

# TECHNICAL SESSIONS

*Tentative session timetable will be available on <http://www.setc-jsae.com/> in early August.*

*Listed as of April 16, 2013*

## ADVANCED COMBUSTION

Organizers: Koji Yoshida (Nihon University), William Attard (MAHLE Powertrain),  
Jaal Gandhi (University of Wisconsin-Madison)

- 20139002 **Effects of Intake System with Swirl and Tumble Valve on the Combustion in a Small Four Stroke Engine**  
Chih Wei Huang, Guan Shiu Lin, Wen Cheng Hu (SANYANG R&D Center Co., Ltd.)
- 20139030 **A Study of the Effects of Varying the Supercharging Pressure and Fuel Octane Number on Spark Ignition Engine Knocking Using Spectroscopic Measurement and In-cylinder Visualization**  
Takashi Ishino, Norikuni Hayakawa, Tomomi Miyasaka (Nihon University Graduate School), Akira Iijima, Koji Yoshida, Hideo Shoji (Nihon University)
- 20139113 **Effects of High-Voltage Non-Uniform Electric Field on Premixed Flame Propagation Processes**  
Kyohei Yoshino (Nihon University Graduate School), Akira Iijima, Hideo Shoji, Koji Yoshida (Nihon University)
- 20139116 **Small Kerosene Droplet Evaporation Near Butane Diffusion Flame**  
Hiroshi Enomoto, Shogo Kunioka, Lukas Kano Mangalla, Noboru Hieda (Kanazawa University)
- 20139117 **Observation of Kerosene Droplet Evaporation under High Pressure and High Temperature Environment**  
Hiroshi Enomoto, Kosuke Nishioka, Shunsuke Sawasaki, Lukas Kano Mangalla, Noboru Hieda (Kanazawa University)
- 20139123 **Behavior of Small Fuel Droplet near Butane Diffusion Flame**  
Hiroshi Enomoto, Shogo kunioka, Noboru Hieda (Kanazawa University)
- 20139135 **Lean Combustion Study on 110cc Engine**  
Christian Linder (Robert Bosch GmbH)
- 20139144 **Influence of High Frequency Ignition on the Combustion and Emission Behaviour of Small Two-Stroke SI Engines**  
Markus Bertsch, Clemens Hampe, Kai Willi Beck, Ulrich Spicher (MOT GmbH)
- 20139146 **Visualization of Various Ignition Strategies in an Optically-Accessible, Constant-Volume Rotax 914 Cylinder-Head**  
Keith Dee Grinstead, Jr., Adam Brown, Eric K. Anderson, John Hoke (Innovative Scientific Solutions, Inc.), Paul J. Litke (USAF AFMC AFRL/RQTC)
- 20139149 **High-Speed Schlieren Visualization of Alternative Fuel Injection and Fuel-Air Mixing in a Turbulent Swirling Chamber of a Rapid Combustion Machine**  
Po-I Lee, Ming-Chia Lai (Wayne State University)

## ALTERNATIVE FUELS

Organizers: Hiroshi Omote (YANMAR Co.,Ltd.), Takeshi Maeda (Honda R&D Co., Ltd.), Paul Richards

- 20139025 **Impact of Ethanol and Isobutanol Gasoline Blends on Emissions from a Small Spark-Ignited Engine**  
Marie-Josée Poitras, Deborah Rosenblatt, Jeffery Goodman (Environment Canada)
- 20139038 **Utilisation of a Tyre Pyrolysis Diesel Fuel Obtained with an Innovative Thermo-Mechanical Process**  
Stefano Frigo, Maurizia Seggiani, Roberto Gentili (Università di Pisa)
- 20139059 **Study on Operation Characteristics of Gasohol Biofuel in Motorcycle Engine**  
Meng-Chieh Li, Zhi-Xi Xu, Yuh-Yih Wu (National Taipei University of Technology), Ta-Chuan Liu (Industrial Technology Research Institute)
- 20139080 **Combustion Characteristics of a DI Diesel Engine with Short and Medium Chain Saturated Fatty Acid Methyl Esters**  
Eiji Kinoshita (Kagoshima University), Yasufumi Yoshimoto (Niigata Institute of Technology), Kazuyo Fushimi (Kagoshima University)
- 20139097 **Effect of Butanol Isomer on Diesel Combustion Characteristics of Butanol/Gas Oil Blend**  
Kazuyo Fushimi, Eiji Kinoshita (Kagoshima University), Yasufumi Yoshimoto (Niigata Institute of Technology)
- 20139115 **Effects of Spark Ignition Timing on Exhaust Gas Component and Temperature with Wood Biomass Gasifier**  
Hiroshi Enomoto (Kanazawa University), Hirotaka Nozue (Shizuoka Institute of Science and Technology), Noboru Hieda (Kanazawa University)
- 20139131 **Optimization of Waste Chicken Fat Pre-Treatment Process Using Response Surface Method**  
Naresh Kumar Gurusala, Ajay Balan, Arul Mozhi Selvan V (National Institute of Technology, Tiruchirappalli)
- 20139134 **The Feasibility study of Butanol Fuel in Motorcycle**  
Ta Chuan Liu (Industrial Technology Research Institute), Zong-Da Lin (Mechanical and Systems Research Laboratories)
- 20139138 **Microwave Pyrolysis Of Used Locomotive Lubricating Oil As Engine Fuel**  
Sethumadhavan Padmanabhan, Arul Mozhi Selvan V (National Institute of Technology, Tiruchirappalli)
- 20139140 **Performance, Combustion And Emission Characteristics Of Waste Chicken Fat Methyl Ester**  
Arul Mozhi Selvan V, Naresh Kumar Gurusala (National Institute of Technology, Tiruchirappalli)
- 20139145 **Comparative Study of Performance and Emission Characteristics of Biodiesel-Methanol-Diesel, Biodiesel-Ethanol-Diesel and Biodiesel-Butanol-Diesel Blend in Medium Capacity CI Engine Employing Cold EGR**  
Manish V, Sahil Gupta, Naveen Kumar, Dhruv Gupta (Delhi Technological University)
- 20139147 **Comparative Spark-Ignition Engine Emission and Performance Analysis of Compressed Natural Gas (CNG) and Gasoline Fuelled in a Conversion Engine**  
Seuk Cheun Choi, Jae Wook Lee, Jae Yong Jeong (Korea Institute of Industrial Technology), Sung Yoon Kim (Korea Marine Equipment Research Institute)
- 20139156 **Development of Alternative Fuel Content Estimation Method and Apparatus**  
Masayoshi Uno, Takashi Abe (Kawasaki Heavy Industries, Ltd.)
- 20139168 **Performance and Emissions Optimization of Hydrous Ethanol Small SI Engine**  
Preechar Karin, Chinda Charoenphonphanich (King Mongkut's Institute of Technology Ladkrabang)

- 20139174 **An Application of Cellulosic Liquefaction Fuel for Diesel Engine - Improvement of Fuel Property by Cellulosic Liquefaction with Plastics -**  
Kohei Suzuki (Nihon University GraduateSchool), Akira Iijima, Hideo Shoji, Koji Yoshida (Nihon University)

## COLLEGIATE EVENTS

Organizers: Takashi Mitome (SUZUKI MOTOR CORPORATION), Geoff McCullough (Queen's University Belfast)

- 20139100 **Aerodynamics Design for Formula SAE Car**  
Tetsuya Fujimoto, Takashi Suzuki (Sophia University)
- 20139108 **System Configuration of High Regenerative Braking Energy for Student Formula EV**  
Akihito Okazaki (Nippon Institute of Technology)
- 20139176 **Developing Best Available Technology in a Flex-Fuel Snowmobile by Using a Lean-Burn Miller Cycle**  
Gregory W Davis, Matt Birt (Kettering University)

## DIESEL ENGINE

Organizers: Takeshi Maeda (Honda R&D Co., Ltd.), Brian Callahan (Achates Power, Inc.), Paul Litke (AFRL)

- 20139005 **The Impact upon Durability of Heavy-Duty Diesel Engine equipped with SCR system Using 8 Percentage Biodiesel**  
kewei Lin, Ku Yong-Yuan (Automotive Research and TestingCenter)
- 20139021 **Effect of Spray/Wall Interaction on Diesel Combustion and Soot Formation in A Two-Dimensional Piston Cavity**  
Kuichun Li, Masaki Ido, Youchi Ogata, Keiya Nishida (University of Hiroshima), Daisuke Shimo (Mazda Motor Corporation)
- 20139022 **Combustion Characteristics of Emulsified Blends of Water and Diesel Fuel in a Diesel Engine with Cooled EGR and Pilot Injection**  
Hideyuki Ogawa, Gen Shibata (Hokkaido University), Hari Setiaprada (The agency for assessment and application of technology (BPPT)), Takaki Kato (Hokkaido Universtiy), Kosuke Hara (YANMAR Co.,Ltd.)
- 20139024 **Multi-Injection Performance Optimization Study for a High Pressure Direct Injection Common Rail Diesel Engine**  
I Ping Chang (Society of Automotive Engineers of Taiwan), Bing Yen Lin, Bo Sen Doang (Master Graduate Student of Dept. of Mechanical and Automation)
- 20139027 **Determination of performance and exhaust emissions properties of biodiesel in Common-Rail Diesel engine application**  
Hsin-Wei Chiu, Kunh-Sienmr Lee, Wen-Hao Tsai, Chang-Fu Tuan, Yen-Chuan Lee, Yi-Ting Lin (Da-Yeh University)
- 20139076 **Emulsified Castor Biodiesels on the Emissions and Deposit Formation of a Small Diesel Engine**  
Yung Sung Lin (Hsiuping University of Science and Technology), Hai Ping Lin (Da-Yeh University)
- 20139077 **Waste Cooking Oil Biodiesel Characteristics on the Emissions of a Small Diesel Engine with Water Emulsions**  
Yung Sung Lin (Hsiuping University of Science and Technology), Hai Ping Lin (Da-Yeh University)

- 20139095 **Optimization of Biodiesel Combustion in a Diesel Engine**  
Hsin-Wei Chiu (Da-Yeh University), Chia-Jui Chiang, Yu-Hsuan Su, Chih-Cheng Chou, Ying-Wei Lin (National Taiwan University of Science and Technology), Yong-Yuan Ku (Automotive Research and Testing Center)
- 20139103 **CFD Modeling of Diesel Engines**  
Guan-Jhong Wang, Chia-Jui Chiang, Yu-Hsuan Su (National Taiwan University of Science and Technology), Yong-Yuan Ku (Automotive Research and Testing Center)
- 20139112 **Study of Combustion and Soot Emission of Ethanol or Butanol blended with Gas oil in Direct Injection Diesel Engine**  
Shohei Yamamoto, Shotaro Watanabe, Keisuke Komada, Daisaku Sakaguchi, Hironobu Ueki, Masahiro Ishida (Nagasaki University)
- 20139154 **Diesel Engine Combustion Optimization for Bio-diesel Blends Using Taguchi and ANOVA statistical methods**  
Pavlos Dimitriou, Jun Peng (University of Sussex)
- 20139155 **A New Railless Fuel Injection System for Naturally Aspirated Single Cylinder Air Cooled Diesel Engine for CO<sub>2</sub> and Emission Reduction**  
Kaleemuddin Syed Mohiuddin, Gurpreet Singh Greaves (Greaves Cotton Limited)

## EMISSIONS

Organizers: Hiromi Deguchi (SUZUKI MOTOR CORPORATION), Jim Carroll (South West Research Institute), Kai Beck (MOT GmbH), Roy Douglas (Queen's University Belfast)

- 20139050 **Exhaust Emission Characteristics of Scooter on the Real-World in Taiwan**  
Kao-Chun Su, Chic-Wei Chuang (Automotive Research & Testing Center)
- 20139052 **Evaluation of the Suitability of the Existing Motorcycle Idle-Stop Devices from the Viewpoint of Emission Improvement**  
Chao Lung Chen, Zong Da Lin (Industrial Technology Research Institute)
- 20139053 **Durable Catalyst Formulations For Four-stroke Small Engines**  
Willi Boll, Marcus Bonifer, Rainer Kiemel, Uwe Endruschat (Heraeus Precious Metals GmbH & Co.KG)
- 20139055 **An Investigation of Motorcycle Deterioration for Exhaust Emission in Taiwan**  
Shin Hui Lin, Chao Lung Chen (Industrial Technology Research Institute)
- 20139057 **New VM R750 Engine Family: a Different Approach to Reach the Emission Limit.**  
Lorenzo Pace, Manuel Presti (Emitec G.m.b.H.), Alessandro Mazza, Emilio Bertoni, Carlo Ricci (VM Motori)
- 20139064 **Drive Cycle Fuel Economy Optimization Using an Opposed-Piston Sleeve-Valve Engine with Load/Speed Dependant Lean Operation and Ignition Advance as NO<sub>x</sub> Control Mechanisms for Spark Ignited Carbureted Small Vehicles with 2-Way Oxidation Catalysts**  
Michael A Willcox, James M Cleaves (Pinnacle Engines)
- 20139088 **Dynamic Modeling of SCR de-NO<sub>x</sub> Systems**  
Chih-Cheng Chou, Chia-Jui Chiang (National Taiwan University of Science and Technology)
- 20139091 **1-D Modeling and Experimental Evaluation of Secondary Air Injection System (SAI) for a Small SI Engine**  
Pratap Chandrashekar Kavekar, Dinesh B Ghodeswar (TVS Motor Company Ltd.)
- 20139129 **The Analysis of Size and Mass Distribution of Particulate Matter Generated by Handheld Machinery**  
Jerzy Merkisz, Piotr Lijewski, Pawel Fuc, Andrzej Ziolkowski, Lukasz Rymaniak (Poznan University of Technology)

- 20139130 **A Demonstration of Emissions' Behaviour of Various Handheld Engines Including Investigations on Particulate Matter**  
Juergen Tromayer, Gerd Neumann (Graz University of Technology), Cécile Favre, John May, Dirk Bosteels (Association for Emissions Control by Catalyst (AECC) AISBL, BELGIUM)
- 20139137 **Performance and Emission Study of a Four Stroke Single Cylinder Diesel Engine Using Diesel-Water Emulsion**  
Anuj Pal, Chinmaya Mishra, Naveen Kumar (Delhi Technological University)
- 20139142 **Quantification of Performance and Emission Characteristics of Diesel Biodiesel-water Emulsion on a 8HP engine Employing EGR**  
Sahil Gupta, Manish Iyer, Anuj Pal (Delhi Technological University)
- 20139150 **Physical Characterization of Biodiesel Particle Emission by Electron Microscopy**  
Preechar Karin, Chinda Charoenphonphanich (King Mongkut's Institute of Technology Ladkrabang), Nuwong Chollacoop (National Science and Technology Development Agency), Katsunori Hanamura (Tokyo Institute of Technology)
- 20139152 **Enhanced Catalytic Performance of V2O5-WO3/TiO2 Honeycomb for SCR Catalysts Applications**  
Kuan-Zong Fung, Shu-Yi Tsai (National Cheng Kung University)
- 20139058 **Misfire Diagnostic Strategy for Motorcycles**  
Bo-Yu Gao, Hsien-Chi Tsai, Ming-Hao Chiang, Yuh-Yih Wu, Bo-Chiuan Chen (National Taipei University of Technology)

## ENGINE COMPONENTS

Organizers: Toshimi Kobayashi (Kawasaki Heavy Industries, Ltd.), David Thornhill (Queen's University Belfast)

- 20139016 **Design and Development of Centrifugal Type Decompression Device of Engine**  
Po-chun Liu, Chih-wen Yu, Yu-wei Ning (Sanyang Industry Co., Ltd)
- 20139046 **The Effect of Surface Morphology of Cylinder Bore Surface on Anti-Scuffing Property Made by High Pressure Die-Casting Process Using Hyper-Eutectic Al-Si Alloy**  
Takehiro Uhara (Yamaha Motor Co., Ltd.)
- 20139068 **Development of Advanced Propeller Damper (Shift Dampener System)**  
Yohei Kuroki, Hiroyuki Tsunekawa, Shunsuke Yukawa (Yamaha Motor Co., Ltd.)
- 20139073 **Experimental Investigations of Forced Air Cooling for Continuously Variable Transmission (CVT)**  
Abhishek Lakhanlal Vaishya, Sachin Phadnis (TVS Motor Company Limited)
- 20139102 **Improvement of Powder Metallurgy Gears for Engines and Transmissions**  
Paul Skoglund (Höganäs China Ltd), Anders Flodin (Höganäs AB, Sweden), Ola Litström (Höganäs China Ltd)
- 20139163 **Continued Optimization of Automotive Grade Idle Air Control Valve for Small Engines**  
Dian Hong (Continental Automotive Wuhu Co., Ltd), Jie Ren, Jean Fanielle, Alois Christiaens (Continental Automotive Belgium N.V.), Craig A Weldon, Yvon Sterling (Continental Tire Canada Inc.)

## ENGINE CONTROLS

Organizers: Masayoshi Uno (Kawasaki Heavy Industries, Ltd.), Thorsten Raatz (Bosch), Tony Szczotka (Bosch), Joe Lomonaco (Harley-Davidson Motor Company)

- 20139003 **Flex-Fuel Strategy for 2-Wheeler**  
Erika Xavier, Ariel Bepu, Martin Marcelo Leder, Walter Arens (Robert Bosch Brazil)
- 20139007 **A 5cm Square Gasoline Engine Controller Based upon a New System in Package Semiconductor Device**  
Mike Garrard (Freescale Semiconductors)
- 20139008 **Integrated Stage III/IV CDI Reference Design for Conventional Carburetor and Valve Actuated Electronic Carburetor Motorcycles.**  
Ralph C J Ferrara (Freescale Semiconductor)
- 20139011 **Components Networking and Integration in EFI System**  
Lang Wu, jianbing zhuang (CHANGAN VISTEON ENGINE CONTROL SYSTEMS CO,LTD.)
- 20139019 **Efficient Electrical Load Control Module**  
Manikandan T, Sarmadh Ameer Shafi Khan, Sivakumar Arumugham, Varunkumar C (TVS Motor Company)
- 20139020 **Optimization Process for a Small Engine Control Unit**  
Christian Schweikert (Infineon Technologies), Marco Nicolo (Infineon Technologies AG), David Witt (Infineon Technologies North America Corp.)
- 20139037 **Online Engine Speed Based Adaptation of Air Charge for Two-Wheelers**  
Christian Steinbrecher, Bastian Reineke, Jürgen Berkemer (Robert Bosch GmbH), Henning Heikes (Robert Bosch GmbH), Wolfgang Fischer (Robert Bosch GmbH)
- 20139040 **Construction of Data-setting Configuration Using Prescribed Template and Profile for Competition Motorcycles**  
Takashi Suda (Keihin Corporation), Yue Zhou (Keihin R&D China Co., Ltd.), Koichi Tsunokawa, Satoru Kanno, Xi Sun (Keihin Corporation)
- 20139041 **Model Reduction of Intake Air Dynamics in Single-cylinder Four-stroke Engine**  
Shun-ichi AKAMA, Yasunori MURAYAMA, Shigeho SAKODA (Yamaha Motor Co., Ltd.)
- 20139042 **Torque Control of Rear Wheel by Using Inverse Dynamics of Rubber/Aramid Belt Continuous Variable Transmission**  
Shun-ichi AKAMA, Yasunori MURAYAMA, Shigeho SAKODA (Yamaha Motor Co., Ltd.)
- 20139061 **Estimation of Intake Manifold Absolute Pressure Using Extended Kalman Filter**  
Hsien-Chi Tsai, Bo-Chiuan Chen, Yuh-Yih Wu (National Taipei University of Technology)
- 20139062 **Development of Torque-Based Engine Management System for Range Extender Engine**  
Yao-Chung Liang, Yu-Wen Peng, Yuh-Yih Wu, Hsien-Chi Tsai (National Taipei University of Technology)
- 20139065 **Detect the Misfire of Motorcycle Engine with Wide Band Oxygen Sensor**  
Yameogo Amadou, Wu Chang Tai, Jiang Yu Cheng, Lu. Jau Huai (National Chung Hsing University)
- 20139066 **Providing Calibration Tools for Cost Sensitive Electronic Control Systems.**  
Philip S Tobin (EFI Analytics, Inc.)
- 20139074 **An Optimised Hardware for a Cost-Effective Three-Phase Starter-Generator System**  
Surajit Das, salil Joshy (TVS Motor Company Ltd )
- 20139094 **Implementation of software and hardware solutions for battery less systems.**  
Marco Cortecchia, Claudio Gonella (Mectronik)

## ENGINE TECHNOLOGY

Organizers: Hideyuki Okumura (Yamaha Motor Co., Ltd.), Minoru Iida (Yamaha Motor Co., Ltd.), Nagesh Mavinahally (Mavin Tech), Sebastian Strauss (Stihl)

- 20139015 **High Performance Characteristics of the Motorcycle Powered by a Four-Stroke Small 50cc-125cc Engine at the Expense of a Positive Displacement Air Compressor as a Supercharger**  
Konstantin Evgenievich Starodetko, Simon Simand, Tcheslav Bronislavovich Drobychevskj (International Academy of Information Technologies (IAIT)), Aliaksandr Aliaksandrovich Vitsiaz (Bereza Motor Rebuilt Plant), Vladimir Jurievich Belyaev, Konstantin Nikolaevich Yurchuk (International Academy of Information Technologies (IAIT)), Dmitry Vasilievich Kuzmenkov (Tascotrade Company)
- 20139032 **Extension of Lean Burn Range by Intake Valve Offset**  
Hideki Saito, Takamori Shirasuna, Tomokazu Nomura (Honda R&D Co., Ltd.)
- 20139039 **Proof-of-Concept Development and Evaluation of a 6-Cycle Engine System.**  
Gerald E Kashmerick (Kashmerick Engine Systems LLC)
- 20139060 **An Investigation on Cranking Torque Reduction for Four-Stroke Motorcycle Engine**  
Yong-Jing Zou, Yuh-Yih Wu, Hsien-Chi Tsai, Hsin-Hong Lin (National Taipei University of Technology)
- 20139081 **Numerical Investigations of Overexpanded Cycle and Exhaust Gas Recirculation for a Naturally Aspirated Lean Burn Engine**  
Denis Neher, Maurice Kettner, Fino Scholl (University of Applied Sciences Karlsruhe), Markus Klaisle, Danny Schwarz (SenerTec Kraft-Wärme-Energiesysteme GmbH), Blanca GiménezOla-varria (University of Valladolid)
- 20139084 **Development of an Novel Non-eccentric Rotational Engine “Ishino Engine” (Fundamental Configuration and Characteristics)**  
Yojiro Ishino, Keisuke Teshima, Hiroyuki Fujii, Yusaku Yamamoto, Yu Saiki (Nagoya Institute of Technology)
- 20139086 **The Study of Intake System and Modifications for a Piston Type Compressed Air Engine**  
Chih Yung Huang, Chih Jie Yu, Yuan Wei Wang, Cheng Kuo Sung (National Tsing Hua University)
- 20139092 **Modular Design and Application for a New V2 Engine**  
Ben Yang, Lance Hsu, wsliaw Liaw (China Engine Corporation)
- 20139093 **Re-Starting Characteristics of a Motorcycle Engine as Performing an Idle-stop Approach**  
Yu Fu Peng, Horng Rong Fang, Chiu Wei Cheng, Wu Dong Han (Kun Shan University), Tsai Chien Hsiung, Tseng Chyuan Yow (Pingtung University of Science and Technology), Liao Cheng Hsun (Kun Shan University)
- 20139104 **Development of New Industrial Spark Ignited Bi-Fuel Engine**  
Koji Fujimura, Shinji Kishi, Takeshi Kawasaki, Takahiro Tokunaga, Kentaro Shiraishi (Kubota Corporation)
- 20139105 **Investigation on Friction Behaviour of a Single Cylinder Gasoline Engine**  
T Sukumaran Vipin, Joseph Sumith (TVS Motor Company Ltd)
- 20139114 **Effects of EGR on Knock-level of Small Spark Ignition Engine with Gasoline-base Kerosene-mixed Fuel**  
Hiroshi Enomoto (Kanazawa University), Hirotaka nozue (Shizuoka Institute of Science and Technology), Noboru Hieda (Kanazawa University)
- 20139118 **Improving the Fuel Economy of Supercharged Engine**  
Yoshiki Fukuhara, Takashi Suzuki (Sophia University)

- 20139153 **D-Cycle (Differential-Stroke Cycle) Scooter Engines, 50cc and Smaller**  
Miin Jeng Yan (Yan Engines, Inc)
- 20139160 **The Numerical Investigation on the Performance of Rotary Engine with Leakage, Different Fuels and Recess Sizes**  
DUN ZEN JENG, Ming-June Hsieh, Chih-Chuan Lee (Chung-Shan Institute of Science and Technology), Yu Han (National Chung Hsing University)
- 20139161 **The Intake And Exhaust Pipe Effect on a Rotary Engine Performance**  
DUN ZEN JENG, Ming-June Hsieh, Chih-Chuan Lee (Chung-Shan Institute of Science and Technology), Yu Han (National Chung Hsing University)
- 20139169 **Predictive Simulation of PFI Engine Combustion and Emission**  
Hisashi Goto, Takeshi Morikawa, Mineo Yamamoto, Minoru Iida (Yamaha Motor Co., Ltd.)

## FUEL SUPPLY SYSTEMS

Organizers: Minoru Iida (Yamaha Motor Co., Ltd.), Peter Kaub (Re-Sol, LLC), Dan Nehmer (John Deere)

- 20139047 **Development of Plastic Hose for Fuel which Reduces Pressure Pulsation**  
Kota Nakauchi, Atsushi Ito, Takeshi Ohara, Hideaki Kato, Hisayoshi Ogura, Shosuke Suzuki (Honda R&D Co., Ltd.)
- 20139122 **Evaluation of Value Proposition and Interactive Features for Motorcycles with Electronic Fuel Injection for Indian Market**  
PRADEEP R, Pramod R (Bosch Limited, India), Ajay Bola Shetty (Robert Bosch Engineering and Business Solutions Limited), Panduranga Prabhu (Bosch Limited, India)
- 20139126 **Numerical Simulation of Fuel Temperature Distribution in Local-contact Microwave-heating Injector**  
Lukas Kano Mangalla, Hiroshi Enomoto (Kanazawa University)
- 20139128 **Evaluating the Behaviour of Carburetted Engines Using a Fast Response Fuel Consumption Measurement Device with Minor Impact on Engine Characteristics**  
Juergen Tromayer, Gerd Neumann, Roland Kirchberger, Alexander Trattner (Graz University of Technology), Hans Van den Hoevel (AVL Deutschland GmbH)
- 20139141 **An Advance Fuel System Unit for Gasoline Single Cylinder Engine**  
François Jean Brun (Synerject)
- 20139167 **Measurement of Fuel Liquid Film under the Different Injection Pressure**  
Keiji Muramatsu (SUZUKI MOTOR CORPORATION)



## HCCI

Organizers: Tomoo Shiozaki (Honda R&D Co., Ltd.), Yasuo Moriyoshi (Chiba University),  
Jaal Ghandhi (University of Wisconsin-Madison), William Attard (MAHLE Powertrain)

- 20139031 **A Study of the Effects of Varying the Compression Ratio and Fuel Octane Number on HCCI Engine Combustion Using Spectroscopic Measurement**  
Akira Terashima, Naoya Ito, Tomoya Tojo (Nihon University Graduate School), Akira Iijima, Koji Yoshida, Hideo Shoji (Nihon University)
- 20139054 **Influence of Fuel Properties on Indicated Thermal Efficiency of Premixed Diesel Combustion**  
Qian Xiong, Kazuki Inaba, Hideyuki Ogawa, Gen Shibata (Hokkaido University)
- 20139069 **Model-Based Combustion Control of a HCCI Engine with Re-Breathing EGR System**  
Yusuke Nakamura, Fumiya Ando, Jung Dong-Won, Norimasa Iida (Keio University)
- 20139070 **A Study of Fuel and EGR Stratification to Reduce Pressure-Rise Rates in a HCCI Engine**  
Kyohei Ozaki, Dong-Won Jung, Norimasa Iida (Keio University)
- 20139083 **Potential of Stratification Charge for Reducing Pressure-Rise Rate in HCCI Engines Analysis Elementary Reaction Calculation and Experiments Using Rapid Compression Machine**  
Shota Ito, Hiroki Ikeda, Dong-Won Jung, Norimasa Iida (Keio University)
- 20139090 **A Parametric Study of HCCI Combustion Processes – The Effects of EGR and Boost Pressure for Single- and Two-Stage Ignition Fuels**  
Dong-Won Jung, Norimasa Iida (Keio University)
- 20139098 **A Study of Controlled Auto Ignition Engine Fueled with Natural Gas**  
Hibiki Koga, Toshiro Kiura (Honda R&D Co.,Ltd.)
- 20139101 **Dynamic Modeling of a Motorbike HCCI Engine**  
Lawrence Lai, Wen-Bin Cho, Yu-Teng Chang, Chin-Jui Chiang (National Taiwan University of Science and Technology)
- 20139109 **Combustion Timing Control of a Single-Cylinder HCCI Engine with External EGR**  
Xue-Ru Lu, Chia-Jui Chiang (National Taiwan University of Science and Technology), Po-Hsiu Lu, Jun-Yi Wu (CHINA ENGINE CORPORATION)
- 20139136 **Utilization of CNG in HCCI Engine**  
Shivank Garg, Saurabh Puri, Amarjot Singh Parmar, Naveen Kumar (Delhi Technological University)
- 20139166 **Optical Investigation of the Knocking in an HCCI Engine**  
Akira Iijima (Nihon University), Naoya Itoh, Akira Terashima, Tomoya Tojo (Nihon University Graduate School), Mitsuaki Tanabe, Koji Yoshida, Hideo Shoji (Nihon University)
- 20139171 **A Study of Supercharged HCCI Combustion Using In-cylinder Spectroscopic Techniques and Chemical Kinetic Calculation**  
Yasuhide Abe, Yuma Ishizawa, Go Emori, Mitsuo Asanuma (Nihon University Graduate School), Akira Iijima, Hideo Shoji (Nihon University), Kazuhito Misawa, Yusuke Kiguti, Hiraku Kojima, Shunichi Mori, Kenjiro Nakama (SUZUKI MOTOR CORPORATION)
- 20139172 **Evaluations of the Performance of a Boosted HCCI Gasoline Engine with Blowdown Supercharge System**  
Shunsuke Gotoh, Tatsuya Kuboyama, Yasuo Moriyoshi (Chiba University), Koichi Hatamura (Hatamura Engine Research Office), Toshio Yamada (IDAJ Co.,LTD.), Junichi Takanashi, Yasuhiro Urata (Honda R&D Co., LTD.)

## HYBRIDS, ELECTRIC DRIVES AND FUEL CELLS

Organizers: Yasuyuki Muramatsu (Yamaha Motor Co., Ltd.), Glenn Bower (University of Wisconsin-Madison), Jay Meldrum (Michigan Technological University)

- 20139006 **Development of a New Regenerative Braking System**  
Takahiro Noyori, Setsuko Komada, Takuro Awakawa (SUZUKI MOTOR CORPORATION)
- 20139009 **Design and Analysis of Single-Cylinder 22 HP Hybrid Powertrain for Motorcycles**  
Chun Hsien Wu, Wei Ming Su, Pei Jen Wang (National Tsing Hua University)
- 20139018 **Self-Learning Regenerative Braking Controller Design for Electric Vehicles**  
Chien-An Chen (Automotive Research & Testing Center)
- 20139035 **A Research on the Application Layer Protocols of Wireless Communication of Electric Vehicle**  
Steven Lai (Automotive Research & Testing Center)
- 20139045 **Application of Nickel-Iron Alloy Coated Torque Sensor to Pedal-Equipped Electric Vehicles**  
Kentaro Ikegami (Honda R&D Co.,Ltd.)
- 20139071 **Development of Belt-Driven Starter-Generator Control Strategy for Hybrid Electric Vehicle**  
Qing Lin Chen (China Engine Corporation)
- 20139072 **Development of the Idle-Stop Starter with Pre- and Post-Engage Pinion Gear**  
Chih Wei Hu (China Engine Corporation)
- 20139087 **Two-Speed Automatic Transmissions of Electric Scooters**  
Kuo-ching Chen, Ching-ya Chen, Keng-tso Chuang, Han-hsueh Liu (China Motor Corporation)
- 20139089 **Optimal Control Strategy of a Generation Set in a Range Extended Electric Vehicle**  
Chien-Hsun Wu, Jian-Feng Tsai (Industrial Technology Research Institute), Yi-Hsuan Hung (National Taiwan Normal University), Wen-Shu Chiang, Han-Ying Wang (Industrial Technology Research Institute)
- 20139099 **Heat Transfer Analysis of Electric Motorcycle Propulsion System Power Module**  
Kou-Tzeng Frank Lin, Shin-Hung vernon Chang, Jian-Feng Jeff Tsai, Yung-Chun Wang, Por-Tseng Sung (Industrial Technology Research Institute)
- 20139119 **The Development of Contactless Torque Sensor for Electric Power Assist Bicycles**  
Chau Chih Yu, Vector Yeh (Automotive Research & Testing Center)
- 20139120 **Study of Different Arrangement of Magnets for the Purpose of Reducing Magnet Usage in Designing an Integrated Starter/Generator for Hybrid Vehicles**  
Jung-Ho Cheng, Kai-Fan Hsueh (National Taiwan University), Yi-Shen Chen, Andrew Lu (CEC Engine Co., Ltd.)
- 20139132 **Single Cylinder 25kW Range Extender as Alternative to a Rotary Engine Maintaining High Compactness and NVH Performance**  
Christian Hubmann (AVL)

## LUBRICANTS

Organizers: Hirotaka Kurita (Yamaha Motor Co., Ltd.), Brent Dohner (Lubrizol Corporation)

- 20139013 **Study of Lower Viscosity Motorcycle Engine Oils for Fuel Saving (3) -Effect of Polymer for Anti-fatigue Performance-**  
Nobuaki Watanabe, Akira Mitarai (Idemitsu Kosan Co.,Ltd.)
- 20139033 **Highly Efficient, Low Viscosity Lubricantfor Sport Motorcycle Applications – Fuel Economyand Durability Testing**  
Gianluigi Zoli, Cliff Newman, May Turner (Castrol Ltd)
- 20139063 **Improving Fuel Efficiency of Motorcycle Oils**  
Brent Dohner, Alex Michlberger, Chris Castanien (The Lubrizol Corporation), Ananda Gajanayake (Lubrizol Japan Ltd.), Sumitaka Hirose (Honda R&D Co., Ltd.)

## MATERIALS

Organizers: Hirotaka Kurita (Yamaha Motor Co., Ltd.), David Palmer (BRP)

- 20139012 **High Performance Polymers for Small Engine Applications**  
Stephen Thomas Gurchinoff, Andre Carvalho, Brian Stern (Solvay Specialty Polymers)
- 20139029 **Plasma Spraying to the Cylinder of Outboard Motor**  
Hideya Kumagai (Yamaha Motor Co., Ltd.)
- 20139049 **Corrosion Resistance Improvement Technology of Anodic Oxide Films on Aluminum Alloy That Uses a Lithium Hydroxide Solution**  
Masahiro Fujita, Hiroomi Tanaka, Hitoshi Muramatsu (SUZUKI MOTOR CORPORATION), Sachiko Ono, Hidetaka Asoh (Kogakuin University)
- 20139082 **Application of Vacuum Assisted Carbide Dispersion Carbonitriding to Connecting Rods**  
Tsuyoshi Kubota, Hirofumi Kawata (Yamaha Motor Co., Ltd.)
- 20139110 **Creep Resistance of 2024 Aluminum Alloy**  
Le Min Wang, Chih Jrn Tsai (National Defense University)
- 20139111 **Development of Die-cast Alloy for Motorcycle Body Parts Using Recycled Aluminum**  
Yukihide Fukuda (Honda R&D Co., Ltd.)

## MEASUREMENT AND SIMULATION

Organizers: Tadao Okazaki (Kubota Corporation), Stephan Schmidt (Graz University of Technology)

- 20139010 **Effect of thickness ratio on fatigue and FEA life estimation criteria in welded structures**  
Govardan Daggupati (TVS Motor Company Limited)
- 20139023 **A Comparative Study on Map Based and Closed Loop Simulation Model of Coolant Circuit for a Two Wheeler Liquid Cooled Engine**  
Karthikeyan N, Anish A Gokhale (Mahindra 2 Wheelers Limited)
- 20139034 **Stress Prediction of Engine Part resulting from an Engine Vibration**  
Masahiro Akei, Kouichi Kouzato, Toshiyuki Uyama (YANMAR Co.,Ltd.)
- 20139043 **Development of Strength Analysis Method for Off-Road Motorcycle Radiator Assembly**  
Masakazu Yamaya, Akihiro Chiba (Yamaha Motor Co., Ltd.)
- 20139044 **Application of FEM Analysis Using Loads Predicted from Strain Measurement in Motorcycle Frame Development**  
Mitsuo Hirai, Takashi Ueno, Youhei Iwaki, Shoujirou Oohama (Yamaha Motor Co., Ltd.)

- 20139079 **CFD Scavenging Simulation & Verification of a Sequentially Stratified Charged Two-Stroke Engine**  
Mikael Lars Bergman, Niklas Enander, Mats Lawenius (Husqvarna AB)
- 20139096 **Development of Simulation Method for Estimation of Damages to Motorcycle Engine Parts from Tip Over in Stationary State**  
Shigesato Nakamura, Hisayoshi Ogura, Kohta Noguchi, Yasuhiro Miyazaki (Honda R&D Co., Ltd.)
- 20139124 **Real World Operation of a Standard Lawn Mower Engine from a Scientific Perspective**  
Hermann Edtmayer, Alexander Trattner, Stephan Schmidt, Roland Kirchberger (Graz University of Technology), Jakob Trentini, Johann Weiglhofer (Viking GmbH)
- 20139125 **Start Stop Strategies For 2 Wheelers In The Emerging Markets**  
Bernd Heinzmann (Robert Bosch GmbH), Prashanth Anantha (Robert Bosch India Ltd), Simon Scholz (Robert Bosch GmbH), Pramod R (Robert Bosch India Ltd)
- 20139127 **Development of a thermal model within a complete vehicle simulation for motorcycles and powersport applications**  
Paul Rieger, Joachim Girstmair, Stephan Schmidt, Raimund Almbauer, Roland Kirchberger (Graz University of Technology)
- 20139157 **Prediction of the Cavitation Effect on the Flow Around the Outboard Motor Propeller Blade Hydrofoil Section Using CFD**  
Akira Kamiya (Yamaha Motor Co., Ltd.)
- 20139162 **Quasi-Steady Evaluation Method for Motorcycle Mode Fuel Consumption with One Dimensional Engine Simulation**  
Masahito Saitou, Motohiko Nishimura (Kawasaki Heavy Industries, Ltd.)
- 20139170 **Trends and Challenges for Two Wheeler ECU Software Development from Road to Math to Lab**  
Marcel Ovidiu Achim (ETAS GmbH)

## NVH TECHNOLOGY

Organizers: Masahiko Sugimoto (Kubota Corporation), Ken Kicinski (Harley-Davidson Motor Company)

- 20139001 **Application of Novel Micro-Grooved Elements to Small Engine Silencer**  
Fabio Auriemma, Hans Rämmal, Jüri Lavrentjev (Tallinn University of Technology)
- 20139121 **Energy-Decoupled Analysis for Isolating Vibration Design of a Range Extender Generator-set**  
Jung-Ho Cheng, Shin-Yuen Fan (National Taiwan University), Andrew Lu, Shih-Lin Lin (CEC Engine Co Ltd)
- 20139148 **The Trial to Quantify the Feeling of Sound & Vibration (“Kodo-Kan”) for the Motorcycle.**  
Kenta Suzuki, Hitoshi Uchida, Shogo Kida, Tsutomu Sonehara, Keisuke Namekawa (SUZUKI MOTOR CORPORATION)
- 20139164 **Development of Intake Sound Control Technique for Sports-Type Motorcycles**  
Noritaka Nakamura, Kenta Matsubara, Youta Katsukawa, Kenichi Furuhashi (Kawasaki Heavy Industries, Ltd.)

## TWO STROKE ENGINE

Organizers: Tomoo Shiozaki (Honda R&D Co., Ltd.), Scott Miers (Michigan Technological University), Brian Callahan (Achatas Power, Inc.)

- 20139036 **Development of Test Bench and Characterization of Scaling Effects on Losses and Performance in Small Internal Combustion Engines**  
Joseph K Ausserer (United States Air Force), John-Russell Groenewegen (University of Dayton Research Institute), Paul Litke (Air Force Research Laboratory), Keith Grinstead (Innovative Scientific Solutions Incorporated)
- 20139078 **Engine Characteristics of a 45 cc Stratified Two-Stroke Powerhead**  
Mikael Lars Bergman (Husqvarna AB)
- 20139133 **An Innovative Two-Stroke Twin-Cylinder Engine Layout for Range Extending Application**  
Andrea Abis, Franz Winkler, Christian Schwab, Roland Kirchberger, Helmut Eichlseder (Graz University of Technology)
- 20139143 **Is a High Pressure Direct Injection System a Solution to Reduce Exhaust Gas Emissions in a Small Two-Stroke Engine?**  
Markus Bertsch, Kai Willi Beck, Ulrich Spicher (MOT GmbH)

## VEHICLE DYNAMICS AND SAFETY

Organizers: Masayuki Baba (Honda R&D Co., Ltd.), Derek Cleasby (Bosch)

- 20139004 **Steering Effort Reduction by DC Motor Assisted Steering Mechanism in Three Wheeled Vehicle**  
Varunprabhu Ramaswamy, Himadri B Das, Nagarjun Reddy Mosali (TVS Motor Company), Raghu V Prakash, Sujatha Chandramohan (IIT Madras)
- 20139026 **Effects of the Compensated Control of Gradient for the Haptic Throttle Grip**  
Manabu Fujito, Yasunobu Harazono, Kouji Sakai (Yamaha Motor Co., Ltd.)
- 20139106 **Development of New Concept Two-Wheel Steering System for Motorcycles**  
Tetsuya Kimura, Yusuke Ando, Eiichiro Tsujii (Yamaha Motor Co., Ltd.)
- 20139151 **Dynamic Analysis of Anti Roll Bar for 3- Wheeled Vehicle with Independent Trailing Arm Suspension**  
GSG Ravikanth, Nagarjunreddy M (TVS Motor Company LTD)
- 20139165 **Development of Technology for Measuring Dynamic Deformation of Motorcycle Bodies**  
Yasushi Nakamura (Kawasaki Heavy Industries, Ltd.)
- 20139173 **An Evaluation of Injury Risks and Benefits of a Crush Protection Device (CPD) Concept for All-Terrain Vehicles (ATVs)**  
John W Zellner, Scott A Kebschull, R Michael Van Auken (Dynamic Research, Inc.)
- 20139175 **Testing of ABS Systems for 2-Wheelers via Hardware in the Loop Technology**  
Tobias Kreuzinger, Steven Shenker, Rosana Yamasakai (ETAS K. K.)

## VEHICLE COMPONENTS

Organizers: Masayuki Baba (Honda R&D Co., Ltd.), Robert Kee (Queen's University Belfast)

- 20139056 **Design and Analysis of Multi-Path Continuously-Variable Transmissions for Scooters**  
Tyng Liu, Po-Yu Shih, Hsien-Yu Kuo (National Taiwan University)
- 20139158 **Material and Geometric Optimization of Cast Handle Bar Subjected to Shock Loads**  
Gangi Reddy Dumpala, M Nagarjun Reddy (TVS Motor Company Ltd)