

Technical Sessions

(As of Apr 27, 2022)

Tentative session timetable will be available in mid-September, 2022 from the following website.

<https://www.setc-jsae.com/>

Note: Papers published in the program may be rejected depending on the reviewed results.

Advanced Combustion

Organizers: Koji Yoshida (Nihon University), Akira Iijima (Nihon University), Tatsuya Kuboyama (Chiba University), Simona Silvia Merola (Consiglio Nazionale delle Ricerche)

20229007	Effect of Oil Additives and Fuel Concentration in Lubricating Oil on Abnormal Combustion of Supercharged SI Engine Yota Nakayama, Junya Tanaka (Kogakuin University)
20229008	Autoignition of Lubricating Oil from Piston Crown on Abnormal Combustion of Supercharged SI Engine Akira Seto, Yuka Kuwae, Junya Tanaka (Kogakuin University)
20229015	Study on Influence of tailored In-cylinder Flow on HCCI Combustion in a Rapid Compression and Expansion Machin yiwen Zhong, Tatsuya Kuboyama, Yasuo Moriyoshi (Chiba University), Kei Yoshimura (Suzuki Motor Corporation)
20229027	Hot Surface Assisted Compression Ignition (HSACI) as an Approach to Extend the Operating Limits of a Natural Gas Fueled HCCI Engine Joern Alexander Judith, Maurice Kettner (Karlsruhe University of Applied Sciences), Danny Schwarz, Markus Klaisle (SenerTec Kraft-Waerme-Energiesysteme GmbH), Thomas Koch (Karlsruhe Institute of Technology)
20229033	Numerical and Experimental Pre-investigations on Reactive Exhaust Gas Recirculation for a Naturally Aspirated Cogeneration Gas Engine Youssef Beltaifa, Maurice Kettner (Karlsruhe University of Applied Sciences), Peter Eilts (Technical University of Braunschweig) , Bosse Ruchel (WJ Power GmbH)
20229038	Numerical and Experimental Analysis of Abnormal Combustion in a SI Gasoline Engine with a Flat Cylinder Head and a Re-Entrant Piston Bowl Ayano Matsuoka, Kentaro Shiraishi, Shinji Kishi (Kubota Corporation), Jaeok Bae, Makoto Kaneko, Tatsuya Kuboyama, Yasuo Moriyoshi (Chiba University)
20229043	Combustion Performance of Hydrogen Addition in Natural Gas under lean-burn Conditions Hongliang LUO (Hiroshima University)
20229044	Analysis of Cylinder to Cylinder Variations in a Turbocharged Spark Ignition Engine at lean burn operations Ryo Yamaizumi, Haoyun Shi , Tatsuya Kuboyama, Yasuo Moriyoshi (Chiba University)
20229051	Extension of the Lean Limit of Gasoline Engines Under Part Load by Using Hot Surface Assisted Spark Ignition (HSASI) Sascha Holzberger, Maurice Kettner (Karlsruhe University of Applied Sciences) , Roland Kirchberger (Graz University of Technology)

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Advanced Combustion (Continued)

20229060	Experimental quantification of the variation of heat released to the cooling system in a 4-stroke engine equipped with a passive combustion prechamber Luca Romani, Lorenzo Bosi, Francesco Balduzzi , Sandro Raspanti , Marco Ciampolini, Giovanni Ferrara (Università degli studi di Firenze)
20229070	Effects of ignition timing and fuel chemical composition on auto-ignition behavior and knocking characteristics under lean conditions Kaede Shirane, Toshiki Kimura, Sota Nakamura (Nihon University) , Akira Iijima, Karin Furusyo (Nihon University)
20229081	Use of Narrow Angle Split Injection Strategy for Improving The Performance of a Biogas-Diesel RCCI Engine Anirudh Koya, Gopa Kumar S, Ramesh A (IIT Madras)
20229089	Chemical Kinetic Analysis with Two-Zone Model on Spark Knock Suppression Effects with Hydrogen Addition at Low and High Engine Speeds Jun Goto , Minoru Yamamoto (Yamaha Motor Co., Ltd.) , Yoshimitsu Kobashi, Yoshito Ueno, Gen Shibata, Hideyuki Ogawa (Hokkaido University)
20229095	Improvements of Combustion and Emissions in a Natural Gas Fueled Engine with Hydrogen Enrichment and Optimized Injection Timings of Diesel Fuel Yoshimitsu Kobashi , Ryuya Inagaki , Gen Shibata , Hideyuki Ogawa (Hokkaido University)

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Renewable Energy and Alternative Fuels

Organizers: Toru Nakazono (Yanmar Co Ltd), Yuji Araki (Yamaha Motor Co., Ltd.), Paul Richards (Consultant)

20229001	CO2 and H2 effects on lean limits and combustion characteristics of ethanol flame MZ Akram (Tsinghua University)
20229021	Impacts of methanol blended fuels on emissions and operating performance of two-wheelers Guilherme Pellizzaro Batalha (Graz University of Technology)
20229023	Effects of different prechamber spark plug geometries on combustion anomalies of an internal combustion engine Sebastian Oswald Söhnlein, Marco Taschek (Ostbayerische Technische Hochschule Amberg-Weiden), Jörn Alexander Judith, Sascha Holzberger, Maurice Kettner (Karlsruhe University of Applied Sciences)
20229061	Impact of Zero CO2 Fuels on Engine Behaviour of Two-Stroke Engines in Hand-Held Powertools Dominik Gschanes (Institut for Thermodynamics and Propulsion Systems)
20229067	Optimization of the Operating Strategy of a Dual-Fuel Engine Using POMDME as a Pilot Fuel Ann-Kathrin Jost (Technichal University of Kaiserslautern)
20229073	Effect of Blended Fuel of Hydrotreated Vegetable Oil and Fatty Acid Methyl Ester on Spray and Combustion Characteristics Shoi Koshikawa , Eriko Matsumura, Jiro Senda (Doshisha University)
20229074	E-Fuel applications in Non Road Mobile Machinery Armin Kölmel , Christoph Hiller von Gaertringen, René Schwerin, Stefan Schweiger, Holger Lochmann (ANDREAS STIHL AG & Co. KG), Stephan Schmidt, Christian Zinner, Dominik Gschanes, Roland Kirchberger, Helmut Eichlseder (TU Graz University of Technology)

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Renewable Energy and Alternative Fuels (Continued)

20229083	A Study of Autoignition and Combustion Characteristics in an HCCI Engine using a Blended Fuel of DME and City Gas Yusuke Manabe, Shinji Mito, Akira Iijima (Nihon University), Shintaro Yoshihara, Takahiro Yamaguchi, Sekai Miyamoto (Kawasaki Heavy Industries, Ltd)
20229084	Effect of Gaseous Fuels with Different Carbon Numbers on Autoignition Properties Shinji Mito, Yusuke Manabe, Akira Iijima (Nihon University), Shintaro Yoshihara, Takahiro Yamaguchi, Sekai Miyamoto (Kawasaki Heavy Industries, Ltd.)
20229088	Verification of New Hydrogen Refueling Method for Fuel Cell Motorcycle Fumiaki Baba, Takeru Wakiya, Toru Ota (Suzuki Motor Corporation)
20229092	Effect of Different Fuel Supply System on Combustion Characteristics in Hydrogen SI Engine Shoi Koshikawa, Yuki Matsuya, Tsukasa Sekine, Eriko Matsumura, Jiro Senda (Doshisha University), Gin Morita, Toru Nakazono (Yanmar Holdings Co., Ltd.)

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Diesel Engine

Organizers: Tadao Okazaki (Kubota Corporation), Paul Litke (Air Force Research Laboratory)

20229013	Effect of Pilot Injection on Improvement of Fuel Consumption and Exhaust Emissions of IDI Diesel Engines Yoshiyuki Kidoguchi, Yuzuru Nada, Tatsuya Ichikawa, Haruto Miyoshi, Kazuhiro Sakai (Tokushima University)
20229052	Development of 1.5L direct injection diesel engine with common rail system in compliance with EU StageV Shoichi Okimi, Kentaro Nagai, Reo Yoshida, Tomoya Akitomo, Takahiro Yamazaki (Kubota Corporation)
20229068	Studies on Spray and Combustion Characteristics of Throttle Type Nozzle Used in a Swirl-Chamber Diesel Engine Zenta Sudo, Yuma Hozen, Beini Zhou, Jin Kusaka (Waseda University), Kenya Ajiro (Mitsubishi Heavy Industries Engine & Turbocharger, Ltd.), Tomohiro Koga (Mitsubishi Heavy Industries, Ltd.)

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Emission and Environmental Impacts

Organizers: Takashi Mitome (Suzuki Motor Corporation), Tadao Okazaki (Kubota Corporation), Leonid Tartakovsky (Technion – Israel Institute of Technology)

20229004	Impact of 3-way catalytic converters on particulate emission of MPFI motorcycle engines Sebastian Schurl (Graz University of Technology)
20229005	Design and Implementation of An Oxidation Catalyst For A Spark Ignited Two Stroke Snowmobile Engine Noah Robert Squires, Scott Miers (Michigan technological University)
20229019	Research for “Trap Catalyst” located on upper stream of main catalyst for suppressing the catalyst deterioration of internal combustion engine Daisuke Matsukawa, Kiichi Shimamura, Akihito Kasai, Shuto Sato (Honda R&D Co., Ltd.)
20229026	Carbon Footprint Calculation of Catalytic Converter Production – An Industrial Case Study Simon Merschak, Peter Hehenberger (University of Applied Sciences Upper Austria), Marcus Bonifer (Heraeus Deutschland GmbH & Co. KG)

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Emission and Environmental Impacts (Continued)

20229036	Evaluation of the applicability for an exhaust gas catalyst for motorcycles made of Rh alternative alloy materials Takuya Motegi, Natsuki Ako, Shunya Tatara, Kosuke Doi (Yamaha Motor Co., Ltd.)
20229047	Effects of Partial-Flow Diesel Particulate Filter on Diesel Engine Combustion and Particle Emissions Characteristics Myat Hsu Thin, Preechar Karin (King Mongkut' s Institute of Technology), Peerawat Saisirirat (National Metal and Materials Technology Center), Hidenori Kosaka(Tokyo Institute of Technology), Watcharin Po-ngen (King Mongkut' s University Of Technology North Bangkok)
20229050	Development of DPF regeneration system under all operating conditions for generators Daichi Kato (Kubota Corporation)
20229091	Observation of spray behaviors in a pipe at lower temperature for Urea-SCR system Naoki Sugiyama (Tokai University)

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Engine Components and Fuel Supply Systems

Organizers: Wataru Yamamoto (Kawasaki Motors, Ltd.), Tatsuya Kuboyama (Chiba University), Ken Fosaaen (Kerdea Technologies)

20229035	A Novel Direct Gaseous Reformate Injector – Design and Experimental Study Asher Netzer-Lichinitzer, Leonid Tartakovsky (Technion – Israel Institute of Technology)
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Powertrain Controls

Organizers: Shigeo Sakoda (Yamaha Motor Co., Ltd.), Mikael Bergman (Husqvarna AB)

20229009	Wasted spark duration measurement as a method for firing TDC identification in small engines Adrian Irimescu , Simona Silvia Merola (Consiglio Nazionale delle Ricerche), Giovanni Cecere (CNR STEMS)
20229048	Increased Reliability and Usability through the Introduction of a User Interface Module for Hand-Held Small Engines Bahattin Öztürk (PRÜFREX Engineering e Motion GmbH & Co.KG)
20229058	Control-Oriented Engine Model for Online Fuel Identification Simon Mayr, Gernot Grabmair (University of Applied Sciences Upper Austria)

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Engine Technology

Organizers: Ken'ichi Ohmori (Honda R&D Co., Ltd.), Masahito Saito (Kawasaki Heavy Industries, Ltd.), Arun Ravindran (Cummins, Inc.)

20229006	Distribution of Friction and Moment of Inertia in Start of SI Engine Naoki Miyaoka , Hiroataka Sato, Masato Shimizu, Junya Tanaka (Kogakuin University)
20229017	Effects of Engine Cooling System on Engine Performance: Balancing Engine Power and Fuel Consumption Yota Sakurai , Yoshinori Nakao, Atsushi Hisano (Kawasaki Heavy Industries, Ltd.), Kunihiro Tanaka, Michihisa Nakagawa (Kawasaki Motors, Ltd.)
20229028	Development of a Rotary Valve Engine for Handheld Equipment Norman H. Garrett , Mesbah Uddin (University of North Carolina - Charlotte), Mikael Bergman, Garrett Purvis (Husqvarna AB), Darrick Vaseleniuck, Dan Cordier (Vaztec)
20229055	Establishing a methodical approach to validate and improve the fuel economy of small capacity two-wheelers powered by internal combustion engines Juergen Tromayer, Martin Steyskall, Thomas Koenigshofer, Alexander Hagenberger (Graz University of Technology)
20229079	Feasibility study of boosted DI technology for sport motorcycle Hayatoshi Sato, Masaki Torigoshi (Yamaha Motor Co., Ltd.)
20229093	Design and Development of Variable Length Intake Manifold for Small Bore Engines Jerome Stanley Martin (SRM Institute of Science and Technology)

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Hybrid and Electric Drives

Organizers: Yasuyuki Muramatsu (Yamaha Motor Co., Ltd.), Ken' ichi Ohmori (Honda R&D Co., Ltd.), Kai W. Beck (Andreas Stihl AG & Co. KG)

20229002	Development of Smart Drive 48V e-Motorcycle Hubert FRIEDL, Christian HUBMANN, Bernhard GRAF, Patrick FALK (AVL List Austria)
20229018	Efficiency Increase of a Conventional ICE Powertrain with CVT by 48V-Hybridization with Focus on L-Category Powersport Applications Alexander Hagenberger (Graz University of Technology)
20229025	Investigation on transient behavior and SoC balancing of a hybrid powertrain hand-held tool Dimitrios Vogiatzis (Graz University of Technology)
20229059	Technical Evaluation of Energy Requirements for hybrid powertrains for high performance motorcycles Balagovind Nandakumar Kartha, Qing Peng, Tatsuki Sugaya, Shinya Takasawa (Bosch Corporation)
20229085	Effect of Insulating Varnish Impregnation Range of Motor on Vibration Characteristics Yoshisada Sakamoto, Mihiro Nakanishi, Motoki Hirano, Yoshiyuki Terada (Suzuki Motor Corporation)

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Hybrid and Electric Drives (Continued)

20229090	Energy Management in Hybrid Electric Powertrain by Implementation of Supervised Machine Learning Algorithms Pranay Nirapure, Mayank Mittal, Pradeep Menon (Indian Institute of Technology, Madras), Kanupriya Mittal (Anna University)
20229094	Suboptimal Online Energy Management for a Fuel Cell/Supercapacitor/Battery Electric Vehicle Using Artificial Neural Network Approach CHEN Chien Liang, HUNG Yi Hsuan, QIU Zhu Yang (National Taiwan Normal University)

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Lubricants and Tribology

Organizers: Yuji Mihara (Tokyo City University), Jason Hanthorn (The Lubrizol Corporation)

20229066	Towards Efficient and Sustainable Small Engine Lubricants Jason Hanthorn , Yvonne Koay (The Lubrizol Corporation)
20229071	Tribological performance of palm oil blended with hexagonal boron nitride nanoparticles as an environment-friendly lubricant Mohd Fadzli bin Abdollah , Hilmi Amiruddin (Universiti Teknikal Malaysia Melaka)
20229072	Lubrication mechanisms of hexagonal boron nitride nano-additives water-based lubricant for steel-steel contact Hilmi Bin Amiruddin, Mohd Fadzli Bin Abdollah (Universiti Teknikal Malaysia Melaka)
20229077	Development of Low-Friction Pistons for Small Scooter Engines Shinya Kubota , Yoshinari Ninomiya, Naoyuki Suda(Suzuki Motor Corporation)

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Materials and Manufacturing

Organizers: Hirotaka Kurita (Yamaha Motor Co., Ltd.), Ch. V. Hiller (Andreas Stihl AG & Co. KG)

20229010	Development of Resin Coated Piston suitable for Monolithic Cylinders made of Hypereutectic Al-Si Alloy Keita Watanabe, Hirotaka Kurita (Yamaha Motor Co., Ltd.)
20229024	Development of 1520 MPa higher fatigue strength light weight suspension spring Hideki Kato, Shinji Kasatori (Honda Motor Co., Ltd.), Hirokatsu Kameda (Hitachi Astemo, Ltd), Shoichi Suzuki (NIPPON STEEL SG WIRE CO., LTD)
20229041	Silver surface treatment applicable to bolts for motorcycles Hiroshi Hirayama (Honda Motor Co., Ltd.), Manabu Inoue, Takeshi Koike (DIPSOL CHEMICALS CO., LTD)
20229042	Structural optimisation of motorcycle top bridges Riku Mitsui (Yamaha Motor Co., Ltd.)
20229075	Effect of bonding conditions on the bonding of wear-resistant steel and aluminum castings Takaharu Suzuki, Hisashi Harada (Yamaha Motor Co., Ltd.)
20229078	Stiffness optimization process using topology optimization techniques and lattice structures Hiroyuki Nagamoto (Yamaha Motor Co., Ltd.)

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Measurement and Simulation

Organizers: Tadao Okazaki (Kubota Corporation), Gaku Naoe (Honda R&D Co., Ltd.), Jun Ishikawa (Honda Motor Co., Ltd.), Stephan Schmidt (Graz University of Technology)

20229011	Prediction of Fatigue Strength of Motorcycle Exhaust System in Higher Temperature Range Takanori Nagata (Honda Motor Co., Ltd.)
20229014	Application of AI for Predicting Test Cycles of Drivetrain Component Gaurav Sirsaj (Dana India), Vinay Vilas Kharche (Dana India Technical Center)
20229031	An estimation method of blended fuel contents by data assimilation for carbon neutral powertrain Naoki Yoneya (Hitachi, Ltd.), Kenji Amaya (Tokyo Institute of Technology)
20229045	Measurement of propagating flame in a gasoline engine under transient operating conditions using a multiple-ion probe Tomoaki Yatsufusa, Yuki Goto (Hiroshima Institute of Technology),
20229046	Development of Simulation Model for Estimating Loads Applied to Scooter Frame when Traveling on Rough Roads Tetsuharu Maruyama, Shinya Takahashi (Honda Motor Co., Ltd.)
20229053	Local change of PV value on end faces of rocker pins of chain type CVT (Continuously Variable Transmission) under transmitting condition Ryunosuke Kikui (Graduate school of Doshisha University), Kazuya Okubo, Kiyotaka Obunai (Doshisha University)
20229065	Crankshaft Dynamics and Durability Analysis Aju Joseph, S Karthik (Royal Enfield)
20229113	CFD analysis of a port fuel injection IC engine to study mixture preparation and combustion and its impact on raw emissions Manish Garg, Arivazhagan GB (TVS Motor Company)

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NVH Technology

Organizers: Gaku Naoe (Honda Motor Co., Ltd.), Keisuke Namekawa (Suzuki Motor Corporation), Thomas Lagö (QirraSound Technologies Europe AB)

20229016	Development of Light-weight, Low-noise Exhaust Muffler Using the Laminated Structure for the Muffler Outer Shell Junichiro Suzuki, Yuji Kurasawa, Satoru Maki, Kazuyuki Oda (Honda Motor Co., Ltd.)
20229037	Application of Participation Factor Focusing on Response at Specific Part for Vibration Evaluation of Motorcycle Frame Masashi Michiue, Takeyuki Sakai (Kawasaki Heavy Industries, Ltd.), Manabu Morikawa, Naoki Arino (Kawasaki Motors, Ltd.)
20229056	Novel 3D Printed Exhaust Silencer for Small Engine Noise Control Applications Margus Villau , Hans Rämmal, Jüri Lavrentjev (Tallinn University of Technology)
20229064	Sound Quality, Pass-by Noise, Exhaust Emissions, Performance, Rideability - How to best balance these attributes? Bernhard Johann Graf , Andrea Greco, Markus Resch, Christian Hubmann (AVL List GmbH)

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Two Stroke Engine

Organizers: Akira Iijima (Nihon University), Giovanni Ferrara (Università degli Studi di Firenze)

20229012	Experimental Analysis of a Uniflow Scavenged Two-Stroke Concept Stefan Sturm (Graz University of Technology)
20229032	Emissions and Performance Impact of E20 on a Two-stroke Engine Scott A. Miers , Brian J Eggart (Michigan Technological University), John G. Loesche (General Motors)
20229057	On the Potential of Transfer Port Injection Strategies for a Two-Stroke Engine Francesco Balduzzi, Luca Romani, Giovanni Ferrara (Università degli Studi di Firenze)
20229063	Describing the Auto-Ignition Quality in Small, Air Cooled, Two Stroke Engines Per Risberg, Thomas Elm, Fredrik Hellquist, Mikael Bergman (Husqvarna Group), Anna Karvo, Rupali Tripathi (Neste Oyj)
20229076	Study of Pre-chamber Jet Combustion Behavior using a Small Two-stroke Optically Accessible Engine Takato Deushi, Takuma Naka, Tatsuya Tsujiguchi (Graduate School of Science and Technology, Nihon University), Akira Iijima (College of Science and Technology, Nihon University), Shiro Yamaguchi, Minoru Kuroiwa, Kuniyoshi Eto (YAMABIKO Corporation)
20229080	Numerical Investigation of the Effect of Engine Speed and Delivery Ratio on High Speed Knock in a Small Two-stroke SI Engine Kuniyoshi Eto, Tatsuya Kuboyama, Yasuo Moriyoshi (Graduate School of Science and Engineering, Chiba University), Toshio Yamada (Engineer, Sustainable Engine Research Center Co., Ltd.)

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Vehicle Dynamics and Safety

Organizers: Jun Ishikawa (Honda Motor Co., Ltd.), Hisayuki Sugita (Suzuki Motor Corporation), Justin Magri (Robert Bosch LLC)

20229003	Application of a Road Simulator to Efficient Fatigue Reliability Evaluation of an Off-road Motorcycle Hideki Makida (Kawasaki Motors, Ltd.)
20229029	Development of evaluation technology for motorcycle advanced rider assistance systems Shohei Hosokawa, Kazuya Nagasaka (Kawasaki Heavy Industries, Ltd.), Hiroyuki Watanabe (Kawasaki Motors, Ltd.)
20229030	A Tire Model to estimate Influence of Tire Rolling Resistance on the Efficiency of Motorcycles Barath Mohan (TVS Motor Company Ltd)
20229039	Development of Tire Force Estimation Logic for Off-road Four-wheelers Taichi Inaba, Takenori Terada, Atsushi Sano (Kawasaki Heavy Industries, Ltd.), Hideyuki Kato (Kawasaki Motors, Ltd.)
20229062	Novel Sensor based Real Time Road Profile Estimation using Machine Learning in Two-Wheelers Barath Mohan (TVS Motor Company Ltd)

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Vehicle Dynamics and Safety (Continued)

20229069	Chassis development of Motorcycle with integrated aerodynamic devices. Tomo Yamamoto (Kawasaki Motors, Ltd.)
20229082	Study of off-road motorcycle behavior in motocross and cross-country Yuki Uto, Shinichi Inoue (Kawasaki Motors, Ltd.), Kazuto Yano (K-TEC Corporation)
20229086	One Systematic Design Method and Control Performance Evaluation of Heading Control System in Pleasure Boats Naoki Imamura, Ryo Sakaguchi (Mitsubishi Electric Corporation)
20229112	Simulation Driven Aerodynamic Development of a High Performance Motorcycle Manish Garg (TVS Motor Company)