson, Lund Institute of Technology

14:00 JSAE 20077139 / SAE 2007-01-1885

### Detailed Kinetic Modeling of Toluene Combustion over a Wide Range of Temperature and Pressure

Yasuyuki Sakai, Takayoshi Inamura, Teppei Ogura, Mitsuo Koshi, The University of Tokyo; W. J. Pitz, Lawrence Livermore National Laboratory

## C5: HCCI Combustion 9

Room - W-3B

Chairpersons:

Bengt Johansson, Lund University

Hiroshi Kawanabe, Kyoto University

15:15 JSAE 20077052 / SAE 2007-01-1886

### A Study of HCCI Combustion Characteristics using Spectroscopic Techniques

Akira Iijima, Hideo Shoji, Nihon University

15:45 JSAE 20077212 / SAE 2007-01-1887

### Hydrogen Lean-Combustion Studies in a Four-Stroke DI Radical-Ignition Diesel Engine with EGR

David A. Blank, HCRI Technologies International

Written Only JSAE 20077028 / SAE 2007-01-1888

### Experimental and Numerical Study on Emission in an HCCI Engine Operated with Neat Dimethyl Ether

Chun-lan Mo, Yu-sheng Zhang, Yu Shi, Jian Han, Hai-ying Sun, Huazhong University of Science and Technology

## F11: Bio Diesel 4

Room - E-3A

Chairpersons:

Hideyuki Ogawa, Hokkaido University

Haruhisa Ohta, Nippon Oil Corporation

9:30 JSAE 20077163 / SAE 2007-01-2030

### Vegetable Oil Hydrogenating Process for Automotive Fuel

Akira Koyama, Hideshi Iki, Yasutoshi Iguchi, Nippon Oil Corporation; Kazushi Tsurutani, Hitoshi Hayashi, Seitaro Misawa, Toyota Motor Corporation

10:00 JSAE 20077255 / SAE 2007-01-2031

### Optimization of Injection of Pure Rape Seed Oil in Modern Diesel Engines with Direct-Injection

Markus Lüft, Sören Bernhardt, Amin Velji, Ulrich Spicher, Universität Karlsruhe

10:30 JSAE 20077232 / SAE 2007-01-2033

### The Emerging Market for Biodiesel and the Role of Fuel Additives

P. Richards, J. Reid, Innospec Limited; L.-H. Tok, Innospec Limited (Singapore); I. MacMillan, Innospec Fuel Specialties LLC

## F16: Gaseous Fuel in Diesel Engines

Room - E-3A

Chairpersons:

Toshio Shudo, Hokkaido University

Tohru Nakazono, Yanmar Co., Ltd.

13:00 JSAE 20077147 / SAE 2007-01-2047

### Combustion and Knock Characteristics of Natural Gas Diesel Dual Fuel Engine

Krisada Wannatong, Nirod Akarapanyavit, Somchai Siengsanorh, PTT Public Company Limited; Somchai Chanchaona, King Mongkut's University of Technology Thonburi

13:30 JSAE 20077259 / SAE 2007-01-2048

### Reducing the Environmental Impact of Fugitive Gas Emissions through Combustion in Diesel Engines

F. Xiao, A. Sohrabi, G.A. Karim, University of Calgary

14:00 JSAE 20077297 / SAE 2007-01-2049

### Dissolving Gas in Diesel Fuel as a Way for Fuel Oxygenation and Diesel Exhaust Emissions Reduction

Jerzy Merksiz, Miłosław Kozak, Władysław Kozak, Maciej Bajerlein, Poznań University of Technology

## F7: Oxygenated Diesel Fuels

Room - E-3A

Chairpersons:

Shinichi Goto, National Institute of Advanced Industrial Science and Technology

Mitsuru Konno, Ibaraki University

15:15 JSAE 20077274 / SAE 2007-01-2017

### Operational Characteristics of Oxygenate-Water Fuel Blends Studied in an Optical DI Diesel Engine with Simulated Exhaust Gas Recirculation

Charles J. Mueller, Ansis Upatnieks, Sandia National Laboratories

15:45 JSAE 20077293 / SAE 2007-01-2018

### Oxygenated Fuel Composition Impact on Heavy-Duty Diesel Engine Emissions

Michael D. Boot, Peter J.M. Frijters, Eindhoven University of Technology; Robert J.H. Klein-Douwel, Radboud University Nijmegen; Rik S.G. Baert, TNO Automotive / Eindhoven University of Technology

16:15

SAE 20077194 / SAE 2007-01-2019

### **Simulation and Analysis of Effect of Oxygenate Blended Diesel on Combustion and Performance in Turbocharged Diesel Engine**

S. Loganathan, P. Tamilporai, K. Vijayan, Anna University; B. Sujithradevi, Tagore Engineering College

### **F12: Bio Ethanol 1**

Room - E-3B

Chairpersons:

Kenichiro Saito, Nippon Oil Corporation  
Keiichi Koseki, TonenGeneral Sekiyu K.K.

9:30

SAE 20077148 / SAE 2007-01-2034

### **Investigation of 2-Wheeler Performance, Emissions, Driveability and Durability: Effect of Ethanol-Blended Gasoline**

Somnuek Jaroonjitsathian, Nirod Akarapanjavit, Somchai Siang Sa-norh, PTT Public Company Limited; Somchai Chanchaona, King Mongkut's University of Technology Thonburi

10:00

SAE 20077095 / SAE 2007-01-2035

### **The Permeation Effect of Ethanol-Containing Fuels on Fluoropolymers**

Nobuaki Ando, Peter Harrison, Tatsuo Fukushi, Denis Duchesne, Dyneon LLC (A 3M Company); Steven Brinduse, 3M Company; Masahiro Hosoda, Sumitomo 3M Co., Ltd.

10:30

SAE 20077075 / SAE 2007-01-2036

### **High Concentration Ethanol Effect on SI Engine Cold Startability**

Takashi Tsunooka, Yohei Hosokawa, Shintaro Utsumi, Takashi Kawai, Yukihiko Sonoda, Toyota Motor Corporation

### **F13: Bio Ethanol 2**

Room - E-3B

Chairpersons:

David J. Rickeard, Automotive Fuel Consultant  
Kenichiro Saito, Nippon Oil Corporation

13:00

SAE 20077079 / SAE 2007-01-2037

### **Feasibility Study of Ethanol Applications to A Direct Injection Gasoline Engine**

Satoshi Taniguchi, Kaori Yoshida, Yukihiko Tsukasaki, Toyota Motor Corporation

13:30

SAE 20077106 / SAE 2007-01-2038

### **Effect of Ethanol on the HCCI Combustion**

Kohtaro Hashimoto, Honda R & D Co., Ltd.

14:00

SAE 20077226 / SAE 2007-01-2039

### **Investigations of Compatibility of ETBE Gasoline with Current Gasoline Vehicles II**

Keiichi Koseki, TonenGeneral Sekiyu K.K.; Aruto Hayashi, Honda R&D Co., Ltd.; Kazuki Fukuda, Petroleum Energy Center; Mitsuki Wakita, Japan Energy Corporation; Nobuhiro Okabe, Showa Shell Sekiyu K.K.; Manabu Watanabe, Nippon Oil Corporation; Tsutomu Kikuchi, Nissan Motor Co., Ltd.; Kuniaki Atsuta, Fuji Heavy Industries; Hideshi Aiko, Toyota Motor Corporation; Atsushi Kameoka, Japan Automobile Research Institute; Masaru Kohakura, Petroleum Energy Center

14:30

SAE 20077271 / SAE 2007-01-2040

### **Aspects of the Use of Ethanol in Spark Ignition Engine**

Pana M. Constantin, Negurescu Niculae, Popa M. Ginu, Cernat Alexandru, Soare Dorin, University Politehnica Bucharest

### **E3: Effects of Fuels and Lubricants for Aftertreatment Systems**

Room - W-3A

Chairpersons:

Gen Shibata, Nippon Oil Corporation  
Thierry Seguelong, Aaqius & Aaqius

9:30

SAE 20077200 / SAE 2007-01-1922

### **The Effects of Sulfated Ash, Phosphorus and Sulfur on Diesel Aftertreatment Systems – A Review**

Kristian M. Bodek, Victor V. Wong, Massachusetts Institute of Technology

10:00

SAE 20077307 / SAE 2007-01-1923

### **Balancing of Engine Oil Components in a DI Diesel Engine with Exhaust Gas Aftertreatment**

Ulrich F. Grütering, Yves Rosefort, Peter Mauermann, Stefan Pischinger, RWTH Aachen University

10:30

SAE 20077151 / SAE 2007-01-1924

### **A Study of Engine Oil Composition Effects on Zeolite-type SCR Catalyst Durability**

Masahito Shibata, Hideyuki Nagata, Johnson Matthey Japan Inc.; Shigeki Takeshima, Koji Hoshino, Nippon Oil Corporation

11:00

SAE 20077277 / SAE 2007-01-1925

### **An Experimental Evaluation of the Impact of Lubricating Oils and Fuels on Diesel Particulate Filters**

M. Manni, A. Pedicillo, G. Del Piero, E. Previde Massara, Research Center of San Donato Milanese