SAE/JSAE 2014 Small Engine Technology Conference & Exhibition

Technical Session Schedule

As of 11/24/2014 07:41 pm

Tuesday, November 18

SETC Opening Ceremony and Plenary Session

Session Code: ***PLENARY***

Room Auditorium ***Session Time:*** ***08:30***

This session focuses on advanced combustion technologies in both 4-stroke and 2-stroke engines. The scope of topics includes studies of mixture formation, dilution effects, ignition, abnormal combustion, engine efficiency, flame propagation, and emissions formation.

Organizers - *Robert Kee; Tadao Okazaki, Kubota Corp.*

Chairpersons - *Nagesh Mavinahally, Meggitt Control Systems*

Panelists - *Maurizio Marcacci, Piaggio & C SpA; Luca Marmorini, Consultant, Formerly Ferrari Spa; Nagesh Mavinahally, Meggitt Control Systems; Toshiyuki Taneda, Kubota Corp.; Koji Yoshida, Nihon University;*

Tuesday, November 18

Engine Controls (Part 1 of 5)

Session Code: ***SETC9***

Room Auditorium ***Session Time:*** ***10:30***

Papers in this session are related to design, development and testing of new or innovative electronic controls or control systems for internal combustion engines. Topics may include hardware, software and algorithm/function innovations as well as the associated sensors or actuators employed in the control system. Applications may range from very simple systems for 1-cylinder engines to more complex systems for high-performance or multi-cylinder engines.

Organizers - *Laurent Fabre, Synerject SAS; Tobias Kallerhoff, Robert Bosch GmbH; Yutaka Nitta, Suzuki Motor Corp.; Thorsten Raatz, Robert Bosch GmbH; Tony Szczotka, Robert Bosch LLC*

Chairpersons - *Yutaka Nitta, Suzuki Motor Corp.; Tony Szczotka, Robert Bosch LLC*

Time	Paper No.	Title
10:30 a.m.	***2014-32-0067***	***Online Engine Speed based Altitude Adaptation of Air Charge and Limp Home for Two-Wheelers*** *Henning Heikes, Christian Steinbrecher, Bastian Reineke, Jürgen Berkemer, Thorsten Raatz, Wolfgang Fischer, Robert Bosch GmbH*
11:00 a.m.	***2014-32-0068***	***A Method to Increase Ignition Duration and Spark Energy*** *Klaus Stuhlmüller, Denis Lenz, PRÜFREX Engineering e Motion GmbH & Co.; Sebastian Hook, PRUFREX Innovative Power Products GmbH; Dirk Hohenhaus, Michael Schwarz, PRÜFREX Engineering e Motion GmbH & Co.*
11:30 a.m.	***2014-32-0069***	***Evaluation of a Novel Low-Cost, Low-Power Narrow-Band Oxygen Sensor on a 2014 Honda Grom 125E (125 cc) Motorcycle Using a Chassis Dynamometer (3 of 3)*** *Ken Fosaaen, Kerdea Technologies*

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00445 and COLL-TP-00455, a individually. To purchase visit collections.sae.org

Tuesday, November 18

Engine Controls (Part 2 of 5)

Session Code: ***SETC9*** ***13:30***

Room Auditorium ***Session Time:***

Papers in this session are related to design, development and testing of new or innovative electronic controls or control systems for internal combustion engines. Topics may include hardware, software and algorithm/function innovations as well as the associated sensors or actuators employed in the control system. Applications may range from very simple systems for 1-cylinder engines to more complex systems for high-performance or multi-cylinder engines.

Organizers - *Laurent Fabre, Synerject SAS; Tobias Kallerhoff, Robert Bosch GmbH; Yutaka Nitta, Suzuki Motor Corp.; Thorsten Raatz, Robert Bosch GmbH; Tony Szczotka, Robert Bosch LLC*

Chairpersons - *Yutaka Nitta, Suzuki Motor Corp.; Tony Szczotka, Robert Bosch LLC*

Time	Paper No.	Title
1:30 p.m.	***2014-32-0079***	***Model-Based Combustion Control of a HCCI Engine using External EGR and the Exhaust Rebreathed***
		Yuta Kugimachi, Yusuke Nakamura, Norimasa Iida, Keio Univ
2:00 p.m.	***2014-32-0080***	***Efficiency Optimization Using a Power-Guided Engine Control for Management of Thermal-and Mechanical Demands Using the Example of a Micro Combined Heat and Power Unit***
		Jens Steinmill, Ralf Struzyna, Ruhr-University Bochum - LVM
2:30 p.m.	***2014-32-0078***	***Air Fuel Ratio Control for V2 Engine with On-Line System Identification of Fuel Film Dynamics***
		Bo-Chiuan Chen, Yuh-Yih Wu, Wen-Han Tsai, Hsien-Chi Tsai, Huang-Min Lin, Yao-Chung Liang, National Taipei University of Technology

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00445 and COLL-TP-00455, a individually. To purchase visit collections.sae.org

Tuesday, November 18

Engine Controls (Part 3 of 5)

Session Code: ***SETC9***

Room Auditorium ***Session Time:*** ***15:30***

Papers in this session are related to design, development and testing of new or innovative electronic controls or control systems for internal combustion engines. Topics may include hardware, software and algorithm/function innovations as well as the associated sensors or actuators employed in the control system. Applications may range from very simple systems for 1-cylinder engines to more complex systems for high-performance or multi-cylinder engines.

Organizers - *Laurent Fabre, Synerject SAS; Tobias Kallerhoff, Robert Bosch GmbH; Yutaka Nitta, Suzuki Motor Corp.; Thorsten Raatz, Robert Bosch GmbH; Tony Szczotka, Robert Bosch LLC*

Chairpersons - *Tobias Kallerhoff, Robert Bosch GmbH; Yutaka Nitta, Suzuki Motor Corp.*

Time	Paper No.	Title
3:30 p.m.	***2014-32-0071***	***Improvement Potential at Electronic Control Units by Integration Across Clusters and Applications***
		Christian Schweikert, Infineon Technologies AG; David Witt, Infineon Technologies North America Corp; Dirk Schweitzer, Marco Nicolo, Liu Chen, Infineon Technologies
4:00 p.m.	***2014-32-0072***	***Transient Correction by Manifold Pressure in a TPS-Free FI System***
		Kenta Sugimoto, Suzuki Motor Corp.

4:30 p.m.	***2014-32-0070***	***Towards an Open Source Framework for Small Engine Controls Development*** *Paolo Gai, Francesco Esposito, Riccardo Schiavi, Evidence Srl; Marco Di Natale, Scuola Superiore S. Anna; Claudio Diglio, Michele Pagano, Carlo Camicia, Luca Carmignani, Piaggio & C SpA*

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Tuesday, November 18

Measurement & Simulation (Part 1 of 4)

Session Code: ***SETC4***

Room Hall 90B ***Session Time:*** ***10:30***

The session is associated with engine and vehicle simulation tasks and their related measurements. Simulation and measurement methodology as well as the simulation and measurement application on development tasks will find a place within the session.

Organizers - *Stephan Schmidt, Graz University of Technology; Giovanni Ferrara, Univ. of Florence; Michihisa Mick Nakagawa, Kawasaki Heavy Industries, Ltd.; Shigeru Fujii, Yamaha Motor Co., Ltd.*

Chairpersons - *Giovanni Ferrara, Univ. of Florence; Shigeru Fujii, Yamaha Motor Co., Ltd.; Stephan Schmidt, Graz University of Technology*

Time	***Paper No.***	***Title***
10:30 a.m.	***2014-32-0055***	***Multi-Objective Optimization of the Timing System on a Small 2-Wheeler Engine (SOHC): Methodology and Case Study*** *Francesco Maiani, Alessio Sisi, Walther Leardini, Piaggio & C SpA*
11:00 a.m.	***2014-32-0060***	***Improvement of the Specific Fuel Consumption at Partial Load in SI Engines by Design Strategies based on High Compression Ratio*** *Giovanni Vichi, Luca Romani, Giovanni Ferrara, Univ. of Florence; Luca Carmignani, Francesco Maiani, Piaggio & C SpA*
11:30 a.m.	***2014-32-0059***	***Vibro-Acoustic Modeling and Validation of Fuel Rails for GDI Wet Systems*** *Antonio Agresta, Continental Automotive Italy S.p.A.; Francesca Di Puccio, Universita degli Studi di Pisa; Paola Forte, University of Pisa; Gabriele Benigni, Universita degli Studi di Pisa*

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Tuesday, November 18

Measurement & Simulation (Part 2 of 4)

Session Code: ***SETC4***

Room Hall 90B ***Session Time:*** ***13:30***

The session is associated with engine and vehicle simulation tasks and their related measurements. Simulation and measurement methodology as well as the simulation and measurement application on development tasks will find a place within the session.

Organizers - *Stephan Schmidt, Graz University of Technology; Giovanni Ferrara, Univ. of Florence; Michihisa Mick Nakagawa, Kawasaki Heavy Industries, Ltd.; Shigeru Fujii, Yamaha Motor Co., Ltd.*

Chairpersons - *Giovanni Ferrara, Univ of Florence; Michihisa Mick Nakagawa, Kawasaki Heavy Industries, Ltd.; Stephan Schmidt, Graz University of Technology*

Time	***Paper No.***	***Title***

1:30 p.m.	***2014-32-0054***	***Method for Predicting Erosion Due to Cavitation of Outboard-Motor***
		Toshio Watanabe, Hiroki Sakamoto, Suzuki Motor Corp.
2:00 p.m.	***2014-32-0047***	***Robust Diagnostic Concept for Vehicle Gearbox with Artificial Pitting Defect in Gear using Vibration Measurements***
		Mohamed El Morsy, Czech Tech Univ Prague & Helwan Univ.; Gabriela Achtenova, Czech Technical University
2:30 p.m.	***2014-32-0048***	***Development of a 0D Model Starting from Different RANS CFD Tumble Flow Fields in Order to Predict the Turbulence Evolution at Ignition Timing***
		Stefania Falfari, Claudio Forte, Federico Brusiani, Gian Marco Bianchi, Giulio Cazzoli, Cristian Catellani, University of Bologna

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Tuesday, November 18

Measurement & Simulation (Part 3 of 4)

Session Code: ***SETC4***

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The session is associated with engine and vehicle simulation tasks and their related measurements. Simulation and measurement methodology as well as the simulation and measurement application on development tasks will find a place within the session.

Organizers - *Stephan Schmidt, Graz University of Technology; Giovanni Ferrara, Univ. of Florence; Michihisa Mick Nakagawa, Kawasaki Heavy Industries, Ltd.; Shigeru Fujii, Yamaha Motor Co., Ltd.*

Chairpersons - *Giovanni Ferrara, Univ. of Florence; Shigeru Fujii, Yamaha Motor Co., Ltd.; Stephan Schmidt, Graz University of Technology*

Time	***Paper No.***	***Title***
3:30 p.m.	***2014-32-0052***	***Friction Measurement of Al-17%Si Monolithic Cylinder with using Newly Developed Floating Liner Device***
		Tatsuhiko Sato, Hirotaka Kurita, Yamaha Motor Co., Ltd.; Akemi Ito, Hideyuki Iwasaki, Tokyo City University
4:00 p.m.	***2014-32-0051***	***Piston Temperature Measurement in Internal Combustion with Telemetric Method***
		Akira Ishibashi, Muneaki Nakamura, Hitoshi Muramatsu, Suzuki Motor Corp.
4:30 p.m.	***2014-32-0050***	***Development of Temperature Estimation Method of Whole Engine Considering Heat Balance under Vehicle Running Conditions***
		Tomokazu Nomura, Koichiro Matsushita, Yoshihiko Fujii, Hirofumi Fujiwara, Honda R&D Co., Ltd.

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Tuesday, November 18

Two Stroke Engines (Part 1 of 2)

Session Code: ***SETC17***

Room Hall 90C ***Session Time:*** ***10:30***

This session contains manuscripts focused on two-stroke engines. Topics such as emissions, performance, and efficiency will be explored. Advanced combustion control, direct fuel injection, simulation models and experimental results will be presented.

Organizers - *Brian J. Callahan, Achates Power Inc.; Giovanni Ferrara, Univ. of Florence; Roberto Gentili, Universita degli Studi di Pisa; Scott A. Miers, Michigan Technological Univ.; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Chairpersons - *Luca Carmignani, Piaggio & C SpA; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Time	Paper No.	Title
10:30 a.m.	***2014-32-0007***	***Comparison of In-Cylinder Pressure Measurement Methods in a Small Spark Ignition Engine*** *Joseph K. Ausserer, Air Force Institute of Technology; Alexander K. Rowton, Air Force Research Laboratory; Keith D. Grinstead, Innovative Scientific Solutions Inc; Paul J. Litke, Air Force Research Laboratory; Marc D. Polanka, Air Force Institute of Technology*
11:00 a.m.	***2014-32-0008***	***Air Cooled 50cm³ Scooter Euro 4 Application of the Two-Stroke LPDI Technology*** *Stefan Krimplstätter, Franz Winkler, Roland Oswald, Roland Kirchberger, Graz University of Technology*
11:30 a.m.	***2014-32-0011***	***System Optimization for a 2-Stroke Diesel Engine with a Turbo Super Configuration Supporting Fuel Economy Improvement of Next Generation Engines*** *Pavel Brynych, Jan Macek, Czech Technical Univ.; Pascal Tribotte, Renault; Gaetano De Paola, Cyprien Ternel, IFP Energies Nouvelles*

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00445, and also individually. T purchase visit collections.sae.org

Tuesday, November 18

Two Stroke Engines (Part 2 of 2)

Session Code: ***SETC17***

Room Hall 90C ***Session Time:*** ***13:30***

This session contains manuscripts focused on two-stroke engines. Topics such as emissions, performance, and efficiency will be explored. Advanced combustion control, direct fuel injection, simulation models and experimental results will be presented.

Organizers - *Brian J. Callahan, Achates Power Inc.; Giovanni Ferrara, Univ. of Florence; Roberto Gentili, Universita degli Studi di Pisa; Scott A. Miers, Michigan Technological Univ.; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Chairpersons - *Roberto Gentili, Universita degli Studi di Pisa; Akira Iijima, Nihon University*

Time	Paper No.	Title
1:30 p.m.	***2014-32-0009***	***Advantages and Challenges of Lean Operation of Two-Stroke Engines for Hand-Held Power Tools*** *Alexander Trattner, Helmut Grassberger, Oliver Schoegl, Stephan Schmidt, Roland Kirchberger, Helmut Eichlseder, Graz University of Technology; Armin Kölmel, Stephan Meyer, Tim Gegg, ANDREAS STIHL AG & Co. KG*
2:00 p.m.	***2014-32-0006***	***CFD Analysis of a Two-Stroke Air Cooled Engine Designed for Handheld Products*** *Federico Brusiani, Gian Marco Bianchi, Cristian Catellani, University of Bologna; Marco Ferrari, Paolo Verziagi, Dario Catanese, EMAK Spa*

2:30 p.m.	***2014-32-0010***	***Measuring Scaling Effects in Small Two-Stroke Internal Combustion Engines***
		Alexander K. Rowton, Air Force Research Laboratory; Joseph K. Ausserer, Air Force Institute of Technology; Keith D. Grinstead, Innovative Scientific Solutions Inc; Paul J. Litke, Air Force Research Laboratory; Marc D. Polanka, Air Force Institute of Technology

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Tuesday, November 18

Materials

Session Code: ***SETC15***

Room Hall 90C ***Session Time:*** ***15:30***

This session will focus on the structure, processing, and properties of materials in small engine applications. Some possible topics include lightweighting of engine and vehicle components; heat treatment and surface processing; fatigue, fracture, and wear; coatings; and advanced ceramic, metallic, and polymeric materials.

Organizers - *Alessandro Giorgetti, University Guglielmo Marconi; Hirotaka Kurita, Yamaha Motor Co., Ltd.; Alastair D. Long, Queen's Univ. of Belfast; David Elijah Palmer, BRP US Inc.*

Chairpersons - *Robert Kee, Queen's University Belfast; Hirotaka Kurita, Yamaha Motor Co., Ltd.*

Time	***Paper No.***	***Title***
3:30 p.m.	***2014-32-0044***	***Development of High Strength, High Thermal Conductivity Cold Sprayed Coatings to Improve Thermal Management in Hybrid Motorcycles***
		Simone Vezzù, Veneto Nanotech; Carlo Cavallini, Università Degli Studi Guglielmo Marconi; Silvano Rech, Enrico Vedelago, Veneto Nanotech; Alessandro Giorgetti, Università Degli Studi Guglielmo Marconi
4:00 p.m.	***2014-32-0045***	***Development of Improved Method for Magnetically Formed Decorative Painting***
		Akiko Tanaka, Ikue Sato, Honda R&D Co., Ltd.
4:30 p.m.	***2014-32-0042***	***Accurate Simulation for Multi-Phase Materials in the Small Engine Industry***
		Bernard Alsteens, e-Xstream Engineering

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Tuesday, November 18

Hybrids, Electric Drives, Fuel Cells

Session Code: ***SETC13***

Room Hall 90D ***Session Time:*** ***10:30***

Organizers - *Glenn Bower, University Of Wisconsin Madison; Luca Carmignani, Piaggio & C SpA; Jay Meldrum, Michigan Technological Univ.; Yasuyuki Muramatsu, Yamaha Motor Co., Ltd.*

Chairpersons - *Glenn Bower, University of Wisconsin-Madison; Tadao Okazaki, Kubota Corp.*

Time	***Paper No.***	***Title***

10:30 a.m.	***2014-32-0012***	***A Study of Electric Motorcycle***
		Yoshimoto Matsuda, Kawasaki Heavy Industries, Ltd.
11:00 a.m.	***2014-32-0013***	***Numerical Evaluation of an Electric Turbo Compound for SI Engines***
		Stefano Frigo, Gianluca Pasini, Università di Pisa; Silvia Marelli, Università Degli Studi di Genova; Giovanni Lutzemberger, Università di Pisa; Massimo Capobianco, Università Degli Studi di Genova; Paolo Bolognesi, Roberto Gentili, Massimo Ceraolo, Università di Pisa
11:30 a.m.	***2014-32-0014***	***Control of a Low Cost Range Extender for L1e Class PHEV Two-Wheelers***
		Hans-Juergen Schacht, Manuel Leibetseder, Niko Bretterklieber, Stephan Schmidt, Roland Kirchberger, Graz University of Technology

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Tuesday, November 18

Alternative Fuels (Part 1 of 2)

Session Code: ***SETC2***

Room Hall 90D ***Session Time:*** ***13:30***

This session includes papers focused on the gaseous and particulate emissions performance from operating small engines, both diesel and gasoline on oxygenated fuel blends.

Organizers - *Simona Merola, Istituto Motori CNR; Takashi Mitome, Suzuki Motor Corp.; Hirohi Omote, LMEA/Yanmar Co.,LTD.; Paul Richards*

Chairpersons - *Simona Merola, Istituto Motori CNR; Tohru Nakazono, Yanmar Co.,LTD.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2014-32-0087***	***Gaseous and Particulate Emissions Using Isobutanol-Extended Fuel in Recreational Marine Two-Stroke and Four-Stroke Engines***
		Jeff R. Wasil, Bombardier Recreational Product Inc.; Thomas Wallner, Argonne National Laboratory
2:00 p.m.	***2014-32-0085***	***Diesel Combustion Characteristics of Palm Oil Methyl Ester with 1-Butanol***
		Takeshi Otaka, Kazuyo Fushimi, Eiji Kinoshita, Kagoshima Univ.; Yasufumi Yoshimoto, Niigata Inst. of Technology
2:30 p.m.	***2014-32-0084***	***Diesel Combustion Characteristics of Coconut Oil Ester Fuels***
		Eiji Kinoshita, Akira Itakura, Takeshi Otaka, Kenta Koide, Kagoshima Univ.; Yasufumi Yoshimoto, Niigata Inst of Technology; Thet Myo, UNIDO Myanmar

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Tuesday, November 18

Alternative Fuels (Part 2 of 2)

Session Code: ***SETC2***

Room Hall 90D ***Session Time:*** ***15:30***

This session includes papers focused on aspects of operating small engines on non-petroleum based fuels or non-conventional blends of fuels. In particular this session looks at metrics such as spray behaviour and combustions characteristics for gasoline and diesel engines.

Organizers - *Simona Merola, Istituto Motori CNR; Takashi Mitome, Suzuki Motor Corp.; Hirohi Omote, LMEA/Yanmar Co.,LTD.; Paul Richards*

Chairpersons - *Simona Merola, Istituto Motori CNR; Tohru Nakazono, Yanmar Co.,LTD.*

Time	Paper No.	Title
3:30 p.m.	***2014-32-0086***	***Influence of the Kind of Fatty Acid Methyl Esters on Diesel Combustion and the Characteristics of Soot Formation in Single Droplet Combustion*** *Yasufumi Yoshimoto, Niigata Inst. of Technology; Eiji Kinoshita, Kazuyo Fushimi, Kagoshima Univ; Masayuki Yamada, Niigata Inst. of Technology*
4:00 p.m.	***2014-32-0083***	***Study on Spray Combustion Characteristics of Fatty Acid Methyl Ester Mixed with Diesel Oil*** *Akihiko Azetsu, Tokai University; Hiroomi Hagio, Honda Motor Co., Ltd.*
4:30 p.m.	***2014-32-0082***	***Further Insight into the Possibility to Fuel a SI Engine with Ammonia plus Hydrogen*** *Stefano Frigo, Roberto Gentili, Università di Pisa - DESTEC; Franco De Angelis, EDI Progetti & Sviluppo*

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Tuesday, November 18

Fuel Supply Systems

Session Code: ***SETC11***

Room Hall 90E ***Session Time:*** ***10:30***

This session will focus on the unique requirements and challenges to optimize fuel delivery and combustion quality for small engine applications, due to wide ranging environmental conditions as well as fuel type and quality. It will include presentations related to fuel pumps, injectors and other components related to the delivery of the fuel from the tank to the engine as well as optimization of the combustion process, and will discuss systemic and component related issues.

Organizers - *Francois Brun, Synerject SAS; Hiromi Deguchi, Suzuki Motor Corp.; Peter Kaub, Re-Sol LLC; Daniel Nehmer, John Deere & Co.*

Chairpersons - *Francois Brun, Synerject SAS; Roland Kirchberger, Graz University of Technology; Tatsuya Kuboyama, Chiba Univ.*

Time	Paper No.	Title
10:30 a.m.	***2014-32-0040***	***An Advanced Fuel Supply Unit for Single Cylinder Gas Engines*** *John Walters, Francois Brun, Synerject LLC*
11:00 a.m.	***2014-32-0041***	***Spray Characterization of a Single-Hole Gasoline Injector under Flash Boiling Conditions*** *Luigi Allocca, Alessandro Montanaro, Istituto Motori CNR; Rita Di Gioia, Giovanni Bonandrini, Magneti Marelli Powertrain SPA*

Tuesday, November 18

Advanced Combustion (Part 1 of 2)

Session Code: ***SETC1***

Room Hall 90E ***Session Time:*** ***13:30***

This session focuses on advanced combustion technologies in both 4-stroke and 2-stroke engines. The scope of topics includes studies of mixture formation, dilution effects, ignition, abnormal combustion, engine efficiency, flame propagation, and emissions formation.

Organizers - *William P. Attard; Roberto Gentili, Universita degli Studi di Pisa; Jaal B. Ghandhi, Univ. of Wisconsin Madison; Simona Silvia Merola, Istituto Motori CNR; Koji Yoshida*

Chairpersons - *Adrian Irimescu, Istituto Motori CNR; Koji Yoshida, Nihon University*

Time	Paper No.	Title
1:30 p.m.	2014-32-0091	***Abnormal Combustion Induced by Combustion Chamber Deposits Derived from Engine Oil Additives in a Spark-Ignited Engine*** *Kazushi Tamura, Toshimasa Utaka, Hideki Kamano, Idemitsu Kosan Co., Ltd.; Norikuni Hayakawa, Tomomi Miyasaka, Takashi Ishino, Akira Iijima, Hideo Shoji, Nihon University Graduate School*
2:00 p.m.	2014-32-0092	***A Study on the Effect of a Calcium-Based Engine Oil Additive on Abnormal SI Engine Combustion*** *Tomomi Miyasaka, Kenta Miura, Norikuni Hayakawa, Takashi Ishino, Akira Iijima, Hideo Shoji, Nihon University Graduate School; Kazushi Tamura, Toshimasa Utaka, Hideki Kamano, Idemitsu Kosan Co. Ltd.*
2:30 p.m.	2014-32-0096	***A Study on the Effect of Zn- and Mo-Based Engine Oil Additives on Abnormal SI Engine Combustion using In-Cylinder Combustion Visualization*** *Norikuni Hayakawa, Kenta Miura, Tomomi Miyasaka, Takashi Ishino, Akira Iijima, Hideo Shoji, Nihon University Graduate School; Kazushi Tamura, Toshimasa Utaka, Hideki Kamano, Idemitsu Kosan Co. Ltd.*

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Tuesday, November 18

Advanced Combustion (Part 2 of 2)

Session Code: ***SETC1***

Room Hall 90E ***Session Time:*** ***15:30***

This session focuses on advanced combustion technologies in both 4-stroke and 2-stroke engines. The scope of topics includes studies of mixture formation, dilution effects, ignition, abnormal combustion, engine efficiency, flame propagation, and emissions formation.

Organizers - *William P. Attard; Roberto Gentili, Universita degli Studi di Pisa; Jaal B. Ghandhi, Univ. of Wisconsin Madison; Simona Silvia Merola, Istituto Motori CNR; Koji Yoshida*

Chairpersons - *Adrian Irimescu, Istituto Motori CNR; Koji Yoshida, Nihon University*

Time	Paper No.	Title
3:30 p.m.	2014-32-0100	***Design Guidelines of the Single-Point Auto-Ignition Engine based on Supermulti-Jets Colliding for High Thermal Efficiency and Low Noise: Obtained by Computational Experiments for a Small Strongly-Asymmetric Double-Piston Engine*** *Ken Naitoh, Takuma Okamoto, Tomoaki Kubota, Kan Yamagishi, Yoshiyuki Nojima, Taro Tamura, Waseda University*
4:00 p.m.	2014-32-0093	***Ethanol Addition Influence on Backfire Phenomena during Kickback in a Spark-Ignition Transparent Small Engine*** *Francesco Catapano, Silvana Di Iorio, Paolo Sementa, Bianca Maria Vaglieco, Istituto Motori CNR; Marcello Fiaccavento, Francesco Giari, Antonio Marchetti, Piaggio S.P.A.*

4:30 p.m.	***2014-32-0099***	***Two Small Prototype Engines Developed based on Pulsed Supermulti-Jets Colliding: Having a Potential of Thermal Efficiency Over 60% with Satisfactory Strength of Structure*** *Ken Naitoh, Daiki Ikoma, Hiroki Sagara, Taro Tamura, Taiki Hashimoto, Yoshiyuki Nojima, Masato Tanaka, Kentaro Kojima, Kenya Hasegawa, Takuya Nakai, Shouhei Nonaka, Tomoaki Kubota, Waseda University*
5:00 p.m.	***2014-32-0094***	***An Investigation on the Auto-Ignition of Fuel-Air Mixture Induced by Release of Oil-Fuel Droplets from Cylinder-Liner Using Multi-Zone Model*** *Yuichi Seki, Keito Negoro, Norimasa Iida, Keio Univ; Katsuya Matsuura, Hiroshi Sono, Honda R&D Co., Ltd. Automobile R&D Center*

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Tuesday, November 18

Collegiate Events

Session Code: ***SETC3***

Room Master Room ***Session Time:*** ***13:30***

Papers in this session discuss innovations regarding entries in the SAE Collegiate Design Series (CDS) events. This year two papers describe Formula SAE innovations. The first discusses a novel approach to improved fuel economy using part load mapping. The second describes a highly integrated parallel hybrid design for the Formula Hybrid competition.

Organizers - *Geoffrey McCullough, Queen's Univ. of Belfast; Takashi Mitome, Suzuki Motor Corp.*

Chairpersons - *Roland Kirchberger, Graz University of Technology; Takashi Mitome, Suzuki Motor Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2014-32-0088***	***Torque Vectoring of a Formula SAE through Semi Active Differential Control*** *Claudio Annicchiarico, Renzo Capitani, Universita degli Studi di Firenze*
2:00 p.m.	***2014-32-0090***	***Development of a Miller Cycle Powersports Engine*** *Jeffrey Blair, Glenn Bower, Univ. of Wisconsin*

Wednesday, November 19

Plenary Panel: Mitigation of GHG Emission

Session Code: ***PANEL***

Room Auditorium ***Session Time:*** ***08:30***

Moderators - *Roberto Gentili, Universita degli Studi di Pisa*

Panelists - *Pierre Duret, IFP School; Helmut Eichlseder, Graz University of Technology; Dr. A Ramesh, Indian Institute of Technology;*

Wednesday, November 19

Engine Controls (Part 4 of 5)

Session Code: ***SETC9***

Room Auditorium ***Session Time:*** ***10:30***

Papers in this session are related to design, development and testing of new or innovative electronic controls or control systems for internal combustion engines. Topics may include hardware, software and algorithm/function innovations as well as the associated sensors or actuators employed in the control system. Applications may range from very simple systems for 1-cylinder engines to more complex systems for high-performance or multi-cylinder engines.

Organizers - *Laurent Fabre, Synerject SAS; Tobias Kallerhoff, Robert Bosch GmbH; Yutaka Nitta, Suzuki Motor Corp.; Thorsten Raatz, Robert Bosch GmbH; Tony Szczotka, Robert Bosch LLC*

Chairpersons - *Gregory W. Davis, Kettering Univ.; Tatsuya Kuboyama, Chiba Univ.*

Time	Paper No.	Title
10:30 a.m.	***2014-32-0075***	***Detecting a Fully-Closed Throttle by Manifold Pressure in Fuel Injection System with Idle Speed Control*** *Kazuyoshi Shimatani, Suzuki Motor Corp.*
11:00 a.m.	***2014-32-0076***	***Online Engine Speed based Adaptation of Combustion Phasing and Air-Fuel Ratio*** *Christian Steinbrecher, Bastian Reineke, Wolfgang Fischer, Henning Heikes, Thorsten Raatz, Robert Bosch GmbH*
11:30 a.m.	***2014-32-0073***	***The Application of a Resistive Type O2 Sensor to a Small Engine EFI System*** *Horizon Walker Gitano, University KL - MSI; Ray Chim, Jian Loh, Focus Applied Technologies*

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Wednesday, November 19

Engine Controls (Part 5 of 5)

Session Code: ***SETC9***

Room Auditorium ***Session Time:*** ***13:30***

Papers in this session are related to design, development and testing of new or innovative electronic controls or control systems for internal combustion engines. Topics may include hardware, software and algorithm/function innovations as well as the associated sensors or actuators employed in the control system. Applications may range from very simple systems for 1-cylinder engines to more complex systems for high-performance or multi-cylinder engines.

Organizers - *Laurent Fabre, Synerject SAS; Tobias Kallerhoff, Robert Bosch GmbH; Yutaka Nitta, Suzuki Motor Corp.; Thorsten Raatz, Robert Bosch GmbH; Tony Szczotka, Robert Bosch LLC*

Chairpersons - *Shosaku Chiba; Tobias Kallerhoff, Robert Bosch GmbH*

Time	Paper No.	Title
1:30 p.m.	***2014-32-0063***	***The Use of Vibrational Signals for On-Board Knock Diagnostics Supported by In-Cylinder Pressure Analyses*** *Daniela Siano, Istituto Motori CNR; Fabio Bozza, Danilo D'Agostino, Maria Antonietta Panza, Univ of Naples- Ist Motori CNR*
2:00 p.m.	***2014-32-0064***	***Controlling Variable Coolant Temperature in Internal Combustion Engines and its Effects on Fuel Consumption*** *Koorosh Khanjani, Jiamei Deng, Andrzej Ordys, Kingston University*
2:30 p.m.	***2014-32-0065***	***Application of Engine Load Estimation Method Using Crank Angular Velocity Variation to Spark Advance Control*** *Ryosuke Ibata, Hirotaka Kawatsu, Tetsuya Kaneko, Kenji Nishida, Honda R&D Co., Ltd.*

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Wednesday, November 19

Emissions (Part 1 of 3)

Session Code: ***SETC6***

Room Auditorium ***Session Time:*** ***15:30***

Papers in this session pertain to studies of exhaust emission control and the emission effects from fuels, engine controls, engine design, combuston quality, catalytic converters, diesel particulate filters, and other aftertreatment. The focus of the session is on reducing emissions and meeting international emission standards.

Organizers - *Kai W. Beck, MOT GmbH; Hiromi Deguchi, Suzuki Motor Corp.; Leonid Tartakovsky, Technion Israel Inst. of Technology; James N. Carroll, Southwest Research Institute*

Chairpersons - *Kai W. Beck, Mot GmbH; Hiromi Deguchi, Suzuki Motor Corp.; Leonid Tartakovsky, Technion Israel Inst. of Technology*

Time	Paper No.	Title
3:30 p.m.	***2014-32-0029***	***Enhancing a Catalyst Formulation for a Big Displacement Motorcycle for Future Emission Regulations***
		Marcus Bonifer, Rainer Kiemel, Heraeus Catalysts
4:00 p.m.	***2014-32-0035***	***Pulsed Secondary Air Injection System for Emission Reduction in Small Generator Sets***
		Sayaka Yasoshina, Ryo Saito, Honda R&D Co. Ltd.
4:30 p.m.	***2014-32-0034***	***The Effect of a TiO₂ Coating with the Addition of H₂ Gas on Emissions of a Small Spark-Ignition Engine***
		Saager Paliwal, Alex S. Bare, Katherine J. Lawrence, Marc Anderson, Glenn Bower, University of Wisconsin

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Wednesday, November 19

Measurement & Simulation (Part 4 of 4)

Session Code: ***SETC4***

Room Hall 90B ***Session Time:*** ***10:30***

The session is associated with engine and vehicle simulation tasks and their related measurements. Simulation and measurement methodology as well as the simulation and measurement application on development tasks will find a place within the session.

Organizers - *Stephan Schmidt, Graz University of Technology; Giovanni Ferrara, Univ. of Florence; Michihisa Mick Nakagawa, Kawasaki Heavy Industries, Ltd.; Shigeru Fujii, Yamaha Motor Co., Ltd.*

Chairpersons - *Giovanni Ferrara, Univ of Florence; Michihisa Mick Nakagawa, Kawasaki Heavy Industries, Ltd.; Stephan Schmidt, Graz University of Technology; Shigeru Fujii, Yamaha Motor Co Ltd*

Time	Paper No.	Title
10:30 a.m.	***2014-32-0062***	***An Analytical Model of a Two-Phase Jet with Application to Fuel Sprays in Internal Combustion Engines***
		Jonathan Tenenbaum, Michael Shapiro, Leonid Tartakovsky, Technion Israel Inst. of Technology
11:00 a.m.	***2014-32-0061***	***Measurement and Validation of Two Wheeled Vehicle Single Cylinder Engine Unbalance Force Calculation on the Crankshaft***
		Rama Subbu, Baskar Anthony Samy, Piyush Mani Sharma, Prasanna Mahendiran, Hero MotoCorp Limited

11:30 a.m.	***2014-32-0053***	***Study of Effects of Residual Stress on Natural Frequency of Motorcycle Brake Discs***
		Yoshihiro Nakagawa, Shinya Takahashi, Mikihito Masaki, Ranju Imao, Honda R&D Co., Ltd.

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Wednesday, November 19

HCCI (Part 1 of 2)

Session Code: ***SETC12***

Room Hall 90B ***Session Time:*** ***13:30***

This session focuses on studies of auto igntion combustion including HCCI and other low tempertautre combustion regimes. Experimental and simultaion studies pertaining to various means of controlling combustion are welcome.

Organizers - *William P. Attard; Roberto Gentili, Universita degli Studi di Pisa; Jaal B. Ghandhi, Univ. of Wisconsin Madison; Tatsuya Kuboyama, Chiba Univ.; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Chairpersons - *Roberto Gentili, Universita degli Studi di Pisa; Tatsuya Kuboyama, Chiba Univ.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2014-32-0005***	***A Study of Supercharged HCCI Combustion Using Blended Fuels of Propane and DME***
		Keisuke Mochizuki, Takahiro Shima, Hirotaka Suzuki, Yoshihiro Ishikawa, Akira Iijima, Koji Yoshida, Hideo Shoji, Nihon University Graduate School
2:00 p.m.	***2014-32-0003***	***Molecular Structure of Hydrocarbons and Auto-Ignition Characteristics of HCCI Engines***
		Gen Shibata, Ryota Kawaguchi, Soumei Yoshida, Hideyuki Ogawa, Hokkaido University
2:30 p.m.	***2014-32-0002***	***Prediction of Ignition and Combustion Development in an HCCI Engine Fueled by Syngas***
		Yudai Yamasaki, Shigehiko Kaneko, University of Tokyo

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Wednesday, November 19

HCCI (Part 2 of 2)

Session Code: ***SETC12***

Room Hall 90B ***Session Time:*** ***15:30***

This session focuses on studies of auto igntion combustion including HCCI and other low tempertautre combustion regimes. Experimental and simultaion studies pertaining to various means of controlling combustion are welcome.

Organizers - *William P. Attard; Roberto Gentili, Universita degli Studi di Pisa; Jaal B. Ghandhi, Univ. of Wisconsin Madison; Tatsuya Kuboyama, Chiba Univ.; Sherry E. McCaskey, SAE International; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Chairpersons - *Roberto Gentili, Universita degli Studi di Pisa; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Time	***Paper No.***	***Title***

3:30 p.m.	***2014-32-0004***	***Study of Supercharged Gasoline HCCI Combustion by Using Spectroscopic Measurements and FT-IR Exhaust Gas Analysis*** *Yuma Ishizawa, Munehiro Matsuishi, Yasuhide Abe, Go Emori, Akira Iijima, Hideo Shoji, Nihon University Graduate School; Kazuhito Misawa, Hiraku Kojima, Kenjiro Nakama, Suzuki Motor Corporation*
4:00 p.m.	***2014-32-0001***	***A Study of HCCI Combustion Assisted by a Streamer Discharge Based on Visualization of the Entire Bore Area*** *Naoya Ito, Nihon University Graduate School; Akira Iijima, Nihon University; Akira Terashima, Junki Sahara, Takashi Shimada, Masanori Yamada, Nihon University Graduate School; Tomohiko Asai, Mitsuaki Tanabe, Koji Yoshida, Hideo Shoji, Nihon University*

Wednesday, November 19

Engine Technology (Part 1 of 4)

Session Code: ***SETC10***

Room Hall 90C ***Session Time:*** ***10:30***

Advanced engine technologies, design, and development for thermal efficiency, performance, and emissions, including cycle simulation.

Organizers - *Satoshi INOUE, Honda R&D Co., Ltd.; Nagesh Mavinahally, Meggitt Control Systems; Mamoru Mikame, Honda; Hideyuki Okumura, Yamaha Motor Co., Ltd.; Alessio Sisi, Piaggio & C SpA; Sebastian Strauss, STIHL Inc.*

Chairpersons - *Hideyuki Okumura, Yamaha Motor Co., Ltd.; Sebastian Strauss, STIHL Inc.*

Time	***Paper No.***	***Title***
10:30 a.m.	***2014-32-0110***	***Development of a Cam Phaser System to Improve the Performance of a Small Engine*** *P S Satyanarayana, Balasubramanian Loganathan, V Lakshminarasimhan, TVS Motor Company Ltd.; A Ramesh, S Sujatha, Indian Institute of Technology*
11:00 a.m.	***2014-32-0109***	***Numerical Investigations of a Naturally Aspirated Cogeneration Engine Operating with Overexpanded Cycle and Optimised Intake System*** *Denis Neher, Maurice Kettner, Fino Scholl, Karlsruhe University of Applied Sciences; Markus Klaissle, Danny Schwarz, Senertec Kraft-Wärme-Energiesysteme GmbH; Blanca Gimenez, Univ. de Valladolid*
11:30 a.m.	***2014-32-0102***	***Extended Expansion Engine with Mono-Shaft Cam Mechanism for Higher Efficiency - Layout Study and Numerical Investigations of a Twin Engine*** *Patrick Pertl, Philipp Zojer, Michael Lang, Oliver Schoegl, Alexander Trattner, Stephan Schmidt, Roland Kirchberger, Graz University of Technology; Nagesh Mavinahally, Vinayaka Mavinahalli, MavinTech, LLC.*

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Wednesday, November 19

Engine Technology (Part 2 of 4)

Session Code: ***SETC10***

Room Hall 90C ***Session Time:*** ***13:30***

Advanced engine technologies, design, and development for thermal efficiency, performance, and emissions, including cycle simulation.

Organizers - *Satoshi INOUE, Honda R&D Co., Ltd.; Nagesh Mavinahally, Meggitt Control Systems; Mamoru Mikame, Honda; Hideyuki Okumura, Yamaha Motor Co., Ltd.; Alessio Sisi, Piaggio & C SpA; Sebastian Strauss, STIHL Inc.*

Chairpersons - *Nagesh Mavinahally, Meggitt Control Systems; Hideyuki Okumura, Yamaha Motor Co., Ltd.*

Time	Paper No.	Title
1:30 p.m.	2014-32-0108	***A Potentiality of Dedicated EGR in SI Engines Fueled by Natural Gas for Improving Thermal Efficiency and Reducing NO_x Emission*** *Sejun Lee, Kyohei Ozaki, Norimasa Iida, Keio Univ; Takahiro Sako, Osaka Gas Co., Ltd.*
2:00 p.m.	2014-32-0103	***Evaluation of Engine Performance and Combustion in Natural Gas Engine with Pre-Chamber Plug under Lean Burn Conditions*** *Yoshitane Takashima, Hiroki Tanaka, Takahiro Sako, Osaka Gas Co., Ltd.; Masahiro Furutani, Nagoya Institute of Technology*
2:30 p.m.	2014-32-0105	***Study on Combustion Noise in Small General Purpose Engines*** *Atsushi Maruyama, Gaku Naoe, Honda R&D Co. Ltd.*

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Wednesday, November 19

Engine Technology (Part 3 of 4)

Session Code: ***SETC10***

Room Hall 90C ***Session Time:*** ***15:30***

Advanced engine technologies, design, and development for thermal efficiency, performance, and emissions, including cycle simulation.

Organizers - *Satoshi INOUE, Honda R&D Co., Ltd.; Nagesh Mavinahally, Meggitt Control Systems; Mamoru Mikame, Honda; Hideyuki Okumura, Yamaha Motor Co., Ltd.; Alessio Sisi, Piaggio & C SpA; Sebastian Strauss, STIHL Inc.*

Chairpersons - *Satoshi INOUE, Honda R&D Co., Ltd.; Sebastian Strauss, STIHL Inc.*

Time	Paper No.	Title
3:30 p.m.	2014-32-0114	***Comparison between 2 and 4-Stroke Engines for a 30 kW Range Extender*** *Enrico Mattarelli, Carlo Alberto Rinaldini, Giuseppe Cantore, Universita di Modena e Reggio Emilia; Enrico Agostinelli, HPE Srl*
4:00 p.m.	2014-32-0104	***Development of a Small Rotary SI/CI Combustion Engine*** *Alexander Shkolnik, Daniele Littera, Mark Nickerson, Nikolay Shkolnik, LiquidPiston; Kukwon Cho, Aramco Services Co.*
4:30 p.m.	2014-32-0111	***Rotary Valve Four-Stroke Technology Applied to Handheld Power Tools*** *Brian Mason, Keith Lawes, RCV Engines Limited*

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Wednesday, November 19

Vehicle Components

Session Code: ***SETC19***

Room Hall 90D ***Session Time:*** ***10:30***

This session focuses on hardware not associated with the engine and drivetrain that supports the purpose of the vehicle such as suspensions, lighting, dampers, marine hulls, steering, vehicle frame, and heating and cooling systems.

Organizers - *Masayuki Baba, Honda R&D Co., Ltd.; Ken Fosaaen, Kerdea Technologies; Robert Kee, Queen's University Belfast; Mario Santucci, Piaggio & C SpA*

Chairpersons - *Tadao Okazaki, Kubota Corp.; Mario Santucci, Piaggio & C SpA*

Time	Paper No.	Title
10:30 a.m.	***2014-32-0027***	***Load Control Module in a Two Wheeler*** *T Manikandan, S Sarmadh Ameer, A Sivakumar, Samaraj Dhinagar, TVS Motor Co. Ltd.*
11:00 a.m.	***2014-32-0028***	***Instant Mileage Assistance (IMA) in a Geared Two Wheeler*** *T Manikandan, S Sarmadh Ameer, A Sivakumar, Davinder Kumar, R Venkatesan, VenkataKalyana Kumar, TVS Motor Co. Ltd.*
11:30 a.m.	***2014-32-0026***	***Surface Fatigue Design Method for Automotive Components Subjected to Torsional Vibrations in Modern Engine Applications*** *Alessandro Franceschini, Emanuele Pellegrini, Raffaele Squarcini, Pierburg Pump Technology Italy*

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Wednesday, November 19

Diesel Engine (Part 1 of 4)

Session Code: ***SETC5***

Room Hall 90D ***Session Time:*** ***13:30***

Papers in this session will pertain to studies of naturally aspirated and boosted diesel engines including their design, emission control, NVH, fuel system, fuel type, aftertreatment, combustion quality, or engine control.

Organizers - *Luigi Arnone, LOMBARDINI SRL; Brian J. Callahan, Achates Power Inc.; Roberto Gentili, Universita degli Studi di Pisa; Paul Litke, USAF; Masahiko Sugimoto, Kubota Corp.; Cinzia Tornatore, Istituto Motori CNR*

Chairpersons - *Brian J. Callahan, Achates Power Inc.; Keiya Nishida, Univ. of Hiroshima*

Time	Paper No.	Title
1:30 p.m.	***2014-32-0133***	***Evaluation of NOx Production Rate in Diesel Combustion Based on Measurement of Time Histories of NOx Concentrations and Flame Temperature*** *Yuzuru Nada, Yusuke Komatsubara, Thang Pham, Fumiya Yoshii, Yoshiyuki Kidoguchi, The University of Tokushima*
2:00 p.m.	***2014-32-0127***	***Visualization Analysis of Diesel Combustion with Water and Diesel Fuel Emulsified Blend in a Constant Volume Chamber Vessel*** *Hideyuki Ogawa; Gen Shibata, Yuhei Noguchi, Mutsumi Numata, Hokkaido University*

2:30 p.m.	***2014-32-0125***	***Macro- and Micro-scale Observation on Dynamic Behavior of Diesel Spray Affected by Ambient Density and Temperature*** *Mohd Al-Hafiz Mohd Nawi, Yoshiyuki Kidoguchi, Misato Nakagiri, Naoya Uwa, Yuzuru Nada, The University of Tokushima; Seiji Miyashiro, Tokushima College of Technology*

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Wednesday, November 19

Diesel Engine (Part 2 of 4)

Session Code: ***SETC5***

Room Hall 90D ***Session Time:*** ***15:30***

Papers in this session will pertain to studies of naturally aspirated and boosted diesel engines including their design, emission control, NVH, fuel system, fuel type, aftertreatment, combustion quality, or engine control.

Organizers - *Luigi Arnone, LOMBARDINI SRL; Brian J. Callahan, Achates Power Inc.; Roberto Gentili, Universita degli Studi di Pisa; Paul Litke, USAF; Masahiko Sugimoto, Kubota Corp.; Cinzia Tornatore, Istituto Motori CNR*

Chairpersons - *Yoshiyuki Kidoguchi, Tokushima Univ.; Paul Litke, USAF*

Time	***Paper No.***	***Title***
3:30 p.m.	***2014-32-0128***	***Assessing the Limits of Downsizing in Diesel Engines*** *Francisco Payri, José Javier Lopez, Benjamin Pla, Diana Graciano Bustamante, CMT Motores Termicos UPV*
4:00 p.m.	***2014-32-0135***	***Engine Performance and Emissions of a Small Diesel Engine Fueled with Various Diesel/RME Blends*** *Silvana Di Iorio, Istituto Motori CNR; Agnese Magno, Istituto Motori & Univ. FedericoII of Naples; Ezio Mancaruso, Bianca Maria Vaglieco, Istituto Motori CNR; Luigi Arnone, Lorenzo Dal Bello, Lombardini S R L*
4:30 p.m.	***2014-32-0130***	***Reduction Techniques of Exhaust Gas Emissions to Meet US EPA Tier4 Standard for Non-Road In-Direct Injection Diesel Engines*** *Takashi Onishi, Kubota Corp.; Tomoya Akitomo, Kubota Corp; Yuichi Tamaki, Yoshikazu Takemoto, Kubota; Hideyuki Goto, Kubota Corp; Mitsugu Okuda, Kubota*
5:00 p.m.	***2014-32-0129***	***Acoustic Assessment in a Small Displacement Diesel Engine*** *Giancarlo Chiatti, ROMA TRE University; Erasmo Recco; Ornella Chiavola, Silvia Conforto, ROMA TRE University*

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Wednesday, November 19

Vehicle Dynamics & Safety (Part 1 of 3)

Session Code: ***SETC18***

Room Hall 90E ***Session Time:*** ***10:30***

This session will focus on the application of technology to improve the stability, handling, ride and comfort of two and three wheeled vehicles.

Organizers - *Masayuki Baba, Honda R&D Co., Ltd.; Derek L. Cleasby, Bosch Engineering GmbH; Marco Pierini, Università degli Studi di Firenze*

Chairpersons - *Masayuki Baba, Honda R&D Co., Ltd.; Arnaldo Mazzei, Kettering Univ.*

Time	Paper No.	Title
10:30 a.m.	***2014-32-0020***	***Objective Driveability Development of Motorcycles with AVL-DRIVE*** *Patrick Falk, Christian Hubmann, AVL List GmbH*
11:00 a.m.	***2014-32-0022***	***Development of a Fall Detection Algorithm for Powered Two Wheelers Application*** *Federico Giovannini, Niccolò Baldanzini, Marco Pierini, Università degli Studi di Firenze*
11:30 a.m.	***2014-32-0023***	***Sensitivity Analysis of a FE Model for Motorcycle-Car Full-Scale Crash Test*** *Daniele Barbani, Niccolò Baldanzini, Marco Pierini, Università degli Studi di Firenze*

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Wednesday, November 19

Vehicle Dynamics & Safety (Part 2 of 3)

Session Code: ***SETC18***

Room Hall 90E ***Session Time:*** ***13:30***

This session will focus on the application of technology to improve the stability, handling, ride and comfort of two and three wheeled vehicles.

Organizers - *Masayuki Baba, Honda R&D Co., Ltd.; Derek L. Cleasby, Bosch Engineering GmbH; Marco Pierini, Università degli Studi di Firenze*

Chairpersons - *Shigeru Fujii, Yamaha Motor Co., Ltd.; Arnaldo Mazzei, Kettering Univ.*

Time	Paper No.	Title
1:30 p.m.	***2014-32-0017***	***Steering Effort Reduction by DC Motor Assisted Steering Mechanism in 3- Wheeler Vehicle*** *R Varunprabhu, Himadri Bushan Das, S Jabez Dhinagar, TVS Motor Co., Ltd.*
2:00 p.m.	***2014-32-0018***	***Studies of Shimmy Phenomenon by Statistical Approaches*** *Kenichi Morimoto, Kenichi Tanaka, Honda R&D Co., Ltd.*
2:30 p.m.	***2014-32-0021***	***Study on Analysis of Input Loads to Motorcycle Frames in Rough Road Running*** *Kazuhiro Ito, Yoshitaka Tezuka, Atsushi Hoshino, Honda R&D Co., Ltd.; Keita Sakurada, Honda R&D (India) Pvt. Ltd.*

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Wednesday, November 19

Vehicle Dynamics & Safety (Part 3 of 3)

Session Code: ***SETC18***

Room Hall 90E ***Session Time:*** ***15:30***

This session will focus on the application of technology to improve the stability, handling, ride and comfort of two and three wheeled vehicles.

Organizers - *Masayuki Baba, Honda R&D Co., Ltd.; Derek L. Cleasby, Bosch Engineering GmbH; Marco Pierini, Università degli Studi di Firenze*

Chairpersons - *Masayuki Baba, Honda R&D Co., Ltd.; Arnaldo Mazzei, Kettering Univ.*

Time	Paper No.	Title
3:30 p.m.	2014-32-0016	**One Approach to Definition of MSILs and Their Connections with ASILs** *Sei Takahashi, Hideo Nakamura, Nihon University; Makoto Hasegawa, Japan Automobile Research Institute*
4:00 p.m.	2014-32-0025	**Basic Characteristics of Motorcycle Riding Maneuvers of Expert Riders and Ordinary Riders** *Maki Kawakoshi, Takashi Kobayashi, Makoto Hasegawa, Japan Automobile Research Institute*

Thursday, November 20

Emissions (Part 2 of 3)

Session Code: ***SETC6***

Room Auditorium ***Session Time:*** ***08:30***

Papers in this session pertain to studies of exhaust emission control and the emission effects from fuels, engine controls, engine design, combuston quality, catalytic converters, diesel particulate filters, and other aftertreatment. The focus of the session is on reducing emissions and meeting international emission standards.

Organizers - *Kai W. Beck, MOT GmbH; Hiromi Deguchi, Suzuki Motor Corp.; Leonid Tartakovsky, Technion Israel Inst. of Technology; James N. Carroll, Southwest Research Institute*

Chairpersons - *Kai W. Beck, Mot GmbH; Hiromi Deguchi, Suzuki Motor Corp.*

Time	Paper No.	Title
8:30 a.m.	2014-32-0031	**Strategies for Emission Reduction on Small Capacity Two-Wheelers with Regard to Future Legislative Limits** *Juergen Tromayer, Gerd Neumann, Graz University of Technology; Marcus Bonifer, Rainer Kiemel, Heraeus Catalysts*
9:00 a.m.	2014-32-0038	**Effect of Octane Number Obtained with Different Oxygenated Components on the Engine Performance and Emissions of a Small GDI Engine** *Silvana Di Iorio, Francesco Catapano, Paolo Sementa, Bianca Maria Vaglieco, Istituto Motori CNR; Salvatore Florio, Elena Rebesco, Pietro Scorletti, Daniele Terna, ENI Div. R&M*
9:30 a.m.	2014-32-0032	**Regulated and Unregulated Emissions from a Flex Fuel Motorcycle Fuelled with Various Gasoline/Ethanol Blends** *Luiz Carlos Daemme, Renato Penteado, Institute of Technology for Development; Fatima Zotin, UERJ; Marcelo Errera, UFPR*

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Thursday, November 20

Emissions (Part 3 of 3)

Session Code: ***SETC6***

Room Auditorium ***Session Time:*** ***10:30***

Papers in this session pertain to studies of exhaust emission control and the emission effects from fuels, engine controls, engine design, combuston quality, catalytic converters, diesel particulate filters, and other aftertreatment. The focus of the session is on reducing emissions and meeting international emission standards.

Organizers - *Kai W. Beck, MOT GmbH; Hiromi Deguchi, Suzuki Motor Corp.; Leonid Tartakovsky, Technion Israel Inst. of Technology; James N. Carroll, Southwest Research Institute*

Chairpersons - *Kai W. Beck, Mot GmbH; Hiromi Deguchi, Suzuki Motor Corp.*

Time	Paper No.	Title
10:30 a.m.	***2014-32-0036***	***Particle Emissions of Modern Handheld Machines*** *Jan Czerwinski, Univ. of Applied Sciences Biel-Bienne; Markus Kurzwart, Motorex Lubrication Technology; Andreas Mayer, Technik Thermische Maschinen; Pierre Comte, Univ of Applied Sciences Biel-Bienne*
11:00 a.m.	***2014-32-0037***	***Influence of Oil Mixture on Exhaust Gas Emissions of Two Stroke Engines*** *Stefano Bernardi, Marco Ferrari, Dario Catanese, EMAK Spa*

Thursday, November 20

SETC Closing Ceremony

Session Code: ***PLENARY***

Room Auditorium ***Session Time:*** ***12:30***

This session focuses on advanced combustion technologies in both 4-stroke and 2-stroke engines. The scope of topics includes studies of mixture formation, dilution effects, ignition, abnormal combustion, engine efficiency, flame propagation, and emissions formation.

Moderators - *Roberto Gentili, Universita degli Studi di Pisa*

Panelists - *Robert Kee; Tadao Okazaki, Kubota Corp.;*

Thursday, November 20

NVH Technology (Part 1 of 2)

Session Code: ***SETC16***

Room Hall 90B ***Session Time:*** ***08:30***

All aspects of small engine related noise and vibration are covered in this session including: generation, experimental techniques, measurement, numerical analysis, NVH materials, source identification, NVH quality and novel solutions.

Organizers - *Giovanni Ferrara, Univ. of Florence; Ken Kicinski, Harley-Davidson Inc.; Hiroshi Yano, Kawasaki Heavy Industries, Ltd.*

Chairpersons - *Giovanni Ferrara, Univ. of Florence; Hiroshi Yano, Kawasaki Heavy Industries, Ltd.*

Time	Paper No.	Title
8:30 a.m.	***2014-32-0121***	***Design Method of Motorcycle Exhaust Sound Fitting to Vehicle Concept Regardless of Engine Configurations*** *Kazuhiko Tanaka, Haruomi Sugita, Hibiki Saito, Masahiko Sekita, Honda R&D Co., Ltd.*
9:00 a.m.	***2014-32-0119***	***Acoustic Simulation of Vehicle Exhaust System using High Order Transfer Matrix Method Coupled with Finite Element Method*** *Diego Copiello, Ze Zhou, Gregory Lielens, Free Field Technologies, MSC Software Co.*

9:30 a.m.	***2014-32-0122***	***Assessment and Experimental Validation of a 3D Acoustic Model of a Motorcycle Muffler***
		Andrea Fioravanti, Giulio Lenzi, Giovanni Vichi, Giovanni Ferrara, Univ. of Florence; Stefano Ricci, Leonardo Bagnoli, Ducati Motor Holding spa

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Thursday, November 20

NVH Technology (Part 2 of 2)

Session Code: ***SETC16***

Room Hall 90B ***Session Time:*** ***10:30***

All aspects of small engine related noise and vibration are covered in this session including: generation, experimental techniques, measurement, numerical analysis, NVH materials, source identification, NVH quality and novel solutions.

Organizers - *Giovanni Ferrara, Univ. of Florence; Ken Kicinski, Harley-Davidson Inc.; Hiroshi Yano, Kawasaki Heavy Industries, Ltd.*

Chairpersons - *Hiroshi Yano, Kawasaki Heavy Industries, Ltd.*

Time	***Paper No.***	***Title***
10:30 a.m.	***2014-32-0120***	***Analysis of the Acoustic Emission of an Oil Pump: Experimental and Numerical Activities***
		Sara Gronchi, Riccardo Maccherini, Raffaele Squarcini, Fabio Guglielmo, Emanuela Ligarò, Pierburg Pump Technology Italy
11:00 a.m.	***2014-32-0123***	***Single Cylinder Diesel Engine Mount Configuration for Reduced Vibration in a Three-Wheeled Vehicle***
		Vishnu Kumar Kuduva Shanthulal, Kannan Marudachalam, V Pattabiraman, S Jabez Dhinagar, Tvs Motor Company Ltd; Chandramouli Padmanabhan, Indian Institute of Technology Madras

Thursday, November 20

Engine Technology (Part 4 of 4)

Session Code: ***SETC10***

Room Hall 90C ***Session Time:*** ***08:30***

Advanced engine technologies, design, and development for thermal efficiency, performance, and emissions, including cycle simulation.

Organizers - *Satoshi INOUE, Honda R&D Co., Ltd.; Nagesh Mavinahally, Meggitt Control Systems; Mamoru Mikame, Honda; Hideyuki Okumura, Yamaha Motor Co., Ltd.; Alessio Sisi, Piaggio & C SpA; Sebastian Strauss, STIHL Inc.*

Chairpersons - *Satoshi INOUE, Honda R&D Co., Ltd.; Nagesh Mavinahally, Meggitt Control Systems*

Time	***Paper No.***	***Title***
8:30 a.m.	***2014-32-0112***	***Experimental Verification and Drivability Investigations of a Turbo Charged 2-Cylinder Motorcycle Engine***
		Christian Zinner, Reinhard Stelzl, Stephan Schmidt, Graz University of Technology; Stefan Leiber, Thomas Schabetsberger, BRP-Powertrain GmbH & Co KG

9:00 a.m.	***2014-32-0107***	***Improvement of the Startability with Reverse Stroke Intake Devices for a Motorcycle Engine***
		Takahiro Masuda, Kouji Sakai, Yuki Yamaguchi, Jun-ichi Kaku, Hirobumi Nagasaka, Yamaha Motor Co., Ltd.
9:30 a.m.	***2014-32-0113***	***Durability Improvement for 2-Stroke Forced Air Cooled SI Engine***
		Vipin Sukumaran T., Sumith Joseph, Kamal kant, Vipin P, Mohan D Umate, TVS Motor Company Ltd.

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00445 and COLL-TP-00452, a individually. To purchase visit collections.sae.org

Thursday, November 20

Lubricants

Session Code: ***SETC14***

Room Hall 90C ***Session Time:*** ***10:30***

This session contains a variety of presentations regarding engine oil technologies developed for small engines. There are three papers addressing new lubricants for motorcycles ranging from increasing engine power, to new high performance oils needed to meet the every increasing demand of new low emission engines. There are also two papers to address reducing friction and wear required for energy conserving performance in small engines.

Organizers - *Brent R. Dohner, Lubrizol Corp.; Hirotaka Kurita, Yamaha Motor Co., Ltd.*

Chairpersons - *Brent R. Dohner, Lubrizol Corp.; Hirotaka Kurita, Yamaha Motor Co., Ltd.*

Time	***Paper No.***	***Title***
10:30 a.m.	***2014-32-0115***	***Advanced Low Friction Engine Coating Applied to a 70cc High Performance Chainsaw***
		Mikael Bergman, Magnus Bergwall, Thomas Elm, Husqvarna AB; Sascha Louring, Lars Nielsen, Danish Technological Institute
11:00 a.m.	***2014-32-0117***	***The Rolling Contact Fatigue Behaviour of Motorcycle Lubricants***
		Matthew Smeeth, PCS Instruments

Thursday, November 20

Diesel Engine (Part 3 of 4)

Session Code: ***SETC5***

Room Hall 90D ***Session Time:*** ***08:30***

Papers in this session will pertain to studies of naturally aspirated and boosted diesel engines including their design, emission control, NVH, fuel system, fuel type, aftertreatment, combustion quality, or engine control.

Organizers - *Luigi Arnone, LOMBARDINI SRL; Brian J. Callahan, Achates Power Inc.; Roberto Gentili, Universita degli Studi di Pisa; Paul Litke, USAF; Masahiko Sugimoto, Kubota Corp.; Cinzia Tornatore, Istituto Motori CNR*

Chairpersons - *Brian J. Callahan, Achates Power Inc.; Norimasa Iida, Ehlers Engineering Services*

Time	***Paper No.***	***Title***
8:30 a.m.	***2014-32-0126***	***Numerical Investigation of the Relationship between Engine Performance and Turbocharger Speed of a Four Stroke Diesel Engine***
		Giovanni Vichi, Isacco Stiaccini, Univ. of Florence; Alessandro Bellissima, Yanmar R&D Europe; Ryota Minamino, Yanmar Co. Ltd.; Lorenzo Ferrari, Giovanni Ferrara, Univ. of Florence

9:00 a.m.	***2014-32-0124***	***Small Injection Amount Fuel Spray Characteristics Injected by Hole-Type Nozzle for D.I. Diesel Engine*** *Keiya Nishida, Kuichun LI, Takeru Matsuo, University of Hiroshima; Daisuke Shimo, Wu Zhang, Mazda Motor Corp*
9:30 a.m.	***2014-32-0134***	***Medium Pressure Injection System for Small Diesel Engine Application: Numerical Simulation and Experimental Results*** *Giovanni Bonandrini, Rita Di Gioia, Luca Venturoli, Domenico Papaleo, Magneti Marelli Powertrain SpA; Lucio Postrioti, Università degli Studi di Perugia; Leonardo Zappalà, Piaggio & C. SpA*

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00445 and COLL-TP-00454, a individually. To purchase visit collections.sae.org

Thursday, November 20

Diesel Engine (Part 4 of 4)

Session Code: ***SETC5***

Room Hall 90D ***Session Time:*** ***10:30***

Papers in this session will pertain to studies of naturally aspirated and boosted diesel engines including their design, emission control, NVH, fuel system, fuel type, aftertreatment, combustion quality, or engine control.

Organizers - *Luigi Arnone, LOMBARDINI SRL; Brian J. Callahan, Achates Power Inc.; Roberto Gentili, Universita degli Studi di Pisa; Paul Litke, USAF; Masahiko Sugimoto, Kubota Corp.; Cinzia Tornatore, Istituto Motori CNR*

Chairpersons - *Paul Litke, USAF; Gen Shibata, Hokkaido Univ.*

Time	***Paper No.***	***Title***
10:30 a.m.	***2014-32-0132***	***An Investigation of Controlling Two-Peak Heat Release Rate for Combustion Noise Reduction in Split-Injection PCCI Engine using Numerical Calculation*** *Hiroki Ikeda, Norimasa Iida, Keio Univ; Hiroshi Kuzuyama, Tsutomu Umehara, Toyota Industries Corp; Takayuki Fuyuto, Toyota Central R&D Labs Inc*

Thursday, November 20

Engine Components (Part 1 of 2)

Session Code: ***SETC8***

Room Hall 90E ***Session Time:*** ***08:30***

This session focuses on hardware attached to the engine such as support systems, injectors, EGR valves, manifolds, turbo-chargers, water pumps, and ignition systems.

Organizers - *Michihisa Mick Nakagawa, Hiroshi Nakahara, Kawasaki Heavy Industries, Ltd.; Holger Oest, Continental Automotive Italy SPA; David James Thornhill, Queen's Univ. of Belfast*

Chairpersons - *Robert Kee, Queen's University Belfast; Hiroya Ueda, Honda R&D Co., Ltd.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2014-32-0136***	***New Development Approach for Wet Motorcycle Clutch System*** *Thomas Metzinger, Christoph Raber, Christoph Wittmann, Schaeffler*

9:00 a.m.	***2014-32-0137***	***Development of a Novel Low-Cost, Low-Power, Narrow-Band Oxygen Sensor for Small Engine Applications. (1 of 3)***
		Ken Fosaaen, Kerdea Technologies
9:30 a.m.	***2014-32-0138***	***Study on Efficiency Improvement of Compact Generator for Motorcycle***
		Tetsuya Osakabe, Suzuki Motor Corp.

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00445, and also individually. T purchase visit collections.sae.org

Thursday, November 20

Engine Components (Part 2 of 2)

Session Code: ***SETC8***

Room Hall 90E ***Session Time:*** ***10:30***

This session focuses on hardware attached to the engine such as support systems, injectors, EGR valves, manifolds, turbo-chargers, water pumps, and ignition systems.

Organizers - *Hiroshi Nakahara, Kawasaki Heavy Industries, Ltd.; Holger Oest, Continental Automotive Italy SPA; David James Thornhill, Queen's Univ. of Belfast*

Chairpersons - *Robert Kee, Queen's University Belfast; Hideyuki Okumura, Yamaha Motor Co., Ltd.*

Time	***Paper No.***	***Title***
10:30 a.m.	***2014-32-0143***	***Characterization of the Performance of a Novel Low-Cost, Low-Power Narrow-Band Oxygen Sensor for Small Engine Applications Using a Propane Burner Test Stand (2 of 3)***
		Ken Fosaaen, Kerdea Technologies
11:00 a.m.	***2014-32-0139***	***Heat Transfer Performance of a Double Tube Type Light Duty Exhaust Heat Recovery Heat Exchanger***
		Ryutaro Shinohara, Shizuoka Univ.