The 24th Small Engine Technology Conference (SETC2018)
Technical Session Paper List

Orange : The best paper
Yellow : Nine high quality papers
Green : Five presentation awards

Tuesday, November 6

HCCI

Session Code:SETC11 Room Aristoteles 1 & 2

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, Fiat Chrysler Automobiles; Jaal B. Ghandhi, Univ. of Wisconsin Madison; Akira Iijima, Nihon University; Ezio Mancaruso, Istituto Motori CNR; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Chairpersons - *Akira Iijima, Nihon University; Adrian Irimescu, Istituto Motori CNR*

Time	Paper No.	Title
10:30 a.m.	2018-32-0015	***Diesel CAI Combustion in Uniflow Scavenging 2-Stroke Engine Provided with Port Fuel Injection Device*** *Mashu Kurata, Yoshikazu Yamada, Honda R&D Co., Ltd.*
11:00 a.m.	2018-32-0016	***Effects of In-Cylinder Flow and Stratified Mixture on HCCI Combustion in High Load*** *Kei Yoshimura, Suzuki Motor Corporation; Shogo Watanabe, Kazuya Ogawa, Tatsuya Kuboyama, Yasuo Moriyoshi, Chiba University*
11:30 a.m.	2018-32-0017	***Numerical Study of the Effect of Injection Strategy and Compression Ratio on Gasoline/Diesel Fueled RCCI Engine*** *Muhammad Asyraf Mohd Azmi, Mohd Radzi Abu Mansor, Wan Mohd Faizal Wan Mahmood, Universiti Kebangsaan Malaysia; Taib Iskandar Mohamad, Yanbu Industrial College*

Alternative Fuels

Session Code:SETC2 Room Aristoteles 1 & 2

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 - *Luca Marchitto, Simona Silvia Merola, Istituto Motori CNR; Tohru Nakazono, Tohru Nakazono, Yanmar Co., Ltd.; Paul Richards; Cinzia Tornatore, Istituto Motori CNR; Hiroya Ueda, Honda R&D Co., Ltd.*

Chairpersons - *Simona Silvia Merola, Istituto Motori CNR; Hiroya Ueda, Honda R&D Co., Ltd.*

Time	Paper No.	Title
1:30 p.m.	2018-32-0058	***Influences of Butanol Blends on Combustion and Emissions of a Small SI Engine*** *Jan Czerwinski, Martin GÃ¼del, Danilo Engelmann, University of Applied Sciences Biel-Bienne; Martin Pechout, Technical University of Liberec*
2:00 p.m.	2018-32-0059	***Evaluation of Atomization Timing and Optimal Water Content for an Emulsified Fuel Droplet*** *Junichi Aoki, Junya Tanaka, Kogakuin University*
2:30 p.m.	2018-32-0055	***Durability Improvement of Cylinder Head in Alternate Fuel Engines*** *Balasubramanian Thiruvallur Loganathan, Duraikkannan Elumalai, Phaneesh Kumaraswamy, V Lakshminarasimhan, TVS Motor Co., Ltd.*

Emissions

Session Code:SETC5 Room Aristoteles 1 & 2

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 - *Hiromi Deguchi, Suzuki Motor Corp.; Silvana Di Iorio, Istituto Motori CNR; Leonid Tartakovsky, Technion Israel Inst. of Technology*

Chairpersons - *Hiromi Deguchi, Suzuki Motor Corp.; Pascal Richard Piecha, Graz University of Technology*

Time	Paper No.	Title
3:30 p.m.	2018-32-0068	***Impact of Secondary Air Injection on Small Engine Motorcycle Intended for BS VI Applications*** *Abhijith Sabu, Pramod Reddemreddy, Bosch Limited; Manojkumar Parmar, Robert Bosch Eng & Bus Solutions Pvt Ltd*

Environmental Impacts

Session Code:SETC6 Room Aristoteles 1 & 2

This session focuses on general topics including fuel composition, aftertreatment, controls and environmental impacts.

Organizers - *Jan Czerwinski, Univ. of Applied Sciences Biel-Bienne; Hiromi Deguchi, Suzuki Motor Corp.; Silvana Di Iorio, Istituto Motori CNR*

Chairpersons - *Hiromi Deguchi, Suzuki Motor Corp.; Pascal Richard Piecha, Graz University of Technology*

Time	Paper No.	Title
4:00 p.m.	2018-32-0069	**Study on the Prevention of Face-Plugging of Diesel Oxidation Catalyst (DOC)** *Kota Nakano, Hiroaki Okano, Katsushi Inoue, KUBOTA Corporation; Akira Obuchi, National Institute of AIST*
4:30 p.m.	2018-32-0070	**Experimental Data of a Small-Size Gas ICE Driven Heat Pump (GHP) and Comparison of the Environmental Performance with an Electric Heat Pump** *Sandro Magnani, Alessandro Bellissima, Yanmar R&D Europe; Hiroshi Azuma, Yanmar Co. Ltd.; Piero Danti, Yanmar R&D Europe*

Diesel Engine

Session Code:SETC4 Room Hegel 1 & 2

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 - *Brian J. Callahan, Achates Power Inc.; Paul Litke, USAF; Ezio Mancaruso, Istituto Motori CNR; Masahiko Sugimoto, Kubota Corp.; Cinzia Tornatore, Istituto Motori CNR*

Chairpersons - *Glenn Bower, University of Wisconsin-Madison; Koji Yoshida, Nihon University*

Time	Paper No.	Title
10:30 a.m.	2018-32-0064	**Development of Horizontal Water Cooled Diesel Engine to Achieve High Power Density** *Yoshinobu Komai, Yusuke Takashima, Tsukasa Fujiwara, Hisao Okamoto, Minoru Kawahara, KUBOTA Corporation*
11:00 a.m.	2018-32-0066	**A Numerical Study on Correlation of Chemiluminescent Species and Heat Release Distributions Using Large Eddy Simulation** *Beini Zhou, Takayuki Adachi, Jin Kusaka, Waseda University; Tetsuya Aizawa, Meiji University*

Materials

Session Code:SETC14 Room Hegel 1 & 2

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 - *Mark Degler, Mercury Marine; Aki Kodai, Kawasaki Heavy Industries, Ltd.; David Elijah Palmer, Bombardier Recreational Product Inc.*

Chairpersons - *Aki Kodai, Kawasaki Heavy Industries, Ltd.; Jay Meldrum, Michigan Technological Univ.*

Time	Paper No.	Title
1:30 p.m.	2018-32-0026	**Development of Joint Sheet Gasket with Reduced Amount of Aramid Fibers** *Toshiyasu Nagai, Honda R&D Co., Ltd.; Yoshiaki Hamada, Kentaro Yamashita, Koji Akiyoshi, Nippon Leakless Corporation; Shinsuke Mochizuki, Honda R&D Co., Ltd.*
2:00 p.m.	2018-32-0027	**Enhancement of Thermal Fatigue Strength by the Addition of Calcium to Hypoeutectic Aluminum-Silicon Alloys** *Kentaro Watanabe, Kojiro Motoyama, Tomokazu Watanabe, Kazuhiro Ishihara, Fujio Maeda, Kawasaki Heavy Industries, Ltd.*

Engine Technology

Session Code:SETC9 Room Hegel 1 & 2

Advanced engine technologies, analysis and proof of the concepts, design, and development for thermal efficiency, performance, and emissions, including the cycle simulation.

Organizers - *Yuji Araki, Yamaha Motor Co., Ltd.; Francesco Catapano, Istituto Motori CNR; Nagesh Mavinahally, Meggitt Control Systems; Yutaka Nitta, Suzuki Motor Corp.*

Chairpersons - *Yuji Araki, Yamaha Motor Co., Ltd.; Roland Kirchberger, Graz University of Technology*

Time	Paper No.	Title
3:30 p.m.	2018-32-0078	**A Study of Friction Behavior of a Single Cylinder Gasoline Engine** *Sumith Joseph, Jayajothi Johnson, Mohan D Umate, TS Vipin, TVS Motor Co., Ltd.*
4:00 p.m.	2018-32-0079	**Study of a Turbocharged Engine for Motorbike Application** *Vincenzo Bevilacqua, Giovanni Corvaglia, Klaus Fuoss, Matthias Penzel, Porsche Engineering Services GmbH*
4:30 p.m.	2018-32-0082	**Model-Based Approach for Engine Performance Optimization** *Davide Bartoccini, Ducati Motor Holding SpA - Ducati Corse; Peter Niedermaier, Helmut Peter Grassberger, AVL LIST GmbH*
5:00 p.m.	2018-32-0083	**Preparing BMW Motorradâ€™s Boxer Engine for the Future: Improving Performance, Driveability and Efficiency While Fulfilling Future Emission Standards** *Maximilian Oppelt, Frank Schwarz, RÃ¼diger Eibl, Pedro Gaitan, BMW Motorrad*

Fuel Supply Systems

Session Code: SETC10 Room Rheinlandsaal Ballroom A & B

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 - *Luca Marchitto, Istituto Motori CNR; Michihisa Mick Nakagawa, Kawasaki Heavy Industries, Ltd.*

Chairpersons - *Kai W. Beck, Andreas Stihl AG & Co. KG; Michihisa Mick Nakagawa, Kawasaki Heavy Industries, Ltd.*

Time	Paper No.	Title
10:30 a.m.	***2018-32-0012***	***Effects of Port Injection Specifications on Air-Fuel Ratio and Emission Behavior under Transient Operation*** *Yoshinori Nakao, Yuta Uchiyama, Atsushi Hisano, Masahito Saitou, Katsumi Sobakiri, Kawasaki Heavy Industries, Ltd.*
11:30 a.m.	***2018-32-0014***	***Effect of Fuel Injection Timing on the Mixture Preparation in a Small Gasoline Direct-Injection Engine*** *Jubin Jose, Anil Parsi, Indian Institute of Technology, Madras; Shrinidhi Shridhara, TVS Motor Co Ltd.; Mayank Mittal, A Ramesh, Indian Institute of Technology, Madras*

Small and Micro Combined Heat and Power (CHP) Systems

Session Code: SETC21 Room Rheinlandsaal Ballroom A & B

The session includes research papers focused on CHP applications and technologies up to an electrical output of 50 kW (combustion technologies like spark ignition and diesel engines, Stirling power units, micro turbines, ORC, fuel cells, etc.) fueled by natural gas, light oil gas, biogas, rape oil, RME and other alternative fuels.

Organizers - *Giovanni Ferrara, Univ. of Florence; Adrian Irimescu, Istituto Motori CNR; Tohru Nakazono, Tohru Nakazono, Yanmar Co., Ltd.*

Chairpersons - *Giovanni Ferrara, Univ. of Florence; Tohru Nakazono, Yanmar Co., Ltd.*

Time	Paper No.	Title
1:30 p.m.	***2018-32-0061***	***Quasi-Dimensional Simulation of Downsizing and Inverter Application for Efficient Part Load Operation of Spark Ignition Engine Driven Micro-Cogeneration Systems*** *Adrian Irimescu, Francesco Catapano, Silvana Di Iorio, Simona Merola, Paolo Sementa, Bianca Maria Vaglieco, Istituto Motori CNR*
2:00 p.m.	***2018-32-0063***	***Experimental Investigation of the Operations of a Small-Size ICE- Based CHP in an Italian Industrial Context*** *Sandro Magnani, Alessandro Bellissima, Yanmar R&D Europe; Hiroshi Azuma, Yanmar Co. Ltd.*

Lubricants

Session Code: SETC13 Room Rheinlandsaal Ballroom A & B

Lubricants, Lubricant Performance, Lubricant Additives, Tribology, Friction, and Wear

Organizers - *Mike Marcella, Maxima Racing Oils; Yuji Mihara, Tokyo City University; Tohru Nakazono, Yanmar Co., Ltd.*

Chairpersons - *Mike Marcella, Mike Marcella, Maxima Racing Oils; Yuji Mihara, Tokyo City University*

Time	Paper No.	Title
4:00 p.m.	***2018-32-0022***	***A Development of Measurement System for Piston Ring Sliding Surface Pressure*** *Kazuya Mochizuki, Yosuke Watanabe, Michiyasu Owashi, Yuji Mihara, Tokyo City University*
4:30 p.m.	***2018-32-0021***	***Developing Efficient Motorcycle Oils*** *Yanshi Zhang, Jason Hanthorn, Mark Wilkes, Jack Chamberlain, Kieron Donnelly, Satya Prakash Pathak, Kapil Telang, Supriyo Bhattacharya, Ron Dunfee, The Lubrizol Corporation*
5:00 p.m.	***2018-32-0024***	***The Influence of Friction Modifiers in Fully Formulated Motorcycle Engine Oils*** *David Gillespie, Gareth Moody, Aitziber Viadas, Croda Europe Ltd.*

Wednesday, November 7

Advance Combustion (Part 1 of 3) *Session Code:SETC1 Room Aristoteles 1 & 2*

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, Fiat Chrysler Automobiles; Jaal B. Ghandhi, Univ. of Wisconsin Madison; Akihito Kasai, Honda R&D Co., Ltd.; Simona Silvia Merola, Istituto Motori CNR; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Chairpersons - *Stephan Jandl, Graz University of Technology; Hibiki Koga, Honda R&D Co., Ltd.*

Time	Paper No.	Title
10:30 a.m.	2018-32-0006	**Study of Discharge under Swirl Flow and Combustion Conditions** *Takahiro Inoue, Taichiro Tamida, Mitsubishi Electric Corp.*
11:00 a.m.	2018-32-0009	**Mixture Formation and Combustion Evaluation of a Motorcycle Engine Concept Equipped with One Fuel Injector for Each Intake Valve** *Pedro Gaitan, Frank Schwarz, RÃ¼diger Eibl, BMW Motorrad*
11:30 a.m.	2018-32-0005	**CFD Analysis of a Port Fuel Injection IC Engine to Study Air-Fuel Mixture Preparation and Its Impact on Hydrocarbon Emission and Mixture Homogeneity in Combustion Chamber** *Arivazhagan G B, Manish Garg, TVS Motor Co., Ltd.*

Advance Combustion (Part 2 of 3) *Session Code:SETC1 Room Aristoteles 1 & 2*

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, Fiat Chrysler Automobiles; Jaal B. Ghandhi, Univ. of Wisconsin Madison; Akihito Kasai, Honda R&D Co., Ltd.; Simona Silvia Merola, Istituto Motori CNR; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Chairpersons - *Hibiki Koga, Honda R&D Co., Ltd.; Simona Silvia Merola, Istituto Motori CNR*

Time	Paper No.	Title
1:30 p.m.	2018-32-0004	**Experimental Study of Spark-Assisted Auto-Ignition Gasoline Engine with Octagonal Colliding Pulsed Supermulti-Jets and Asymmetric Double Piston Unit** *Yuuki Isshiki, Ken Naitoh, Yuichi Onuma, Soichi Ohara, Daisuke Arai, Yutaka Machida, Hajime Ito, Yoshiki Kobayashi, Takahiro Suzuki, Yusuke Tada, Waseda University*
2:00 p.m.	2018-32-0007	**A Study on Accomplishing Lean Combustion by Multistage Pulse Discharge Ignition Using an Optically Accessible Engine** *Yosuke Abe, Masaya Iimura, Takuma Furusho, Kotaro Takeda, Akira Iijima, Nihon University; Taichiro Tamida, Takahiro Inoue, Mitsubishi Electric Corp.*
2:30 p.m.	2018-32-0011	**Study on Realization of Dual Combustion Cycle by Lean Mixture and Direct Fuel Injection** *Hikaru Yamada, Koji Yoshida, Nihon University*

Advance Combustion (Part 3 of 3) *Session Code:SETC1 Room Aristoteles 1 & 2*

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, Fiat Chrysler Automobiles; Jaal B. Ghandhi, Univ. of Wisconsin Madison; Akihito Kasai, Honda R&D Co., Ltd.; Simona Silvia Merola, Istituto Motori CNR; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Chairpersons - *Adrian Irimescu, Istituto Motori CNR; Hibiki Koga, Honda R&D Co., Ltd.*

Time	Paper No.	Title
3:30 p.m.	2018-32-0008	**Lubricating Oil Droplets in Cylinder on Abnormal Combustion in Supercharged SI Engine** *Takahiro Ito, Yoshikazu Abe, Junya Tanaka, Kogakuin University*
4:00 p.m.	2018-32-0002	**Study on Knocking Characteristics for High-Efficiency Operation of a Super-Lean Spark Ignition Engine** *Takeshi Nishiyama, Keito Agui, Masaaki Togawa, Masanori Saito, Mitsuaki Tanabe, Akira Iijima, Nihon University*
4:30 p.m.	2018-32-0001	**Influence of Autoignition and Pressure Wave Behavior on Knock Intensity Based on Multipoint Pressure Measurement and In-Cylinder Visualization of the End Gas** *Takahiro Yamashita, Shuhei Takahata, Hiroki Kudo, Takuya Izako, Takahiro Ishikawa, Masanori Saito, Mitsuaki Tanabe, Akira Iijima, Nihon University*
5:00 p.m.	2018-32-0003	**A Study of the Factors Determining Knocking Intensity Based on High-Speed Observation of End-Gas Autoignition Using an Optically Accessible Engine** *Takahiro Ishikawa, Shuhei Takahata, Hiroki Kudo, Takuya Izako, Takahiro Yamashita, Nihon University; Hibiki Koga, Honda R&D Co Ltd; Toshiro Kiura, Honda R&D Europe GmbH; Akira Iijima, Nihon University*

Measurement and Simulation (Part 1 of 3) *Session Code:SETC15 Room Hegel 1 & 2*

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 - *Adrian Irimescu, Istituto Motori CNR; Tadao Okazaki, Kubota Corp.; Stephan Schmidt, Graz University of Technology; Hiroya Ueda, Honda R&D Co., Ltd.*

Chairpersons - *Thomas L. Lago, QirraSound Technologies Europe AB; Tadao Okazaki, Kubota Corp.*

Time	Paper No.	Title
10:30 a.m.	2018-32-0033	***Development of a Climate and Altitude Simulation Test Bench for Handheld Power Tools*** *Artur Martel, Fino Scholl, Dennis Weierter, Maurice Kettner, Karlsruhe University of Applied Sciences*
11:00 a.m.	2018-32-0032	***Development of Coaxial Type Thin Film Temperature Sensor with Improved Measurement Accuracy Based on Principle of Thermoelectromotive Force*** *Daijiro Ishii, Yuji Mihara, Tokyo City University*
11:30 a.m.	2018-32-0031	***Development of a Riding Simulator for Motorcycles*** *Kazuya Nagasaka, Kazuhiro Ichikawa, Akiyuki Yamasaki, Hiroshi Ishii, Kawasaki Heavy Industries, Ltd.*

Measurement and Simulation (Part 2 of 3) *Session Code:SETC15 Room Hegel 1 & 2*

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 - *Adrian Irimescu, Istituto Motori CNR; Tadao Okazaki, Kubota Corp.; Stephan Schmidt, Graz University of Technology; Hiroya Ueda, Honda R&D Co., Ltd.*

Chairpersons - *Tadao Okazaki, Kubota Corp.; Stephan Schmidt, Graz University of Technology*

Time	Paper No.	Title
1:30 p.m.	2018-32-0037	***Application of the Newly Developed KLSA Model into Optimizing the Compression Ratio of a Turbocharged SI Engine with Cooled EGR*** *Tie Li, Tao Yin, Bin Wang, Shanghai Jiao Tong University*
2:00 p.m.	2018-32-0036	***Analysis of Cooling and Warm-Up Performance of Oil-Cooled Engine with Fin-Shaped Oil Jacket*** *Akihito Deguchi, Koichi Tanaka, Suzuki Motor Corporation*
2:30 p.m.	2018-32-0035	***A Study of Cycle-to-Cycle Flow Variations in a Small Spark-Ignition Engine at Low Throttle Opening*** *Gaurav Shinde, Mayank Mittal, Indian Institute of Technology, Madras; V Lakshminarasimhan, TVS Motor Company Limited*

Measurement and Simulation (Part 3 of 3) *Session Code:SETC15 Room Hegel 1 & 2*

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 - *Adrian Irimescu, Istituto Motori CNR; Tadao Okazaki, Kubota Corp.; Stephan Schmidt, Graz University of Technology; Hiroya Ueda, Honda R&D Co., Ltd.*

Chairpersons - *Tadao Okazaki, Kubota Corp.; Stephan Schmidt, Graz University of Technology*

Time	Paper No.	Title
3:30 p.m.	2018-32-0030	***Artificial Neural Network Based Predictive Real Drive Emission and Fuel Economy Simulation of Motorcycles*** *Johannes Hiesmayr, Stephan Schmidt, Stefan Hausberger, Roland Kirchberger, Graz University of Technology*
4:00 p.m.	2018-32-0029	***Modeling of Quasi-Steady State Heat Transfer Phenomena with the Consideration of Backflow Gas Effect at Intake Manifold of IC Engines and Its Numerical Analyses on 1-D Engine Simulation*** *Emir Yilmaz, Mitsuhisa Ichiyanagi, Takashi Suzuki, Sophia University*
4:30 p.m.	2018-32-0034	***Static Stress and Thermal Analysis of Connecting Rod using FE- Analysis*** *Lalit Kumar Choudhary, Rohan Brella, Naveen Kumar, Delhi Technological University*

Two Stroke Engine (Part 1 of 2) *Session Code: SETC17 Room Rheinlandsaal Ballroom A & B*

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 - *Pierre Duret, IFP School; Giovanni Ferrara, Univ. of Florence; Akira Iijima, Nihon University; Scott A. Miers, Michigan Technological Univ.; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Chairpersons - *Pierre Duret, Pierre Duret, IFP School; Akira Iijima, Nihon University*

Time	Paper No.	Title
1:30 p.m.	2018-32-0042	**Technologies to Achieve Future Emission Legislations with Two Stroke Motorcycles** *Roland Oswald, Roland Kirchberger, Stefan Krimplstatter, Graz University of Technology*
2:00 p.m.	2018-32-0041	**Overview of Different Gas Exchange Concepts for Two-Stroke Engines** *Stefan Sturm, Stephan Schmidt, Roland Kirchberger, Graz University of Technology*
2:30 p.m.	2018-32-0044	**Influence of Ethanol and 2-Butanol Blended Fuels on Combustion and Emissions in a Small Displacement Two Stroke Engine** *Stephan Jandl, Stephan Schmidt, Pascal Piecha, Hans-Juergen Schacht, Graz University of Technology; Tilman Seidel, Andreas Stihl AG & Co. KG*

Two Stroke Engine (Part 2 of 2) *Session Code: SETC17 Room Rheinlandsaal Ballroom A & B*

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 - *Pierre Duret, IFP School; Giovanni Ferrara, Univ. of Florence; Akira Iijima, Nihon University; Scott A. Miers, Michigan Technological Univ.; Tomoo Shiozaki, Honda R&D Co., Ltd.*

Chairpersons - *Pierre Duret, Pierre Duret, IFP School; Koji Yoshida, Nihon University*

Time	Paper No.	Title
3:30 p.m.	2018-32-0045	**Combustion Analysis with Residual Gas as a Design Parameter for Two-Stroke Engines** *Pascal Richard Piecha, Stephan Jandl, Stefan Sturm, Stephan Schmidt, Roland Kirchberger, Graz University of Technology; Florian Schumann, Andreas Stihl AG & Co KG*
4:00 p.m.	2018-32-0043	**Performance Improvements to a Production, Semi Direct Fuel Injected, 2-Stroke Engine for a Racing Application** *Andy Olson, Ryan Hayes, Textron*
4:30 p.m.	2018-32-0040	**On the Effect of the Injector Position on Fuel-Air Mixture Preparation in a Two-Stroke GDI Engine** *Francesco Balduzzi, Luca Romani, Andrea Tanganelli, Simone Bigalli, Giovanni Ferrara, UniversitÃ degli Studi di Firenze*
5:00 p.m.	2018-32-0047	**Experimental Investigation on the Potentiality of a GDI System Applied to a Two-Stroke Engine: Analysis on Pollutant Emission and Fuel Consumption Reduction** *Luca Romani, Francesco Balduzzi, Giovanni Ferrara, Lorenzo Bosi, UniversitÃ degli Studi di Firenze; Rita Di Gioia, Giovanni Bonandrini, Magneti Marelli Powertrain SPA; Jacopo Fiaschi, Federico Tozzi, Betamotor SpA*

Thursday, November 8

Vehicle Dynamics (Part 1 of 2) *Session Code:SETC18 Room Hegel 1 & 2*

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.; Thomas L. Lago, QirraSound Technologies Europe AB; Hisayuki Sugita, Suzuki Motor Corp.*

Chairpersons - *Masayuki Baba, Honda R&D Co., Ltd.; Johannes Hiesmayr, Emissions Analytics*

Time	Paper No.	Title
8:30 a.m.	2018-32-0049	***Theoretical and Fundamental Consideration to Accord between Self- Steer Speed and Rolling in Maneuverability of Motorcycles*** *Hideki Sakai, Kindai University*
9:00 a.m.	2018-32-0060	***Simulation Techniques for Determining Motorcycle Controllability Class according to ISO 26262*** *Maki Kawakoshi, Takashi Kobayashi, Makoto Hasegawa, Japan Automobile Research Institute*
9:30 a.m.	2018-32-0051	***Road Simulation Techniques for Reproducing Vehicle Behavior at Motocross Running on a Track*** *Ryota Shimizu, Hisayuki Sugita, Suzuki Motor Corporation*

Vehicle Dynamics (Part 2 of 2) *Session Code:SETC18 Room Hegel 1 & 2*

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.; Thomas L. Lago, QirraSound Technologies Europe AB; Hisayuki Sugita, Suzuki Motor Corp.*

Chairpersons - *Johannes Hiesmayr, Emissions Analytics; Hisayuki Sugita, Suzuki Motor Corp.*

Time	Paper No.	Title
10:30 a.m.	2018-32-0048	***Assessing Tire Performance from Vehicle Dynamic Transfer Functions*** *Barath Mohan, Sai Praveen Velagapudi, KVM Raju, TVS Motor Co., Ltd.*
11:00 a.m.	2018-32-0052	***Study on Weave Behavior Simulation of Motorcycles Considering Vibration Characteristics of Whole Body of Rider*** *Hajime Uchiyama, Kenichi Tanaka, Yoshihiro Nakagawa, Eiji Kinbara, Honda R&D Co., Ltd.; Ichiro Kageyama, Nihon University*
11:30 a.m.	2018-32-0050	***Preliminary Study on Closed-Loop Acceleration Control of Motorcycles*** *Alexander Winkler, Gernot Grabmair, University of Applied Sciences*

Engine Components & Vehicle Components

Session Code: SETC7 Room Rheinlandsaal Ballroom A & B

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 - *Masayuki Baba, Honda R&D Co., Ltd.; Francesco Catapano, Istituto Motori CNR; Takahito Murase, Kawasaki Heavy Industries, Ltd.*

Chairpersons - *Thomas L. Lago, QirraSound Technologies Europe AB; Takahito Murase, Kawasaki Heavy Industries, Ltd.*

Time	Paper No.	Title
8:30 a.m.	2018-32-0054	***Influence of Secondary Flow Generation on Heat Transfer inside the Fin Type Spiral Sub-Cooled Condenser by Experimental and CFD Analysis*** *Hardeep Singh, Takashi Suzuki, Sophia University; Junya Washiashi, Keihin Corporation; Mitsuhisa Ichiyanagi, Sophia University; Jun Liu, Keihin Corporation*
9:00 a.m.	2018-32-0072	***Analysis of Rotational Vibration Mechanism of Camshaft at High Engine Speed in Engines with In-Line Four-Cylinder DOHC Configuration*** *Ryoh Hatakeyama, Tadashi Niino, Honda R&D Co., Ltd.*

Engine Controls

Session Code: SETC8 Room Rheinlandsaal Ballroom A & B

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 - *Ken Fosaaen, Kerdea Technologies; Hidetoshi Ishigami, Yamaha Marine Co., Ltd.; Tobias Kallerhoff, Robert Bosch GmbH; Yutaka Nitta, Suzuki Motor Corp.*

Chairpersons - *Ken Fosaaen, Kerdea Technologies; Yutaka Nitta, Suzuki Motor Corp.*

Time	***Paper No.***	***Title***
10:30 a.m.	***2018-32-0074***	***Investigation on the Transient Behavior of a Two-Wheeler Single Cylinder Engine Close to Idling with Electronic Throttle Control*** *Henning Heikes, Alexander Pelkmann, Alrik Barton, Robert Bosch GmbH*
11:00 a.m.	***2018-32-0075***	***Water Load Determination Approach in Two Wheeler Exhaust System*** *Ranjana Kumari Meena, Bosch Limited; Andrea Krusch, Konrad Meister, Christopher Holzknecht, Robert Bosch GmbH*
11:30 a.m.	***2018-32-0077***	***Ion Current Comparison in Small, Fast Running Gasoline Engines for Non-Automotive Applications*** *Riccardo Basso, Gabriel Gruber, Pascal Piecha, Hans-Juergen Schacht, Stephan Schmidt, Graz University of Technology; Martin Arenz, ANDREAS STIHL AG & Co. KG*
12:00 p.m.	***2018-32-0076***	***Development of the Anti-Lift-Control for Motorcycle*** *Taiki Mase, Takashi Suzuki, Suzuki Motor Corporation*

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