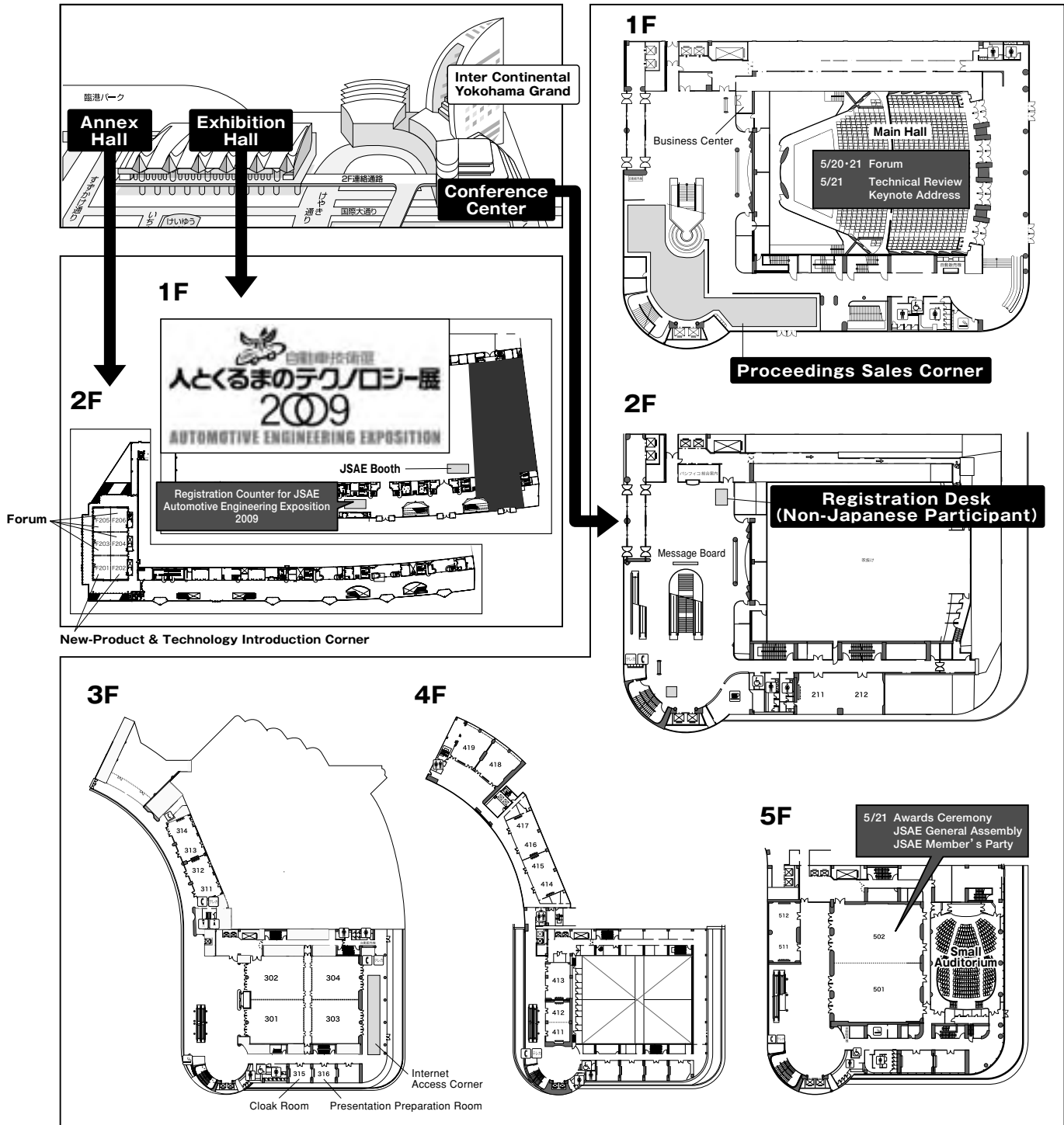


# 2009 JSAE Annual Congress Program

May 20(Wed.) – 22(Fri.), 2009 / Pacifico Yokohama

## Floor Plan



**Society of Automotive Engineers of Japan, Inc.**

# Information

## Registration

**Registration Desk** (Non-Japanese Participants)  
Opening-Closing Time

**Entrance Hall, 2F Conference Center**  
May 20 (Wed.) 8:00 - 18:00  
May 21 (Thu.) 8:30 - 17:00  
May 22 (Fri.) 8:30 - 17:00

**Registration Fees**

JSAE / FISITA member ¥3,000  
JSAE / FISITA Student member ¥Free  
None member ¥15,750  
Session chair Gratis

## Proceedings Sales

**Proceedings Sales Corner-1**  
Opening-Closing Time

**Elevator Hall, 1F Conference Center**  
May 20 (Wed.) 8:00 - 18:00  
May 21 (Thu.) 8:30 - 17:00  
May 22 (Fri.) 8:30 - 17:45

**Proceedings Sales Corner-2**  
Opening-Closing Time

**JSAE Booth in Exhibition Hall**  
May 20 (Wed.) - 22 (Fri.) 10:00 - 17:00

**Proceedings Price**

JSAE / FISITA member ¥840 each  
None member ¥1,050 each

Purchase of the proceedings shall be either in cash of Japanese Yen or by major credit card such as AMEX, Visa and Master.

## Cloak Room

**Cloak Room**  
Opening-Closing Time

**Room 315, 3F Conference Center**  
May 20 (Wed.) 8:00 - 18:30  
May 21 (Thu.) - 22 (Fri.) 8:30 - 18:00

Cloak service is one-day-basis so that no items are taken overnight, and also please keep your important belongings with you.

## Presentation Preparation Room

**Presentation Preparation Room**  
Opening-Closing Time

**Room 316, 3F Conference Center**  
May 20 (Wed.) 8:00 - 17:00  
May 21 (Thu.) - 22 (Fri.) 8:30 - 17:00

The room is provided for Speakers to prepare for their presentations.

## Internet Access Corner

**Internet Access Corner**  
Opening-Closing Time

**Foyer, 3F Conference Center**  
May 20 (Wed.) 8:00 - 17:30  
May 21 (Thu.) - 22 (Fri.) 8:30 - 17:00

**JSAE AUTOMOTIVE  
ENGINEERING EXPOSITION 2009**

**May 20(Wed.)–22(Fri.), 2009 10:00 - 17:00**  
**Exhibition Hall, Pacifico Yokohama**  
Admission free, but registration required at  
**Registration Counter, 1F Concourse, the**  
**Exhibition Hall** if you are NOT attendees of the 2009  
JSAE Annual Congress.





# May 22 (Fri.) Technical Session Timetable (Final version)

As of April 16, 2009

Room	Pacifico Yokohama											Registration Desk for Speakers and Session Chairs: Conference Center, 2F Proceedings Sales Counter: Conference Center, EV Hall, 1F					
	301 (3F)	302 (3F)	303 (3F)	304 (3F)	311+312 (3F)	313+314 (3F)	414+415 (4F)	501 (5F)	502 (5F)	511+512 (5F)	Small Auditorium (5F)	Annex Hall		Exhibition Hall			
	F201,F202	F203	F204	F205+F206													
9:30	269 Usability and 270 Comfortableness 271 272 10min. Break [Proceedings No.57-09] P.15	285 Active Safety 286 Simulation 287 10min. Break [Proceedings No.60-09] P.15	299 Vehicle 300 Dynamics 301 and Control I 302 303 [Proceedings No.63-09] P.16	314 Alternative 315 Fuels 316 10min. Break [Proceedings No.66-09] P.16	324 Car 325 Robotics I 326 10min. Break [Proceedings No.68-09] P.17	339 Engine 340 Components and 341 Tribology I 342 10min. Break [Proceedings No.71-09] P.17	351 Advanced 352 Technology 353 for 354 Manufacturing 355 Engineering [Proceedings No.73-09] P.18	365 Diesel 366 Combustion 367 368 [Proceedings No.76-09] P.18	378 S. I. Engine 379 380 10min. Break [Proceedings No.79-09] P.19	389 Muscle 390 Modeling and 391 Injury 392 Prediction [Proceedings No.81-09] P.19	401 The Latest 402 CAE and Test 403 Technologies 404 for NVH IV 405 [Proceedings No.84-09] (No.406 Cancelled) P.20	10:00	Forum: Advanced CFD for Automotive Engineering	10:00	Forum: Automotive Materials Technology to Lead the Next Generation	10:00	The 2009 Automotive Engineering Exposition
13:00	276 Image 277 Recognition 278 279 280 [Proceedings No.58-09] P.15	291 Driving 292 Simulator 293 and its 294 Utilization 295 [Proceedings No.61-09] P.16	304 Vehicle 305 Dynamics 306 and Control II 307 [Proceedings No.64-09] (No.308 Cancelled) P.16	320 LPG Engine 321 322 323 [Proceedings No.67-09] P.17	330 Car 331 Robotics II 332 333 334 [Proceedings No.69-09] P.17	345 Engine 346 Components and 347 Tribology II 348 10min. Break [Proceedings No.72-09] P.18	356 Computational 357 Fluid 359 Dynamics of 360 Aerodynamics [Proceedings No.74-09] (No.358 Cancelled) P.18	369 Diesel After 370 Treatment 371 372 373 [Proceedings No.77-09] P.19	388 S.I. Engine 385 and After 386 Treatment 387 [Proceedings No.80-09] (No.384 Cancelled) P.19	393 Pedestrian 394 Dummy and 395 Leg 396 Protection [Proceedings No.82-09] P.20	407 Sound 408 Quality 409 410 411 [Proceedings No.85-09] P.20	13:00	New-Product and Technology Introduction Corner	13:00	Forum: How Greatly can Drive Recorders Contribute Enhancement of Traffic Safety!	13:00	
15:00	281 Tire/Road 283 Characteristics and Active 284 Safety [Proceedings No.59-09] (No.282 Cancelled) P.15	296 Traffic Flow 297 [Proceedings No.62-09] (No.298 Cancelled) P.16	309 Dynamics, 310 Control and 311 Safety of 312 Two-wheeled 313 Vehicles [Proceedings No.65-09] P.16	335 Intelligent 336 Guidance 337 and Control 338 Technologies [Proceedings No.70-09] P.17	349 350 [Proceedings No.72-09] P.18	361 Computational 362 Fluid 363 Dynamics of 364 Engine and Fuel Cell [Proceedings No.75-09] P.18	374 Nano-particle 375 in Exhaust 376 from 377 Automotive [Proceedings No.78-09] P.19	397 Injury 398 Reduction 399 Technologies 400 [Proceedings No.83-09] P.20	412 Noise 413 Evaluation 414 [Proceedings No.86-09] P.20	14:40 15:00	15:25 15:40	15:00 15:20	15:05 15:25	14:55	16:00		
17:00																	

\* Presentation time: 25-minute each, 15-min. presentation and 10-min. for Q & A.  
 \* Cancellation: If a paper is withdrawn after the final program, the presentation time will be a 25-min. break.  
 \* English-speaking-presentation: the presentation numbers with square.  
 \* Proceedings: Sales at EV hall, 1F Conference Center during the congress only. Requests for pre-purchase are not taken.

\* Forums to be presented in Japanese

# JSAE Annual Congress(Spring), Final Program

- This program is based on the data as of April 16, 2009. If a paper is withdrawn after this issue, the presentation time will be a 25-min. break.
- The paper titles with "Cancelled" have been withdrawn after Feb. 1, 2009.
- <OS> is the organized session focused on the specific themes.

## 5.20 (Wed.)

301 (3F)

[9:30~12:10]

### 1-09 Driver Model

<OS> Chairperson: Toshiyuki Inagaki (University of Tsukuba)

- 1 Skilled driver behavior analysis when looking right and left at a non-signalized intersection without right of way**  
Hiroaki Kosaka (Nara National College of Technology)  
Tatsuya Kamon·Shigeki Umehara·Hirokazu Nishitani (NARA Institute of Science and Technology)  
Yoji Mizoguchi·Masumi Kobana·  
Kazuya Sasaki (Toyota Motor Corporation)
- 2 Understanding of Skill Difference on Parking Behavior Using Chunk Analysis**  
Hideaki Nemoto·Yoshinori Kusayanagi (Nissan Motor Co.,Ltd.)
- 3 Construction of A Quantitative Method of Estimating Driver's Risk Level for Driving Straight Course**  
Osamu Kiyota (Graduate School of Industrial Technology, Nihon University)  
Yukiyo Kuriyagawa·Ichiro Kageyama (College of Industrial Technology, Nihon University)
- 4 Modeling of Risk Perception of Car Driver**  
Takashi Omori (Tamagawa University)  
Yuki Togashi·Masayoshi Sato·Koichiro Yamauchi (Graduate School of Information Science and Technology)  
Satoru Ishikawa (Hokusei Gakuen University)  
Toshihiro Wakita (Toyota Central R&D Labs., Inc.)
- 5 Modeling and Analysis of Decision Making in Lane-Change Task based on Logistic Regression Model**  
Shun Taguchi·Tatsuya Suzuki (Nagoya University)  
Ryuta Terashima·Toshihiro Wakita (Toyota Central R&D Labs)  
Soichiro Hayakawa (Toyota Technical Institute)
- 6 Vehicle behavior knowledge acquiring and expertise process with a driving agent for emission test cycles**  
Kazuhide Togai (Mitsubishi Motors Corporation)  
Hisashi Tamaki (Kobe University)

[13:00~15:40]

### 2-09 Driver Status Evaluation

<OS> Chairperson: Mieko Ohsuga (Osaka Institute of Technology)

- 7 [Keynote Speech] Ethical issues related to the experiments using human subjects**  
Mieko Ohsuga (Osaka Institute of Technology)
- 8 Improvement of the Method for Detecting Biomechanical Distraction via Analysis of Static Pressure Distribution on the Driving Seat**  
Makoto Itoh·Iori Suzuki·Yuuzou Hanyuu  
·Toshiyuki Inagaki (University of Tsukuba)
- 9 Study of driver's mental workload model**  
Yuka Miyashita·Yonosuke Miki  
·Kazuya Ito (Nissan Motor Co.,LTD.)
- 10 Non-aggression biological signal sensing system of drink-driving**  
Shigeyuki Kojima·Shinitirou Maeda·Yumi Ogura·  
Etsunori Fujita (Deltatooling)  
Kohji Murata·Tsutomu Kamei (Shimane Institute of Health Science)  
Toshio Tsuji (Hiroshima University)  
Shigehiko Kaneko (University of Tokyo)

### 11 Effects of Alcohol Intoxication on a Multi-task Simulator Operation Part I

—Effects on Physiological States—

Shinji Miyake·Shimpei Yamada  
(University of Occupational and Environmental Health, Japan)  
Chi'e Soga (Graduate School of Kyushu Institute of Technology)  
Tomohiro Yamamura·Nobuyuki Kuge·  
Yasuhiko Takae (Nissan Motor Co., Ltd.)

### 12 Effects of Alcohol Intoxication on a Multi-task Simulator Operation

—Part II: Effects on Multi-Task Performance—

Yasuhiko Takae·Tomohiro Yamamura·  
Nobuyuki Kuge (Nissan Motor Co., LTD.)  
Shinji Miyake·Shimpei Yamada  
(University of Occupational and Environmental Health, Japan)  
Chie Soga (Kyushu Institute of Technology)

[16:00~17:40]

### 3-09 Estimation of Driver's Arousal Level

<OS> Chairperson: Shunichi Doi (Kagawa University)

- 13 Detection and prediction of driver's sleepiness by reflexive eye movements**  
Shinichi Kinoshita·Junpei Nishiyama·Yutaka Hirata (Chubu University)
- 14 Development of Sensor System for Sleep detection**  
Shinichiro Maeda·Shigeyuki Kojima·Yumi Ogura·  
Etsunori Fujita (Delta tooling)  
Shigehiko Kaneko (University of Tokyo)  
Kohji Murata (Shimane Institute of health science)  
Tsuomu Kamei (Shimane Institute of health Science)
- 15 The Estimation of Driver's Arousal State (3)**  
—Changes in Multi-dimensional Physiological Indices—  
Mieko Ohsuga·Yoshiyuki Kamakura·  
Yumiko Inoue (Osaka Institute of Technology)  
Yoshihiro Noguchi·Masami Mishiro (AsahiKASEI)
- 16 The Estimation of Driver's Arousal States (4)**  
—Eye Aperture Measurement from Eye-blink Image—  
Keiji Shimada·Yoshihiro Noguchi·  
Masami Mishiro (Asahi Kasei Corporation)  
Mieko Ohsuga·Yoshiyuki Kamakura·  
Yumiko Inoue (Osaka Institute of Technology)

302 (3F)

[9:30~12:10]

### 4-09 Driving Ability and Training

<OS> Chairperson: Minoru Kamata (The University of Tokyo)

- 17 Evaluation of Danger Level of a Driver When Passing Through a Non-signalized Intersection Without Right of Way Based on Car's Speed and Driver's Eye Movement and Pedal Operation**  
Tatsuya Kamon·Shigeki Umehara  
(Nara Institute of Science and Technology)  
Hiroaki kosaka (Nara National College of Technology)  
Hirokazu Nishitani (Nara Institute of Science and Technology)  
Yoji Mizoguchi·Masumi Kobana·  
Kazuya Sasaki (Toyota Motor Corporation)
- 18 Development of Web-based KM Driver Aptitude Test by Questionnaire**  
Kousuke Ishimaru·Kei Funatsu·Tomoyuki Ogata·Kazuaki Goushi·  
Younosuke Furui·Katsuya Matsunaga (Kyushu Sangyo University)

## 5.20 (Wed.)

- 19 **Education of long-distance truck drivers using the ASSIST**  
Kazuhiro Hirata·Kazuaki Goshi·  
Katsuya Matsunaga (Kyushu Sangyo University)
- 20 **Simulator for Assessing Driving Ability and for Training for Elderly Drivers**  
Toshiaki Kasukabe·Masataka Hiraoka (Meijo University)  
Katsumi Matsuda (FORUM8)  
Osami Yamamoto·Muneo Yamada·Shin Yamamoto·  
Tomoaki Nakano (Meijo University)
- 21 **Effect on Attentiveness and Decision-making Skills While Driving by Brain Activation Before Driving for Elderly Drivers**  
Youhei Kondou·Tatuomi Noda·Huneo Yamazaki (Meijo University)  
Mikiko Kawasumi (Aichi Shukutoku University)  
Osami Yamamoto·Muneo Yamada·Shin Yamamoto·  
Tomoaki Nakano (Meijo University)
- 22 **Study of dangerous advanced age driver early detection approach**  
Yasumi Ito (National Institute for Longevity Sciences, NCGG)  
Makoto Kihira (National Research Institute of Police Science)  
Naonori Oono (Gifu Prefectural Research Institute of Information Technology)  
Yoko Konagaya (Obu Dementia Care Research and Training Center)

[13:25~16:05]

### 5-09 Driver Assistance System

<OS> Chairperson: Takamasa Suetomi (Mazda Motor)

- 23 **Assistance of driver's risk perception by voice**  
—Towards the Risk Map System—  
Syunsuke Tezuka·Meguru Ito·Katsuyuki Kise (Fuji Heavy Industries Ltd.)
- 24 **Influence of acceleration, jerk and deviation information presentation on driving performance**  
Osamu Komori Katsunori Okajima  
(Faculty of Environment and Information Sciences, Yokohama National university)  
Masami Funakawa  
(Mobility Lab., Nissan Research Center, Nissan Motor Co., Ltd.)
- 25 **The Evaluation of Direct Yaw-Moment Control System on Low Friction Road Using Driving Simulator**  
Hayashi Ryuzo·Tereshima Yoshimichi·Raksincharoensak Pongsathorn·  
Nagai Masao (Tokyo University of Agriculture and Technology)
- 26 **Study on Feedforward Control in Driver Steering Model**  
Fukashi Sugawara·Junich Sugiyama·Masaki Mori (Tamagawa University)
- 27 **Design of Assisting System for Prevention of Rear-End Collision**  
Koji Mikami Hiroyuki Okuda Tatsuya Suzuki Shinkichi Inagaki  
Soichiro Hayakawa Kazuyoshi Isaji Naohiko Tsuru
- 28 **Functional safety assessment of the steer-by-wire system for motor vehicles using state-transition models**  
—Specifying the 2-out-of-3 hot standby electronic control unit—  
Takeshi Kushibiki·Yoshinobu Sato  
(Graduated School of Marine Science and Technology, Tokyo University of Marine Science and Technology)

**303 (3F)**

[9:30~11:35]

### 6-09 Driving Recorder

<OS> Chairperson: Yoshimi Furukawa (Shibaura Institute of Technology)

- 29 **Near-miss Incident Data Classification Relating to Active Safety Measures**  
Tetsushi Mimuro (Akita Prefectural University)  
Akinori Uno (Suzuki Motor Corporation)  
Hitoshi Uno (Nissan Motor Co. Ltd.)  
Yohei Satomi (Toyota Motor Corporation)  
Hidetoshi Saruwatari (Honda R&D Co. Ltd.)  
Mamoru Sekiguchi (Fuji Heavy Industries Ltd.) Toshiya Tsukahara
- 30 **Analysis and Modeling of Pedestrian Behavior Away from Crosswalks**  
Hiroko Mori·Akio Kozato·Masahiko Yamashita·Tetsuo Kurahashi·  
Takashi Machida·Hironobu Kitaoka  
(TOYOTA CENTRAL R&D LABS., INC.)  
Yasuo Asakura (Kobe University)
- 31 **Driving Behavior Analysis in Lane Change Maneuver Using Continuous Sensing Drive Recorder**  
Kozo Maeda·Takuya Mizushima·Hideki Tsunai·Pongsathorn  
Raksincharoensak·Ryuzo Hayashi·Masao Nagai  
(Tokyo University of Agriculture and Technology)  
Masumi Kobana·Kazuya Sasaki (Toyota Motor Corporation)

- 32 **Analysis on Hazardous Risk and Safety Confirmation in Right Turn Maneuver Using Continuous Sensing Drive Recorder**  
Masahiro Tago·Pongsathorn Raksincharoensak·Masao Nagai  
(Tokyo University of Agriculture and Technology)  
Yoji Mizoguchi·Kazuya Sasaki (Toyota Motor Corporation)
- 33 **Driving Behavior Analysis at Yellow Light Traffic Using Continuous Sensing Drive Recorder**  
Yohei Michitsuji·Hiroyuki Igawa·Pongsathorn Raksincharoensak·  
Masao Nagai (Tokyo University of Agriculture and Technology)  
Kazuya Sasaki·Takashi Yonekawa (Toyota Motor Corporation)

[13:15~15:55]

### 7-09 Electric Vehicle, Hybrid Electric Vehicle, Traction Motor and Control Technologies

<OS> Chairperson: Masakazu Sasaki (Nissan Diesel Motor)

- 34 **Development of Electric Drive Motor for 2009 Model Year Fuel Cell Vehicle**  
Akinobu Iwai·Tatsuya Fukushima·Noritaka Yamaguchi·  
Hiroaki Shinoki (Honda R&D Co.,Ltd.)
- 35 **Development of Energy Storage for New Hybrid Vehicle**  
Tsuyoshi Matsuda·Atsushi Mizutani  
(Honda R&D Co.,Ltd. Automobile R&D Center (Tochigi))
- 36 **Development of compact and high power in-wheel-motor unit**  
Yutaro Kaneko·Katsunori Asogawa·Hiroyuki Hirano·  
Keiko Shishido (NISSAN MOTOR CO.,LTD.)
- 37 **Improving in Traction Performance of Motor-Assisted-All-Wheel-Drive Vehicle by Using Acceleration Based Slip Ratio Control**  
Hidekazu Moriki·Shinya Imura  
(Hitachi, Ltd. Mechanical Engineering Research Laboratory)  
Masaru Ito·Norikazu Matsuzaki (Hitachi, Ltd. Automotive System Group)  
Shin Fujiwara·Kohei Itoh (Hitachi Car Engineering Co., Ltd.)
- 38 **Development of new hybrid system for compact class vehicle**  
Toshiya Hashimoto·katsuhiko Yamaguchi·Takuji Matsubara·  
Hideaki Yaguchi·Toshifumi Takaoka (Toyota motor)
- 39 **Development of Power Control Unit for compact class vehicle**  
Natsuki Nozawa·Ken Asakura·Shigeyuki Nozawa·  
Takeshi Maekawa (Toyota Motor)

[16:15~18:20]

### 8-09 Electric Energy Storage System, EV Component, Testing and Analysis

<OS> Chairperson: Yoshitaka Asakura (Toyota Motor)

- 40 **Method of Fuel Economy Evaluation for Heavy Duty HEV**  
Norihiko Niino·Atsuo Obata·Takayuki Suzuki  
(Hino Motors, Ltd.)
- 41 **Spiral motor with three dimensional flux flow**  
Yasutaka Fujimoto·Hirosaki Hamada  
(Yokohama National University)
- 42 **Control Simulation of Permanent Magnet Synchronous Machine with Behavior Model made by Electromagnetic Filed Simulator**  
Katsuyuki Narita·Yoshiyuki Sakashita·Takashi Yamada  
(JSOL Corporation)  
Kan Akatsu (Tokyo University of Agriculture and Technology)
- 43 **Comparison of IPM and SPM under high flux density condition**  
Kan Akatsu (Shibaura Institute of Technology)  
Katsuyuki Narita·Yoshiyuki Sakashita·Takashi Yamada (JSOL)
- 44 **Control of Electric Vehicle Based on Quick Response of Regenerative Braking Torque with In-wheel Motors**  
Hirosaki Fujimoto·Shinsuke Sato·Toru Suzuki  
(Yokohama National University)

**304 (3F)**

[9:30~11:35]

### 9-09 The Latest CAE and Test Technologies for NVH I

<OS> Chairperson: Hirotaka Shiozaki (Mitsubishi Motors)

- 45 **LAN-XI, a distributed front-end concept for NVH measurements**  
Svend Gade·Niels-Jorgen Jacobsen·Ole Thorhauge  
(Bruel & Kjar, Narum, Denmark)

- 46 **Developments in Transmissibility Matrix method in application for structure borne noise path analysis**  
Dmitri Tcherniak (Bruel and Kjaer SVM)
- 47 **Experimental Evaluation of Exterior Noise Contribution —Source Substitution & Transmissibility Matrix Method—**  
Yunseon Ryu·Andreas Schuhmacher·Dmitri Tcherniak (Bruel & Kjaer)  
Daisuke Morie·Masateru Kimura (Bruel & Kjaer Japan)  
Yoshihiro Shirahashi (NISSAN Motors)
- 48 **A new efficient methodology for the dynamic analysis of vehicle sound package soft trim components**  
Claudio Bertolini (Rieter Automotive Management AG)  
Kazuhito Misaji·Fumihiko Ide·Yasunobu Kurota (Honda R&D Co., Ltd.)  
Leonardo Ferrali (Nihon Tokushu Toryo Co., Ltd.)
- 49 **Validation of Hybrid FE-SEA model of a trimmed full vehicle for reduction of structure borne noise in the mid-frequency range**  
Arnaud Charpentier·Prasanth Sreedhar (ESI Group)  
Kazuki Fukui (Nissan Motor Co.)

[12:30~14:10]

**10-09 Latest Technology of High Performance Materials**  
<OS> Chairperson: Manabu Enoki (The University of Tokyo)

- 50 **Development of TPO/Clay Nanocomposite for Side Sill Molding**  
ChoonSoo Lee·MinHee Lee·SangWoo Kim·BongHyun Park  
(Hyundai Motor Company)
- 51 **Characteristic Study for Long-term Properties of Crash Pad Skin**  
Seungchul Chae·Sungkuk Park·Daeup Kim (Hyundai Mobis)
- 52 **(Cancelled) Designing Automotive Glazing for Enhanced Noise Reduction, Weight Savings and Ecological Benefits**  
Jun Lu (Solutia Inc)·Stephane Leroux (Solutia Inc.)
- 53 **DuraBowl: Locally Modified Piston Material for Highest Stresses and Temperatures**  
Mark Day (Federal Mogul Corporation)  
Simon Reichstein·Frank Doernenburg·Peter Konrad·  
Scott Kenningley·Roman Kohlmorgen (Federal Mogul)
- 54 **(Cancelled) New Generation of Interlayers for head Up Display**  
Jun Lu
- 55 **Development of coating-geomet anticorrosion surface treatment for brake parts**  
Deukkyu Hwang·Keeyang Lee·Daeup Kim (Hyundai Mobis)

[14:30~16:35]

**11-09 Noise and Vibration and Harshness**  
Chairperson: Tsuyoshi Yamashita (Honda R & D)

- 56 **Measuring absorption coefficients of acoustical materials by free field method with PU-Probe**  
—The investigation of the correction for spherical wave by the numerical calculation and the experiment—  
Kunikazu Hirosawa·Hiroshi Nakagawa·Makoto Kon·Aki Yamamoto  
(Nittobo Acoustic Engineering Co.,Ltd.)
- 57 **Using the Hybrid FE-SEA method to predict warning system sound in a trimmed full vehicle**  
Arnaud Charpentier·Takuya Miyahara (Nihon ESI K.K.)  
Yasushi Hamada·Ikuyo Ohsugi·Norishige Amimoto  
(Mazda Motor Corporation)
- 58 **The hydraulic engine mount by the physical modeling technics.**  
Yoji Yakuwa
- 59 **Quantitative Assessment of Bruise of Strawberries in Long Transport: Part 2**  
Kozue Kobayashi (Hino Motors.Ltd.)
- 60 **A Research for the Planetary Gear Considering Noise Development in FF 6th Stage Automatic Transmission**  
HYUN-KU LEE·MOO-SUK KIM·JIN-WOOK HUR·  
DOUCK-HAN BAE·KOO-TAE KANG (Hyundai-Motors Company)

[9:30~11:35]

**12-09 Advanced Fuel and Lubricant Technology I**  
<OS> Chairperson: Mitsuru Konno (Ibaraki University)

- 61 **Effects of Unsaturated Components on Droplet Evaporation and Combustion of Biodiesel Fuel Made from Vegetable Oils**  
Hiroshi Nomura·Masato Suzuki (Nihon University)  
Nozomu Hashimoto (Central Research Inst. of Electric Power Industry)
- 62 **Diesel Combustion Characteristics of Palm Oil Isobutyl Ester**  
Eiji Kinoshita·Yuu Ueda·Seiji Takata (Kagoshima University)
- 63 **Effects of Long-term Storage on the Quality of Biodiesel fuels (First Report)**  
Makoto Hasegawa·Mitsuaki Wakita·Tomoharu Kato·Yusuke Iizuka  
(JOMO Technical Research Center Co.,Ltd)
- 64 **Effects of Long-term Storage on the Quality of Biodiesel fuels (Second Report)**  
Makoto Hasegawa·Mitsuaki Wakita·Tomoharu Kato·Yusuke Iizuka  
(JOMO Technical Research Center Co.,Ltd)
- 65 **Effect Impurities on DME Powered Diesel Engine Performances**  
—Emission Characteristics on Transient Conditions—  
Mitsuharu Oguma

[12:30~13:45]

**13-09 Advanced Fuel and Lubricant Technology II**  
<OS> Chairperson: Hajime Ishii (National Traffic Safety and Environment Laboratory)

- 66 **A study about applicability of combustion characteristics to fuel parameters derived from molecular structure (1st Report: Fuel ignitability and anti-knock quality)**  
Masato Murase·Teruo Suzuki  
(JOMO Technical Research Center Co.,LTD)
- 67 **Study on Fundamental Combustion Properties of DME and Ethanol Flames at Elevated Pressure**  
Kimitoshi Tanoue·Yu Shigeharu·KiJong Lee·Yusuke Hara·  
Fumio Shimada (Oita University)
- 68 **Effect Analysis of Bio Diesel Fuel on Engine Oil Deterioration**  
Daichi Shimokoji·Yosuke Okuyama·Masashi Maruyama  
(Honda R&D Co.,LTD)
- 69 **(Cancelled) Characteristic of engine oil /Using Substituent Additive for ZnDTP "SPZn"**  
hirotaka yamasaki

[14:05~16:10]

**14-09 Vehicle, General**  
Chairperson: Yasufumi Sekine (Mitsubishi Motors)

- 70 **Analysis of the Influence of Driving Customs Including ECO-DRIVE for Actual Fuel Economy**  
Hiroshi Sambuichi·Takashi Masuko (IID, Inc.)  
Hiroyuki Fujiwara (IRI Commerce & Technology, Inc.)  
Tatsuya Sashizawa (IID, Inc.)
- 71 **Analysis of the Contributing Factors to Actual Fuel Economy by Structural Equation Modeling**  
Takashi Masuko·Hiroyuki Fujiwara·Hiroshi Sambuichi
- 72 **(Cancelled) Design Optimization of HECU Bracket for Vibration Fatigue Performance**  
Hakyoung Kim
- 73 **Reduction of Accident Repair Cost by Improvement of Damage-Ability and Repair-Ability**  
Masatoshi Saito·Satoshi Mizukami (The Jiken Center Co., Ltd.)
- 74 **Consideration concerning the lives of Trucks and Trailers**  
Toshiho Takeshita
- 75 **A study of the popularised electric vehicle equipped with solar cells**  
Toshiaki Sakurai (Iwaki, Fukushima, Japan)

**313+314 (3F)**

[9:30~11:35]

**15-09 Metals I**

Chairperson: Masaaki Kondo (Toyota Motor)

- 76 **Producing ultra-high strength components with cold forming, roll forming and hot forming processes**  
Kenichi Watanabe (Kobe Steel, Ltd.)  
Christian Walch (voestalpine Stahl GmbH)  
Toru Matsuda (Kobe Steel, Ltd.)  
Karl M. Radlmayr (voestalpine Automotive GmbH)  
Robert Wurzer (voestalpine Profilform GmbH)
- 77 **Comprehensive Approach Based on the Deformation Behavior of Steel**  
—Advanced Technologies Related to Crash Simulation for Optimum Combination of Structure and Material, Part I—  
Shunji Hiwatashi·Akihiro Uenishi·Hiroshi Yoshida·Shigeru Yonemura·Satoshi Hirose·Naruhiko Nomura (Nippon Steel Corporation)
- 78 **Measurement technology of stress-strain curve in the range of high strain-rate**  
—Advanced technologies related to crash simulation for optimum combination of structure and material, Part II—  
Satoshi Hirose·Hiroshi Yoshida·Shigeru Yonemura·Akihiro Uenishi·Shunji Hiwatashi·Noriyuki Suzuki (Nippon Steel Corporation)
- 79 **High Strain Rate Properties of Sheet Steel**  
—Advanced Technologies Related to Crash Simulation for Optimum Combination of Structure and Material, Part III—  
Akihiro Uenishi Hiroshi Yoshida Shigeru Yonemura Shunji Hiwatashi Satoshi Hirose Noriyuki Suzuki
- 80 **Development of Crash Analysis Method for Formed- and Aged-Steel Sheet Structure**  
—Advanced Technologies Related to Crash Simulation for Optimum Combination of Structure and Material, Part IV—  
Shigeru Yonemura Shunji Hiwatashi Satoshi Hirose Akihiro Uenishi Noriyuki Suzuki Hiroshi Yoshida

[13:00~14:40]

**16-09 Metals II**

Chairperson: Takahiro Tanae (Honda R&amp;D)

- 81 **Study on thickness addition forming process of external wall of part by press working**  
fumiaki shigematsu·yuhya suzuki·souichiro nishino (Ibaraki university)  
kunio ohya yukio yuzawa (Kikuchi, Co, Ltd)  
yoshitaka asagi (Pascal, Co, Ltd) atsuo isizaki (koyosangyosha)
- 82 **Fracture Prediction in Plastic Deformation Based on the Local Bifurcation Theory**  
Ryuichi Nishimura·Yoshiaki Nakazawa (Sumitomo Metal Industries, Ltd)  
Koichi Ito·Gen Uemura (M&M Research, Inc.)
- 83 **Experimental proof of excellent shape-freezing property on form forming by test dies**  
kunio Ohya mitsuhide maruhashi·fumiya nakamura·souichiro nishino (Ibaraki university)  
kazushi watanabe·haruo yamamoto·katsuyuki yanai (Taiyo Kogyo CO., LTD.) yoshitaka asagi (Pascal CO.,LTD.)
- 84 **Effects of Mechanical Properties and Geometry on Crash Performance**  
Yoshiaki Nakazawa·Kenji Tamura (Sumitomo Metal Industries, Ltd.)  
Takayuki Sunakawa·Minoru Inoue (Mazda Motor Corporation)  
Peter Jones (Corus Automotive) Derick Smart (Corus)

[15:00~16:40]

**17-09 Metals III**

Chairperson: Yoshiteru Yasuda (Nissan Motor)

- 85 **Mechanism study of specific corrosion and its prevention method for decorative chrome plating**  
Soichiro Sugawara·Hideaki Yaegashi (Nissan Motor Co., Ltd.)
- 86 **Sliding damage evaluation of surface coating by test dies assuming real press working**  
kaoru inoue·shogo matsunaga·souichiro nishino (Ibaraki university)  
kunio ohya keiji yokose·kohki toishi (DOWA Thermo Tech CO., LTD.)  
yasunobu komine (Komine Co.,Ltd.) toshiyuki asano ken kato

**87 Development of High Temperature Vacuum Carburized CVT Pulleys**

BongLae Jo·ChangWon Kang·Hyun-Soo Park·Jong-Dae Lim (Hyundai Motor Company)

**88 The Trends Tasks in Automotive Materials and Processing Technologies**

—The state of Materials and Processing technology for future advancement—

Kiyoshi Funatani (IMST Institute)

**414+415 (4F)**

[9:30~11:10]

**18-09 New Measurement and Diagnostic Technique 1**

&lt;OS&gt; Chairperson: Mitsuhiro Tsue (The University of Tokyo)

- 89 **Microwave Assisted Spark Induced Breakdown Spectroscopy**  
Masashi Kaneko·Yuji Ikeda (Imagineering, inc.)
- 90 **Fuel Concentration Measurement Using Spark-Induced Breakdown Spectroscopy**  
—Effect of Spark Discharge on Emission Spectra—  
Nobuyuki Kawahara (Okayama University)  
Eiji Tomita·Satoshi Takemoto (Okayama University)  
Yuji Ikeda (Imagineering, Inc.)
- 91 **Development of Nitrogen Components Analyzer Utilizing Quantum Cascade Laser**  
Kenji Hara·Shigeru Nakatani·Hiroshi Nakamura·Yoshimasa Tanaka·Juichiro Ukon (HORIBA, Ltd.)
- 92 **A Direct measurement of Exhaust-Gas Flow using a Infrared Thermograph**  
Ryosuke Okunishi·Jiro Funaki·Katsuya Hirata (Doshisha University)

[13:00~15:05]

**19-09 New Measurement and Diagnostic Technique 2**

&lt;OS&gt; Chairperson: Naoki Kono (Tonen General Sekiyu)

- 93 **Transient measurement of unregulated emissions from diesel engine using on-line mass spectrometer**  
—effect of DPF—  
Nobuhiro Yanagisawa·Keiko Shibata·Yoshihisa Tashiro (Isuzu advanced engineering center, ltd.)  
Takayuki Mukunashi·Takao Onodera (Isuzu motors, ltd)
- 94 **Development of vehicle fuel economy diagnosis and improvement system by measuring instantaneous fuel flow and indicated power**  
Koji Morikawa·Akira Akimoto·Hiroshi Hosaka·Keisuke Tsutsumi (Fuji Heavy Industries Ltd)
- 95 **Analysis of Behavior of Fuel Consumption and Exhaust Emissions under On-road Driving Conditions Using Real Car Simulation Bench (RC-S)**  
Daisuke Kawano·Yuichi Goto (National Traffic Safety and Environment Laboratory)  
Kentaro Echigo·Koji Sato (Ono Sokki Co.,Ltd.)
- 96 **A study of 4 wheel drive vehicle test on 4WD chassis dynamometer.**  
—The effect of vehicle loss on fuel consumption.—  
Yoshinao Sato (TOYOTA MOTOR CORPORATION)  
Takao Satonaka (TOYOTA TECHNICAL DEVELOPMENT CORPORATION)  
Yasuhiro Ogawa·Shinji Noguchi·Shigeo Nakamura (HORIBA, Ltd.)
- 97 **Simulation of Battery Energy Flow of a Hybrid Electric Vehicle**  
—Verification of a Start and Stop at Hill Drive Applying a Proposed Method of Road Inclination Convert to a Data Received by GPS—  
Toshiyuki Sakamoto (Honda Motor Co., Ltd.)

## 5.20 (Wed.)

[15:25~17:05]

### 20-09 New Measurement and Diagnostic Technique 3

<OS> Chairperson: Kazuhiro Akihama (Toyota Central R&D Laboratories)

- 98 Instantaneous Rotation Frequency/Phase Measurement of a Rotor by the Analytic Signal Method  
—Analysis Precision Study Using a Rotation Detector Model—  
Takashi Nakashima·Makoto Sugisaki·Hideo Suzuki (A&D)
- 99 An Iterative Periodic Time Difference Detection Method and Its application to Noncontact Torque Sensors  
Takahiko Tsujisawa (Ashikaga Institute of Technology)  
Kazuhiro Yamakawa·Kazuyuki Abe (Azuma Systems Corporation)
- 100 Development by Non Contact Air Coupled Ultrasonic Testing  
—Introduction of Detection & Application by NAUT—  
Masakazu Takahashi·Hidekazu Hoshino·Yukio Ogura (Japan Probe Co.Ltd)
- 101 Virtual kingpin computing technique with SPMD and screw axis theory  
JinHyuck Heo·UnKoo Lee·SangHo Lee (Hyundai Motor Company)

**416+417 (4F)**

[9:30~10:20]

### 21-09 Body Engineering by CAE

Chairperson: Tetsuo Maki (Tokyo City University)

- 102 Cancelled
- 103 A Study on the Evaluation Method of the Vehicle Global Stiffness  
Cheol-Ung Kim·Seok-Gil Hong·Young-Chul Shin (Hyundai Motor Company)
- 104 Load Path U\*\* Analysis of Truck Cab Structures under Frontal Collision  
Enyang Wang·Yuki Yoshikuni·Qiushi Guo (Graduate School, Keio University)  
Tetsuo Nohara·Hideaki Ishii (Nissan Diesel Motor Co. LTD)  
Hiroaki Hoshino·Kunihiro Takahashi (Keio University)
- 105 (Cancelled) A Study on FE Modeling Methodology for Laser Scored Hard IP Tear Seam  
Janghoon Choi (Hyundai Mobis)

[12:30~14:35]

### 22-09 Durability and Water Management in Automotive Fuel Cell

<OS> Chairperson: Yasuo Takagi (Tokyo City University)

- 106 Study of MEA Durability Testing Protocols  
Motoaki Akai·Yoshiyuki Hashimasa (Japan Automobile Research Institute)
- 107 Development of a Method for Estimating the Durability of Fuel Cell Stacks for Vehicle Use  
Ryoichi Shimoi·Takashi Aoyama·Akira Matsunaga·Akihiro Iiyama (Nissan Motor Co.,Ltd.)
- 108 Degradation of Catalyst and Carbon Support Caused by FCHV (Fuel Cell Hybrid Vehicle) Operation Mode  
Toru Morita·Manabu Kato (TOYOTA MOTOR CORPORATION)
- 109 The Development of High Power Density and Low Cost New Fuel Cell Stack  
Atsushi Miyazawa·Keigo Ikezoe·Yozo Okuyama·Masanari Yanagisawa (NISSAN MOTOR CO., LTD.)
- 110 Influence of mass transfer characteristics at Catalyst Layer of MEA on Generation Performance of Fuel Cell  
mitsumasa nakano·atsushi nakamura·Zhili Chen (tokai university)

[14:55~17:00]

### 23-09 Automotive Fuel Cell Systems

<OS> Chairperson: Masafumi Sasaki (Kitami Institute of Technology)

- 111 Development of the powertrain for new Fuel Cell Vehicle  
Minoru Matsunaga·Tatsuya Fukushima·Kuniaki Ojima (Honda R&D Co.,Ltd. Automobile R&D Center)
- 112 Development of the small fuel cell stack for vehicles  
Hideaki Kikuchi·Nobuhiro Saito (Honda R&D Co.,Ltd. Automobile R&D Center)

- 113 (Cancelled) Recent Advances in Cold-Start and Drive Capability of Hyundai-Kia's FCEVs

Woosuk Sung (Hyundai Motor Company)

Kyung-Won Suh SoonGil Kweon Jongjin Park JaeJun Ko JongHyun Lee

- 114 The Development of the Water Content Control System based on AC Impedance for Fuel Cell Hybrid Vehicles

Nobuyuki Kitamura·Kota Manabe·Yasuhiro Nonobe·

Mikio Kizaki (Toyota Motor Corporation)

- 115 The development of small, high-performance humidifiers for FCVs

Masahiro Usuda·Shigenori Yazawa (NISSAN MOTOR CO LTD)

- 116 A Study on Safety Release Method of High-pressure Hydrogen Gas for FCV

Toshiya Hirose·Kazuo Matushima·Tetsuo Taniguchi (National Traffic Safety and Environment Laboratory)

**501 (5F)**

[9:30~10:45]

### 24-09 Diesel Fuel Consumption

<OS> Chairperson: Hideyuki Ogawa (Hokkaido University)

- 117 THE THIRD GENERATION COMMON RAIL SYSTEM  
MASAMICHI SHIBATA·ZENJI KUWABARA·RYUICHI EZAKI (DENSO)
- 118 High Efficient and Clean Combustion Concept ITC-PCI —Application to the vehicle with LP-EGR and transient combustion control—  
Motoshi Kataoka·Daisuke Shimo·Kouta Maekawa·Masanari Sueoka (Mazda Motor Corporation)
- 119 Technology for Improvement Fuel Efficiency and Low Emission Control for Medium Duty Diesel Engine (First report)  
Takeshi Moriya·Yasunori Daigo·Minehiro Murata·Shinji Mori·Yusuke Narita·Toru Kawatani (Mitsubishi Fuso Truck&Bus Corporation)
- 120 Cancelled

[13:00~14:40]

### 25-09 Advanced Diesel Combustion and Emission Control I

<OS> Chairperson: Norimasa Iida (Keio University)

- 121 Further CO<sub>2</sub> Reduction for future power trains  
Matthias Dr.Lamping (Department Manager Diesel Combustion Systems)  
Rolf Mr.Weinowski (Chief Engineer Gasoline Engines and Andreas Sehr (Department Manager Combustion System Development Gasoline Engines & Powertrain Application)
- 122 Contribution of Injection Pressure to Improve Efficiency and NO<sub>x</sub>-Emissions  
Yasumasa Konishi (Bosch Corporation, Higashimatsujama)  
Juergen Gerhardt·Ulrich Projahn·Dirk Naber·JensOlaf Stein·Yvan Gauthier·Gerd Bittlinger (Robert Bosch GmbH, Stuttgart)
- 123 Correlation of Mixture Formation and Combustion Processes in D.I. Diesel Sprays  
Wu Zhang·Keiya Nishida (University of Hiroshima)
- 124 The Optimum Development of Cordierite Filter System for Diesel Engine  
Gyuhong Kim·Choong-il Kwon·Jung-min Seo·Seok-jae Kim·Hong-jip Kim (Hyundai Motor Company)

[15:00~16:40]

### 26-09 Advanced Diesel Combustion and Emission Control II

<OS> Chairperson: Keiji Kawamoto (Nissan Motor)

- 125 Optimization of NO<sub>x</sub> Reduction and NH<sub>3</sub> Injection for a NH<sub>3</sub>-SCR System under Various Exhaust Gas Conditions  
June-Seok Oh·Yong-Seok Cho·Seang-Wock Lee (Department of Mechanical and Automotive Engineering, Kookmin University)  
Chun-Sub Song·Young-Joon Park·Yu-Bin Yoon (Graduated school of Automotive Engineering, Kookmin University)
- 126 Meeting Future Emission Legislation with Advanced Diesel SCR Control Systems  
Robert Cloudt·Edwin vandenEijnden·Peter vanderHeijden (TNO Automotive Netherlands)

**127 The Effect of Aftertreatment System Arrangement Applied to Heavy-Duty Diesel Engine**

Myoungho Song·Seangwock Lee·Yongseok Cho  
(Graduate School of Automotive Engineering Kookmin University)  
Hongsuk Kim·Youngil Jeong (Korea Institute of Machinery Materials)

**128 A Development of LNT using 2nd Injection System to meet the future emission regulations**

Hyokyung Lee·Sangmin Lee·Jinha Lee·Hongjip Kim  
(Hyundai Motor Company & Kia Motors Corporation)

**502 (5F)**

[9:30~11:35]

**27-09 HCCI I**

Chairperson: Yoshihiro Funayama (Hino Motors)

**129 Improvement of HCCI Engine Performance by Fuel Composition (2nd Report)**

—CO Emission Measurement and Realization of DP-HTHR Combustion from Refinery Fuels—

Gen Shibata (Nippon Oil) Tomonori Urushihara (Nissan)

**130 A Study of High Temperature Heat Release Personality of Hydrocarbons in HCCI Combustion**

Gen Shibata (Nippon Oil Corporation)

Tomonori Urushihara (Nissan Motor Co., LTD)

**131 What does HCHO addition to HCCI engines mean ?**

Kazunari Kuwahara (Osaka Institute of Technology)

Hiromitsu Ando·Yasuyuki Sakai (University of Fukui)

Masahiro Furutani (Nagoya Institute of Technology) Yasuhiko Ohta

**132 Is Hydrocarbon Thermal Ignition a Radical Chain Branching of Hydrogen-Oxygen System?**

Hiromitsu Ando (University of Fukui)

Kazunari Kuwahara (Osaka Institute of Technology)

Yasuyuki Sakai (University of Fukui)

**133 Investigation on the Effect of Octane Number Increase —Analysis Based on Chemical Kinetics—**

Hideki Takase·Yuichi Yamanaka·Yogo Takada·

Tomoyuki Wakisaka (Osaka City University, Graduate school)

[13:00~14:15]

**28-09 HCCI II**

Chairperson: Yasuo Moriyoshi (Chiba University)

**134 Using Process Informatics to achieve more rapid and systematic experimental/model developments for IC engines**

Markus Kraft (Reaction Engineering Solutions)

**135 A novel approach to simulating future fuel engine technologies using tri-component surrogate mixtures**

Markus Kraft (Reaction Engineering Solutions)

Andrew Smallbone·Neal Morgan·Amit Bhave·

Roger Cracknell·Gautam Kalghatgi

**136 Cancelled**

**137 Can dual-fuel strategy extend operation ranges of HCCI engines?**

Yasuyuki Sakai·Shigeki Ideue (University of Fukui)

Kazunari Kuwahara (Osaka Institute of Technology)

Hiromitsu Ando (University of Fukui)

**511+512 (5F)**

[9:30~12:10]

**29-09 Accident Investigation and Analysis**

<OS> Chairperson: Youji Shimizu (Nissan Motor)

**138 Statistical modeling of injury risk based on Japanese traffic accident data**

Shigeru Tominaga·Tetsuya Nishimoto·Michiharu Okano  
(Nihon University)

Yasuhiro Matsui·Hideki Yonezawa (NTSEL)

**139 Scattering Phenomenon of Broken Parts in Traffic Accident (First Report)**

—Analysis of Scattering Mechanism of Broken Parts based on One Dimensional Car-to-Car Collision Tests—

Mitsunobu Fujita (The Jiken Center Co., Ltd.)

**140 Effect of Seatbelt and Airbag on High-Energy Traffic Accident —Report from Emergency Room—**

Kazuaki Shinohara·Megumi Okada·Tokiya Ishida·

Hidehito Fujita·Gundai Saito·Jiro Okazaki·

Hideyuki Yokoyama·Yoshibumi Kumada·Akinori Matsumoto

(Department of Critical Care Medicine, Ohta Nishinouchi Hospital, Ohta Foundation)

**141 Number of accident occurring model for car to car model**

Hisashi Imanaga Shigeru Tominaga (Nihon University)

Osamu Takatori (Japan Automobile Research Institute)

**142 A study for estimation injury severity using onboard data**

Suguru Yoshida (Honda R&D Co. Ltd. Automobile R&D Center)

Tetsuya Nishimoto (Nihon University)

Tsutom Koyama

(Kashiwa Hospital attached to Jikei medical University)

Takeyuki Suzuki·Takeshi Hasegawa

(Honda R&D Co. Ltd. Automobile R&D Center)

Shigeru Tominaga (Nihon University)

**143 Study on Event Data Recorder (Second Report)**

—Study using Three Crash Tests Data—

Nobuaki Takubo·Kenshiro Kato·Takahiro Okuno·Ryo Oga·

Makoto Kihira·Hirotoishi Ishikawa

(National Research Institute of Police Science)

Takahiro Ikari

(National Agency for Automotive Safety and Victim's Aid)

[13:15~14:55]

**30-09 Injury Reduction**

<OS> Chairperson: Shigeki Hayashi (Toyota Motor)

**144 3D Spatial Localization of Human Anatomic Injuries**

Stewart Wang·Sven A Holcombe·Hannu Huhdanpaa·Kerry Baum·

David C Lange·Christopher M Brede·Nicholas C Wang·

Cameron W Inglis·Carla J Kohoyda·Inglis·Hugh J Garton·

Smita Patel (University of Michigan)

**145 Patterns of local and regional variation in ribcage anatomy**

Sven Holcombe (University of Michigan)

Susumu Ejima·Koshiro Ono (Japan Automobile Research Institute)

Hannu Huhdanpaa·Kerry Baum·David C Lange·

Christopher M Brede·Cameron Inglis·Nicholas C Wang·

Carla J Kohoyda·Inglis·Hugh J Garton·Smita Patel·

Stewart C Wang (University of Michigan)

**146 Assessment of Severely Injured Belted Car Occupants in Traffic Accidents in Germany based on a New Definition of Injury Severity**

Dietmar Otte (Hannover Germany)

**147 A Study on the Seatbelt Anchorage Region and Development of Template for Belt-fit Evaluation**

Youngjoon Park·Choongsik Shin (Hyundai motors)

[15:15~16:55]

**31-09 Occupant Protection**

<OS> Chairperson: Koshiro Ono (Japan Automobile Research Institute)

**148 Biomechanical Assessment of Standard and Force-Limiting, Pretensioned Belt Restraints in the Rear Seat**

Richard Kent·Jason Forman·

Francisco J. Lopez-Valdes (University of Virginia)

**149 Optical Measurement of 6-DOF Kinematics of Internal Body Structures During Frontal Impact Restraint Loading**

Francisco J. Lopez-Valdes·Richard Kent·

Greg Shaw·David Lessley (University of Virginia)

Hiromasa Tanji·Kazuo Higuchi (Takata Corp.)

**150 Spinal Trajectories in Children and Adults Exposed to Low Speed Frontal Acceleration**

Sriram Balasubramanian·Thomas Seacrist·Matthew R. Maltese·

Kristy B. Arbogast (Children's Hospital of Philadelphia)

Terrance Hopely·Robert Sterner·Eric Constans (Rowan University)

Hiromasa Tanji·Kazuo Higuchi (Takata Corporation)

**151 Child Restraint Systems in Side Impact Crashes**

Kristy Arbogast·Caitlin Locey·Mark Zonfrillo·Matthew R Maltese

(Children's Hospital of Philadelphia)

**Small Auditorium (5F)**

[9:30~11:35]

**32-09 Diesel Emission Control**

<OS> Chairperson: Naoki Shimazaki  
(Isuzu Advanced Engineering Center)

**152 The NH<sub>3</sub>-SCR Performance with Fe/Zelite Based Catalytic Honeycomb Substrate**

Takahiko Ido (IBIDEN Co., Ltd.)  
Masafumi Kunieda·Yuki Miwa·Ken Yoshimura·  
Yasuki Tamura·Kazushige Ohno (IBIDEN)

**153 A Study on the Improvement of NO<sub>x</sub> Reduction Efficiency for a Urea SCR System (Fourth Report)**

—Development of Urea Injection Control Logic and its Application to Various Transient Operations—

Yutaka Murata·Sadahito Tokui·Ryo Komiya·Yasuhiro Daisho (Waseda Univ.)  
Hisakazu Suzuki·Hajime Ishii (National Traffic Safety and Environment Lab.)

**154 Development of an internal heat-exchanging converter for the purification of diesel vehicle exhaust gas**

—Performance of a prototype converter installing a Cu-zeolite catalyst for the selective reduction with NH<sub>3</sub>—

Akira Obuchi·Junko Uchisawa·Tetsuya Nanba·Akihiko Ohi·  
Norio Iijima·Shouichi Masukawa·Taku Tsujimura  
(National Institute of Advanced Industrial Science and Technology (AIST))

**155 Analysis of changes for NO<sub>x</sub> and NO<sub>2</sub> emission on in-use diesel vehicles meeting '05 emission regulation**

Hisakazu Suzuki·Hajime Ishii·Katsuharu Sakai·Yasuko Kumazawa  
(National Traffic Safety and Environment Laboratory)

**156 High Accuracy Exhaust Gas Temperature (EGT) Sensor with Anti-Resonance Structure**

YUSUKE TODO·TSUNENOBU HORI (DENSO CORPORATION.)

[13:00~15:05]

**33-09 Diesel Combustion I**

<OS> Chairperson: Hidenori Kosaka (Tokyo Institute of Technology)

**157 Reconstructed Diesel Combustion Simulation with a New Concept**

Hiro Hiroyasu (Hiro Technology Brains, Inc.)  
Mitsuo Sako (Hiro Technology Brains, Inc.)

**158 The dependence of premixed diesel combustion on fuel ignitability**

Ryuta Kakizaki·Masaru Suzuki·Tie Li·Hideyuki Ogawa  
(Graduate School of Engineering Hokkaido University)  
Makoto Murase (JOMO Technical Research Center)

**159 Combustion and Emission Characteristics of a PCI Engine Fueled with Ethanol-Diesel Blends**

Yutaka Masuda Zhili Chen (Tokai University)

**160 Study of Transition Control Method between PCI Combustion and Conventional Combustion on Multi Cylinder Diesel Engine**

Keiki Tanabe·Fumitaka Komatsu·Keiichi Okude·Shinji Nakayama·  
Shiroh Shiino·Kazutoshi Mori (Mitsubishi FUSO Truck & Bus Corp.)

**161 Factor Analysis of HC and CO Formation in a PCI engine**

Tomoya Iwashina·Zhili Chen (Tokai university)

[15:25~17:30]

**34-09 Diesel Combustion II**

<OS> Chairperson: Hisakazu Suzuki  
(National Traffic Safety and Environment Laboratory)

**162 Effects of Hydrogen Addition to Intake Mixture on Combustion and Exhaust Emission Characteristics of a Diesel Engine**

Toru Miyamoto·Masato Mikami·Naoya Kojima (Yamaguchi University)  
Hajime Kabashima·Yasuhiro Urata (Honda R&D Co., Ltd.)

**163 Investigation of Low emission and High Efficiency Combustion Technique for Commercial Vehicle Diesel Engine**

Takuya Kitasei·Junichi Yamada·Yusuke Matsumoto·  
Keiichi Okude·Hiroshi Ino·Shiro Shiino·Kazutoshi Mori  
(Mitsubishi Fuso Truck & Bus Corporation)

**164 Effects of ambient density and temperature on development and combustion of diesel spray**

Takayuki Miyamoto·Tomoaki Yatsufusa·Yoshiyuki Kidoguchi·Jun  
Kawakami·Amir Khalid (Tokushima university)  
Kazuhiro Omae (Toyota Motor Corporation)

**165 Study on Combustion Improvement with Advanced Diesel Engine**

Taku Tsujimura·Shinichi Goto  
(National Institute of Advanced Industrial Science and Technology)

**166 Diesel Combustion Model with Auto-ignition Process of Non-homogeneous Mixture**

Hiroshi Kawanabe·Ryo Yamamoto·Takuji Ishiyama (Kyoto University)

**5.21 (Thu.)****301 (3F)**

[9:30~12:35]

**35-09 Human Machine Interface**

<OS> Chairperson: Tatsuru Daimon (Keio University)

**167 Cognitive assistance against the approaching vehicle using 3D sound image information system.**

Atsunobu Kaminuma (Nissan Motor Co., LTD.)

**168 An adaptation between the voice attribute of an in-vehicle device and a driver**

Izuru Nogaito·Maiko Tanaka (Toyota InfoTechnology Center)  
Ben Reaves (Toyota InfoTechnology Center U.S.A.)  
Nawa Kazunari (Toyota InfoTechnology Center)

**169 A study of mechanism that warning output from dangerous direction brings avoidance reaction forward**

Hironobu Yonezawa·Tadayuki Niibe·Yasunori Yamamoto (MAZDA)

**170 Mental Workload Evaluation of Visual Information using Brain Waves**

—Splitting-off the Mental Workload and the Response Workload—  
Lucian Gheorghe (Nissan Motors CO., LTD.)

**171 Behavior of Driver on Visual Warning on Car**

Hajime Takada·Fumiaki Ono (Yokohama National University)  
Rokuro Okada (DENSO CORPORATION)  
Yoshifusa Matsuura (Yokohama National University)

**172 Ambient information display method based upon spatio-temporal frequency properties of driver's field of view**

Masami Funakawa (Nissan Motor Co. Ltd.)

**173 Study on evaluation method for HMI on display and operation systems**

Yukiyo Kuriyagawa·Ichiro Kageyama (Nihon University)  
Toshihiko Watanabe·Syuji Kuramoto·Sawa Mizobuchi·  
Kazunari Nawa (Toyota ITC) Hitoshi Kumon (Toyota)

[13:15~14:55]

**36-09 Intelligent System**

Chairperson: Takeshi Ishiyama  
(Japan Automobile Research Institute)

**174 A Scenario Based Simulation Environment for Developing Intelligent Vehicle Systems**

Martijn Tideman·Floris Leneman·Stefanie DeHair-Buijssen  
(TNO Automotive)  
Koichi Kawaguchi (TNO Automotive Japan K.K.)

**175 Development of the Full Speed Range Adaptive Cruise Control System**

Chankyoo Lee·Jiyoung Kim·Jaeyong Um·  
Insik Lee (Hyundai Motor Company)

**176 A Study of improving warning performance of Lane Departure Warning**

—using virtual lane—  
CHEOLHO KIM (HYUNDAI MOTOR)

**177 Active rear axle kinematics AKC - Improving driving dynamics, safety and comfort**

Markus Fischer (ZF Japan Co. Ltd., Tokyo, Japan)  
Dipl.-Ing. Marc Wiesenthal (ZF Lemforder GmbH, Dielingen, Germany)  
Dr. rer. nat. Horst Krimmel  
(ZF Friedrichshafen AG, Friedrichshafen, Germany)

## 302 (3F)

[9:30~12:10]

## 37-09 Driver Behavior

&lt;OS&gt; Chairperson: Ichiro Kageyama (Nihon University)

- 178 The examination of the evaluation technique both of the wipe performance of the raindrop and the front visibility in the vehicle  
Masahiko Yamanishi·Hiroshi Matsumoto (ASMO)  
Takashi Kitayama·Masatoshi Sakai·Takashi Kato·Muneo Yamada·Osami Yamamoto·Tomoaki Nakano·Shin Yamamoto (Meijo Univ.)
- 179 Investigation of Headlight Swivel-Angle Preference on Rural Two-Lane Highways  
Toru Hagiwara (Hokkaido university)  
Masahiko Morishita (Denso corporation)
- 180 Study on Effectiveness Evaluation of Adaptive Front-lighting System  
Yasutoshi Horii (DENSO CORPORATION)  
Shun'ichi Doi·Takahiro Wada·Keisuke Morikawa (KAGAWA UNIV.)
- 181 Passive Operation and Its Effects in Bimanual Operation of Steering  
Akihiro Sano·Kengo Togao·Yoshihiro Tanaka·Hideo Fujimoto (Nagoya Institute of Technology)
- 182 Analysis of the Driver's Head Motions and Steering Maneuvers according to the Rolling by Slalom Running  
Shuuichi Buma (TOYOTA MOTOR CORPORATION)  
Takashi Yahagi (AISIN ENGINEERING)  
Ryo Kanda (Toyota Technical Development)  
Tsunenori Takahashi·Shun'ichi Doi (Kagawa University)
- 183 The improving technology of the roll feeling based on visual performance characteristics  
Katsuhiko Fukui·Eiichi Ono (TOYOTA CENTRAL R&D LABS., INC.)  
Yasuhiro Iga·Tomoaki Shida (TOYOTA MOTOR CORPORATION)

[13:15~15:20]

## 38-09 Steering and Systems

Chairperson: Masato Abe  
(Kanagawa Institute of Technology)

- 184 Consideration for Transfer Elemental Dsigning, Employing Physical Characteristic Modeling of Steering Maneuver (First Report)  
Hiroshi Yoshimoto·Shirou Nakano·Shuuji Kimura·Ryouhei Hayama (JTEKT)
- 185 Evaluation of Automobile Steering Control System Using Human Arm Impedance Properties  
Yusuke Kashiba·Hiroyuki Wakita·Yoshiyuki Tanaka (Hiroshima University)  
Naoki Yamada·Takamasa Suetomi (Mazda)  
Toshio Tsuji (Hiroshima University)
- 186 Functional test of Electric Controlled Steering System with HILS  
Hiroshi Urabe·Kennichi Higashi·Yasuo Ohno·Hiroyuki Minami (SUZUKI Motor Corporation)
- 187 Analysis of the contribution of body flexibility to handling performances  
Rabah Hadjit (LMS International)  
Masafumi Kyuse·Umehara Kohei (Honda R&D)  
Theo Geluk·Peter Mas (LMS International)
- 188 Prediction of Transitional Body Deformation during Handring Maneuvers  
Masafumi Kyuse·Kohei Umehara (Honda R&D Co.,Ltd. Automobile R&D Center)  
Rabah Hadjit (LMS International)

## 303 (3F)

[9:30~10:45]

## 39-09 Aerodynamics and Thermo-Control

Chairperson: Kunio Nakagawa (Ashiya University)

- 189 Natural Wind Influence on Fuel Consumption for Highway Vehicles (Real wind model)  
Yasuo Ide Shigeru Ikeda·Kohichi Kajiyama (Kurume Institute of Technology)
- 190 Study of bluff body aerodynamics with back slant surface—The relationship between Reynolds number and aerodynamics—  
Kazuma Takeda·Itsuei Kohri (Tokyo City University (ex-Musashi Institute of Technology))

## 191 Evaluation of thermal environment in vehicle cabins employing CFD

—2nd Report: Study on radiative heat transfer with thermal manikin—

Takeshi Furuya·Itsuei Kohri·Emi Amano (Tokyo City University (ex-Musashi Institute of Technology))  
Kazuhiko Matsunaga (ISUZU MOTORS LIMITED)

[13:00~14:40]

## 40-09 Unsteady Aerodynamics and CFD

Chairperson: Tsuneaki Ishima (Gunma University)

- 192 Analysis of unstable aerodynamic effect with vehicle dynamics  
Eishi Takeuchi·Kazuhiro Maeda (Toyota Motor Corporation)  
Osamu Murata (TOYOTA CENTRAL R&D LABS., INC.)
- 193 Large Eddy Simulation of Flows around a Forced-Oscillating Simplified Car Model  
Norikazu Sato·Mitsuyoshi Kawakami·Yoshihiro Kato·Masahide Inagaki (Toyota Central R&D Labs. Inc.)
- 194 An evaluation method on LES solutions of vehicle underbody flow fields  
Kozo Kitoh (Kozo Kitoh Technology, Inc.)·Nobuyuki Oshima (Hokkaido University)  
Makoto Yamamoto (Tokyo University of Science)  
Simone Sebben (Volvo Car Corporation)
- 195 Development of vehicle thermal management simulation of engine room and under floor  
Masahiro Tanno·Jiro Takamitsu·VinhLong Phan (TOYOTA MOTOR CORPORATION)  
Shuichi Igarashi (TOYOTA TECHNICAL DEVELOPMENT CORPORATION)

## 304 (3F)

[9:30~11:35]

## 41-09 The Latest CAE and Test Technologies for NVH II

&lt;OS&gt; Chairperson: Akihiro Yamauchi (Toyota Motor)

- 196 Research on compressor noise prediction technology for MAC  
Hideyuki Takahashi Tadahiho Murata
- 197 A Multi Body Dynamic Analysis on Multiple Link Engine for improving radiation noise  
Masayuki Hara·Yusuke Sato·Masahiko Kondo (Nissan Motor)
- 198 The optimum design of the piston skirt  
Tsunehiko Saigusa (Inst.of Technologists)  
Hiroyuki Matsumoto (Inst.of Technologists)  
Hisami Ohishi (Kogakuin University)
- 199 The analysis of actual piston motion by using telemetry system  
Masanori Takahashi·Kiyoshi Iwade (NIPPON SOKEN, INC.)  
Kunihiko Suzuki·Hirokazu Negishi (TOYOTA MOTOR CORP.)
- 200 Development of tire eigenvalue control technology for optimization of roadnoise spectrum  
Yoshihito Miyama·Yusuke kageyama·hiromichi akamatsu·Takayuki Miyakawa·Naoki shiokawa·Shinichi Morita·Katsunori Tanaka (Nissan Motor Co.,LTD)  
Hiromichi Ebisawa (Estech corp.)

[12:30~13:45]

## 42-09 The Latest CAE and Test Technologies for NVH III

&lt;OS&gt; Chairperson: Nobuya Hatou (Nissan Motor)

- 201 CAE supported Transfer Path Analysis for vehicle interior noise prediction  
Franz Brandl·Stephan Brandl·Franz Zieher·Harald Pramberger (AVL List GmbH)
- 202 Acoustic simulation of intake and exhaust systems of turbo charged gasoline engines  
Franz Brandl·Andreas Dolinar·Werner Biermayer (AVL List GmbH)
- 203 (Cancelled) Enhancement of MDPS Noise Using HIL Simulation Device  
Hoil Jeong·Yuchul Jung·Kwangwoong Kim (Hyundai MOBIS)
- 204 Activities of Digital Wind Noise Testing Process for Virtual Prototype Developmen  
KangDuck Ih·SeongRyoung Shin (Hyundai Motor Company)  
Sivapalan Senthoooran·Bernd Crouse·David Freed (Exa Corporation)

**311+312 (3F)**

[9:30~10:45]

**43-09 The New Technology and the Trend for "The Drivetrain System and the Hybrid System" (1)**

&lt;OS&gt; Chairperson: Yasukazu Sato (Yokohama National University)

**205 Development of a New Hybrid Transmission for FWD compact class Vehicles**Daisuke Kitada·Hiroshi Aihara·Tatsuhiko Mizutani·  
Akira Takasaki·Ryuji Ibaraki·Hideto Watanabe·  
Kenji Odaka·Yota Mizuno (TOYOTA MOTOR CORPORATION)**206 Electrical-infinite Variable Hybrid Transmission with Compound-current-driven Coaxial Motor**Tomoya Imazu·Masaki Nakano·Toshikazu Oshidari·  
Yuusuke Minagawa·Minoru Arimitsu·Hirofumi Shimizu (Nissan Motor)**207 Characteristics of Plug-in Hybrid Electric Vehicle and Fuel Consumption Test Protocol Concept**Terunao Kawai·Tetsuya Niikuni·Kazuyuki Narusawa  
(National Traffic Safety and Environment Lab.)

[12:30~14:10]

**44-09 The New Technology and the Trend for "The Drivetrain System and the Hybrid System" (2)**

&lt;OS&gt; Chairperson: Masashi Yamanaka (Tohoku University)

**208 Future Truck Powertrain Concept - The CO<sub>2</sub> Challenge**

Franz Moser·Rolf Dreisbach·Theo Sams (AVL List GmbH)

**209 Hybrid Transmission System for Light Commercial Vehicles**

Oliver Buchhold (ZF Friedrichshafen AG)

**210 Shift feeling as a component of the vehicle image**—Shift feeling of manual transmissions in relation to  
vehicle characteristics—

Michael Weiss·Hans-Joachim Haas·Georg Kaufhold·Alen Zulfic (GIF)

**211 Gear shift quality prediction with a dynamic model**

Hiroki Yamaura (MITSUBISHI AUTOMOTIVE ENGINEERING Co. Ltd.)

Ryo Kuroda (MITSUBISHI AUTOMOTIVE ENGINEERING)

Jamie Pears·Nawazish AliZaidi (Romax Technology)

[14:30~16:10]

**45-09 The New Technology and the Trend for "The Drivetrain System and the Hybrid System" (3)**

&lt;OS&gt; Chairperson: Haruo Houjoh (Tokyo Institute of Technology)

**212 Development of New 6MT Shiftfeeling Improvement Technique**

Akihiro Fujii·Tomohiro Ishikawa·Ryuji Narita·

Kazunari Nagai (Toyota Motor Corporation)

**213 Examination of Manual Transmission Gear Jump Out Behavior**

Takanori Nukata (TOYOTA MOTOR CORPORATION)

Katsura Naito (TOYOTA TECHNICAL DEVELOPMENT CORPORATION)

Hideaki Koga·Tomohiro Isikawa·Akihiro Fujii

(TOYOTA MOTOR CORPORATION)

**214 Development of high rigidity drive chain for motorcycle**

Kensei Sakai (DAIDO KOGYO CO.,Ltd.)

Akiyoshi Komeya (DAIDO KOGYO CO.,Ltd)

**215 Development of Newly slipping LU for 7-speed Automatic Transmission**

Morimasa Yamawaki (Jatco Engineering Ltd)

Takeshi Yamamoto (Jatco Ltd) Tomoko Oue (Jatco Engineering Ltd)

**313+314 (3F)**

[9:30~11:35]

**46-09 Metals IV**

Chairperson: Toshiaki Kuroki (Hino Motors)

**216 Development of 5000 Series Aluminum Alloy Materials for Automotive Sheets by Twin-Belt Casting**

Akira Goto·Hidefumi Nihei (Honda R&amp;D Co.,Ltd.)

Pizhi Zhao·Toshiya Anami·Kazumitsu Mizushima

(Nippon Light Metal Company,Ltd.)

**217 A Study for Improvement of Cornering Fatigue Test Method by Eliminating a Fretting Effect on Steel Wheel to enhance Durability and Reliability**

SOO CHUNG (Hyundai Motor Company in South Korea)

WON WOOK JUNG·YEON SANG YOO·IL KI KWON (South Korea)

**218 Cancelled****219 Formation mechanism of spot welding nugget on joining automobile steel sheets with different strength and thickness**

souichiro nishino·hidenori kuwata (Ibaraki university)

kunio ohya kazushi watanabe·shozo ishikawa (Taiyo Kogyo CO., LTD.)

**220 Development of Friction Stir Welding Technology for Subframe for Fuel Cell System**

Takashi Kato·Tsumomu Kobayashi·Mitsuru Sayama·

Takanori Yahaba (Honda R&amp;D Co.,Ltd)

**221 Increasing Thermal Strength by Using Homogeneous Brake Discs**

Toshikazu OKAMURA·Masanori IMASAKI (KIRIU CORPORATION)

[13:10~14:50]

**47-09 Polymers I**

Chairperson: Hirosuke Kamae (Nissan Motor)

**222 A Study on the Analysis of UV light stabilizers for Plastic Exterior Parts**

HyeJin Jang·JuHyung Lee·JongHyun Kim·Donghwan Kwak (Hyundai motor, Korea)

**223 Development of high weatherability gel coat for exterior FRP parts.**

Takahiro Onishi (Hino Motors,Ltd.)

Noritaka Tanazawa (TOKYO PRINTING INK MFG. CO.,LTD.)

Hidehiko Tomokuni (DH Material Inc.)

**224 Development of Waterborne 3 Wet Paint System aiming at Environmental Protection**

Junya Ogawa·Masayoshi Asai·Yoshinori Narita·Kazuyuki Kuwano·

Yoshiyuki Noritake (TOYOTA MOTOR CORPORATION)

**225 Development of a moving body model for e-coating simulation .**

—Development of a simulation code and it's application methods—

Masayasu Mohri·Hiroaki Tominaga·Hiroaki Shibata

(Delight Co.,Ltd. URSIS Bldg. 1-2-3, Manpuku-ji, Aso-ku, Kawasaki, Kanagawa, 215-0004, Japan.)

Sukumar Chakravarthy

(Metacomp technologies Inc., 28632-B Roadside Drive, Suite 255, Agoura Hills, CA 91301, USA.)

Yohsuke Matsushita (Tohoku University)

[15:10~16:50]

**48-09 Polymers II**

Chairperson: Yasufumi Sekine (Mitsubishi Motors)

**226 Mechanism of Degradation of Fluoroelastomers in Biodiesel Fuels and a Potential Countermeasure**

Toshiaki Nakai·Hidetaka Ogishi (Honda R&amp;D)

**227 The automobile interior parts which applied the polylactic acid fiber**

Yoshinobu Hatano

**228 Bonding of High Strength Steel: A key solution for weight reduction of vehicles**

Hiroshi Kawabata (Japan) Andreas Lutz (Switzerland)

**229 Technologies of VOC reduction in vehicle cabins and the study of test method for parts**

Takashi Iizuka·Rie Muroi·Shigeyuki Iijima (Fuji Heavy Industries)

**414+415 (4F)**

[9:30~11:10]

**49-09 Diesel Combustion System**

Chairperson: Yuzo Aoyagi (New ACE Institute)

**230 Design and simulations of novel combustion chamber concept**

SUBHINOR HASSIM·HAMZAH ADLAN (PETRONAS Research)

**231 Exhaust valve timing and lift strategy for 2-stroke compression ignition engine**

MAMirrudin Esa·Azmi Osman·AhmadNazri Amiruddin

(PETRONAS Research SB)

**232 Novel combustion cycle involving oxygen and water**

Azmi Osman (PETRONAS Research SB)

**233 FUEL ECONOMY AND CABIN COMFORT STUDY USING MODELING AND TEST**

David Almer (LMS Japan K.K.) Renaud Meillier (LMS International)  
Abdelmajid Taklanti·Ngy-Srun AP (Valeo)  
Jean-Charles Dabadie·Pascal Menegazzi (Institut Francais du Petrole) Eric  
Ollivier·Senthil Kumar (Ecole des Mines de Nantes)

[13:00~15:05]

**50-09 Environmental Sustainability****Chairperson: Shinichi Goto**

(National Institute of Advanced Industrial Science and Technology)

**234 Estimation of the air pollutants emitted from gasoline vehicles at the hot spot of roadside**

Toshiro Yamamoto (National Traffic Safety and Environment Laboratory)  
Yasuhiro Ogawa·Susumu Sato·Junko Tsuneyama (NTSEL)

**235 Consideration for Automobile Emission Reduction in Bangkok**

Yukika Toda·Kiyoyuki Minato (Japan Automobile Research Institute)  
Atsushi Fukuda (Nihon University)

**236 Experimental Study on Chemical Heat Pump for Waste Heat Utilization of Automobiles**

Hironao Ogura·Jo Enomoto·Daisuke Hanatsuka (Chiba University)  
Ryoichi Hori·Hideki Kobayashi (Calsonic Kansei)

**237 Energy Buffer Drive using a Heat Engine (1st Report)**

Takayuki Miyao

**238 Study on Measurement Method of Driving Force in On-road Driving**

Susumu Sato·Toshiro Yamamoto·Yasuhiro Ogawa  
(National Traffic Safety and Environment Laboratory)  
Hirosaki Sasaki (Koyama Garage Co., Ltd.)  
Hirosaki Kikuri·Katsuya Kaneko (Toyo Sokki Co., Ltd.)

**416+417 (4F)**

[9:30~10:45]

**51-09 Evaluation and Design Technologies of Strength Reliability for Body****<OS> Chairperson: Haruo Ishikawa**

(The University of Electro-Communications)

**239 (Cancelled) Application technology to body parts by remote laser**

Yasushi Morikawa·Toshihiko Ishizuka·Kenji Suzuki (NISSAN MOTOR CO.,LTD.)

**240 A Study of the New Tightening Method for Bolt/Nut Assembly by Applying Tensile Force**

Shinji Hashimura (Kurume National College of Technology)  
Kyoichi Komatsu (Tohnichi MFG. Co., Ltd.)  
Chihiro Inoue (Kurume National College of Technology, Advanced Engineering School)  
Akira Kamiwaki (Kurume National College of Technology)

**241 Stress reduction effect of bolts and nuts which have slightly different pitches**

—Study on Fatigue Strength—  
Yang Xiao·Nao-Aki Noda·Masahiro Morida (Kyushu Institute of Technology)  
Shin-ichi Nishida (Saga University)

**242 Application of a level set based optimum design method to automotive body structure designs**

Takayuki Yamada·Shinji Nishiwaki·Kazuhiro Izui·  
Masataka Yoshimura (Kyoto University)  
Takashi Yamamoto·Shinichi Maruyama (NISSAN MOTOR CO., LTD.)

[12:30~13:45]

**52-09 Human Injury /Human Modeling****<OS> Chairperson: Hiroyuki Okamoto (Toyota Motor)****243 Cancelled****244 Analysis of chest deflection of pregnant women drivers involved in frontal vehicle collisions**

Masahito Hitosugi (Dokkyo Medical University School of Medicine)  
Yasuki Motozawa (Honda R & D)  
Shogo Tokudome (Dokkyo Medical University School of Medicine)

**245 Development of Thorax Skeletal FE Models for Adult and the Elderly**

Osamu Ito·Yasuhiro Dokko (Honda R&amp;D Co.,Ltd.) Kazuki Ohhashi (PSG Co.,Ltd.)

**246 Development of Human Lumbar Spine FE Models for Adult and the Elderly**

Yu Kanayama (Honda R&D Co.,Ltd.)  
Yasuhiro Dokko·Osamu Ito (Honda R&D Co.) Kazuki Ohashi (PSG Co.)

[14:05~15:20]

**53-09 Car Electronics****Chairperson: Kiyokazu Takagi (Denso)****247 Development of the Random Motion Compensation software in infrared stress measurement**

—Dynamic image measurement is performed by high performance cooled infrared camera—

Tatsuya Yaoita·Fumio Yagasaki (Ken Automation, Inc.) Pierre Bremond (FLIR ATS)

**248 (Cancelled) Consideration in calculation method for safety integrity level**

Takaji Fujiwara

**249 A Hydrogen Sensor using Ultrasonic**

Yoshimine Kato·Masahiro Inoue (Kyushu University)  
Hideaki Fujita (Oriimec Corporation)

Hiroshi Baba·Katsumi Ohira (Japan Probe Corporation)

**250 (Cancelled) DETECTION OF LED LIGHT BY IMAGE PROCESSING FOR VISIBLE LIGHT COMMUNICATION SYSTEM**

Yoshikatsu Kimura Yoshiki Ninomiya

**251 Development for Rapid Prototype ECU**

Sumiaki Hashimoto Kohichi Kanoh·Takano Masaoka (FUJITSU TEN)

**501 (5F)**

[9:30~11:10]

**54-09 Advanced Gasoline Engine Systems and Technologies (New Technology)****<OS> Chairperson: Masatoshi Kuroyanagi (Denso)****252 The Advanced Downsizing Demonstrator**

—Development Status and Fuel Economy Potential—

Akihiko Sekiguchi (Japan)

Grant Lumsden·Volker Korte·Hugh Blaxill (United Kingdom)

**253 A Study of Improving Thermal Efficiency Using a Super High Expansion Ratio Cycle**

Daisuke Akihisa·Daisaku Sawada·

Eiichi Kamiyama (TOYOTA MOTOR CORPORATION)

**254 Lubrication Technology and Analysis for Variable Valve Event and Lift (VVEL) System**

Yuuzou Akasaka·Shinichi Kiga·Makoto Kobayashi  
(NISSAN MOTOR CO.,LTD.)

**255 (Cancelled) Factor Analysis for Control Accuracy Improvement of Variable Valve Timing Control Mechanism**

Takahumi Owada

**256 A study of extending the operational range of a gasoline HCCI engine by using blow-down supercharging system**

Tatsuya Kuboyama·Yasuo Moriyoshi (Chiba univ.)

Toshio Yamada (CD-adapco Japan) Noriaki Fujii (Honda R&amp;D)

Masatoshi Suzuki·Koichi Hatamura (Hatamura engine research office)

[12:30~15:10]

**55-09 Advanced Gasoline Engine Systems and Technologies (Combustion)****<OS> Chairperson: Mitsuhiro Tsue (The University of Tokyo)****257 Development of an Ignition System using Repetitive Pulse Plasma Discharges**

—2nd report Clarification of Ignition Mechanism and Application for Real Engine—

Kimitoshi Tanoue (Oita University)

Tatsuya Kuboyama·Yasuo Moriyoshi (Chiba University)

Eiki Hotta (Tokyo Institute of Technology)

**258 Spark Discharge Behavior in a Spray-Guided Gasoline Direct Injection Engine**

Dai Tanaka·Kimihiko Sato·Shigeo Yamamoto (Mitsubishi Motors)  
Minoru Yokoe (Mitsubishi Automotive Engineering)

**259 Developing an estimation method of stable flame propagation limit with 3D CFD simulation**

Shingo Ito·Tadashi Tsurushima·Akihiro Shikata  
(NISSAN MOTOR CO., LTD.)

Akira Miyagawa (Aichi Machine Industry Co.,Ltd.)

**260 Combustion characteristics in high load region of microwave plasma combustion engine**

Atsushi Nishiyama Yuji Ikeda·Masashi Kaneko·  
Haeyoung Jeoung·Hiroki Kanano (Imagineering, inc.)

- 261 **NOx Trap Catalyst Technologies and Exhaust Emission Control to Expand Lean Burn Operation for Gasoline Engine Application**  
Takayuki Onodera·Ken Tanabe·Kinichi Iwachido·Katsuhiko Miyamoto (Mitsubishi Motors Corporation)  
Taketoshi Hirata (Mitsubishi Automotive Engineering Co.)
- 263 **Development of a Compact Balance Shaft Module**  
HongWook Lee·Myung-Rae Cho·JinWoo Cho·MinSik Shin·WooTae Kim·GabSeok Ko (Hyundai Motor Company)

### 56-09 Advanced Gasoline Engine Systems and Technologies

<OS> Cancellation

- 262 (Cancelled) **Development of Exhaust Manifold for high temperature and light weight**  
Sangjoon Park·Myoungrae Cho·Wootae Kim·Kwanghyun Cho (Hyundai Motor Company) Kyunggon Son (Sejong Ind.)
- 263 **Moves to Session No.55-09**
- 264 (Cancelled) **An oil separation performance classified as oil size for the cyclone oil separator in the SI engines**  
Kim Hyung-Gu (Kookmin university, Korea)
- 265 (Cancelled) **An oil separation performance classified as oil size for the cyclone oil separator in the SI engines**  
Kim Hyung-Gu (Kookmin university, Korea)
- 266 (Cancelled) **Quantitative measurement of soot formation and oxidation on the Gasoline Direct Injection Engine**  
Amin Velji·Ulrich Spicher·Martin Rossbach·Rainer Sultz (University Karlsruhe) Kitae Yeom (KAIST, Daejeon)
- 267 (Cancelled) **Experimental and Numerical Investigations with Stratified Exhaust Gas Recirculation for Controlled Autoignition (CAI)**  
Fatih Sarikoc·Sebastian Hensel·Heiko Kubach·Ulrich Spicher (Institute for Reciprocating Engines, Universitaet Karlsruhe (TH), Germany)  
Patric Genieser·Alfred Elsaesser (Mahle International GmbH)
- 268 (Cancelled) **Reduction of the Fuel Evaporative Emissions Using the HC-trap**  
Ji-Hwan Mo·Young-Joon Park·Yu-Bin Yoon (Graduate School of Automotive Engineering, Kookmin University)  
Seang-Wock Lee·Yong-Seok Cho (Department of Mechanical and Automotive Engineering, Kookmin University)

## 5.22 (Fri.)

301 (3F)

[9:30~12:35]

### 57-09 Usability and Comfortableness

<OS> Chairperson: Osamu Shimoyama (Nissan Motor)

- 269 **Study on thermal condition for comfortable vehicle seats**  
Sonoko Ishimaru·Hirotaka Harada (Toyota)
- 270 **Study on comfortable vehicle seats utilizing sweating thermal manikin**  
Hirotaka Harada·Sonoko Ishimaru (Toyota)
- 271 **A Study on Influence of the interface design on passenger experiences at rear seats**  
Kenji Nabeshima·Yoshihiro Suda·Takaaki Koga·Takatoshi Arai (The University of Tokyo)
- 272 **A Study on Influence of Sense of Roominess in Car Room by Interior of Gradation Pattern**  
Takaaki Koga·Yoshihiko Tabuchi·Kenji Nabeshima·Yoshihiro Suda (the Univ. of Tokyo)
- 273 **Visibility Evaluation for Automobile Rear Combination Lamp**  
Mikiko Kawasumi (Aichi Shukutoku University)  
Haruka Kozai (Aich Shukutoku University)  
Kazunori Natsume·Asami Nakada (KOITO MANUFACTURING CO., LTD.)
- 274 **How to Make a User Profile by Observation of Their Driving Behavior and by Questionnaire**  
Mayumi Iwao·Jin Haiyan (Isuzu Advanced Engineering Center, Ltd.)
- 275 **Classification of Assistance System Acceptability and Elderly Driver's Driving Style**  
Naohisa Hashimoto·Shin Kato (AIST)  
Sadayuki Tsugawa (Meijo University)

[13:20~15:25]

### 58-09 Image Recognition

<OS> Chairperson: Hiroshi Mouri (Nissan Motor)

- 276 **Risk recognition and learning from driving experience (second report)**  
—Towards the Risk Map System—  
Taichi Kishida (Fuji Heavy Industries Ltd.)  
Genya Ogawa·Syunsuke Tezuka·Katsuyuki Kise (Fuji Heavy Industry Ltd.)
- 277 **Road Sign Recognition Algorithm Using Levenshtein Distance with The Least Squares Method**  
Tomomichi Nanba
- 278 **Multi Purpose Camera (MPC)**  
—Five Video-based Driver Assistance Systems in One-box—  
Eisaku Kwan·Jochen Kaller·Hisashi Chiba·Christian Danz (Bosch Corporation)
- 279 **Opening intention detection for motorized doors**  
—Gesture recognition—  
Frederic GEHIN Eric MENARD Frederic GIRAUD Joel SENPAUROCA
- 280 **An examination of detection of doubtful action and invader in the vehicle.**  
Yutaro Suzuki·Keiichiro Kobayashi·Osami Yamamoto·Tomoaki Nakano·Shin Yamamoto·Muneo Yamada (Meijo University)

[15:45~17:00]

### 59-09 Tire/Road Characteristics and Active Safety

<OS> Chairperson: Mitsuya Nihei

(National Institute of Advanced Industrial Science and Technology)

- 281 **An estimation method of the maximum tire-road friction coefficient using an electric power steering**  
Fumiaki Takagi·Masahiko Kurishige·Akito Takeya·Noriyuki Inoue·Hiroshi Fujioka·Toshihide Satake (Mitsubishi Electric Corporation)
- 282 **Cancelled**
- 283 **Estimation of road information from running vehicle**  
Shigeyuki Yamabe (Institute of Industrial Science, The University of Tokyo)  
Ryuzo Hayashi (Tokyo University of Agriculture and Technology)  
Kimihiko Nakano·Yoshihiro Suda (Institute of Industrial Science, The University of Tokyo)
- 284 **Relationship between frictional variations and tire characteristics**  
Daisuke Yokoi·Kazuhiko Kawamura (TOYO TIRE & RUBBER CO.,LTD)

302 (3F)

[9:30~12:10]

### 60-09 Active Safety Simulation

<OS> Chairperson: Mitsuaki Hagino (Nissan Motor)

- 285 **Development of the Advanced Safety System & Traffic Realtime Evaluation Tool (ASSTREET) to Assure Computation Trustworthiness (1)**  
—Simulator Construction Proposal to Condense Broad Knowledge and Experience—  
Hideki Sakai·Masami Aga·Hajime Kamimae (Toyota Motor Corporation)  
Jun Tajima·Fujimi Hitachi (Advanced Solutions Technology Japan, Ltd.)  
Hironobu Kitaoka·Tetsuo Kurahashi·Takashi Machida (Toyota Central R&D Labs., Inc.)
- 286 **Development of the Advanced Safety System & Traffic Realtime Evaluation Tool (ASSTREET) to Assure Computation Trustworthiness (2)**  
—Development of Simulation Platform—  
Jun Tajima·Norihiko Sakamoto·Yuuya Goriki (Advanced Solutions Technology Japan, Ltd.)  
Tetsuo Kurahashi·Takashi Machida (Toyota Central R&D Labs., Inc.)  
Hideki Sakai·Shin Tanaka (Toyota Motor Corporation)
- 287 **Development of the Advanced Safety System & Traffic Realtime Evaluation Tool (ASSTREET) to Assure Computation Trustworthiness (3)**  
—Integration of the Driver Model into the ASSTREET and its Verifications—  
Hironobu Kitaoka·Tetsuo Kurahashi·Takashi Machida·Hiroko Mori (TOYOTA CENTRAL R&D LABS., INC.)  
Jyun Tajima·Norihiko Sakamoto (Advanced Solutions Technology Japan, Ltd.)  
Masami Aga·Satomi Noda (TOYOTA MOTOR CORPORATION)

## 5.22 (Fri.)

- 288 **Development of the Advanced Safety System & Traffic Realtime Evaluation Tool (ASSTREET) to Assure Computation Trustworthiness (4)**  
—Driver Model Verification using the Driving Simulator—  
Jun Tajima·Fujimi Hitachi·Souta Kimura·  
Yuuya Goriki (Advanced Solutions Technology Japan, Ltd.)  
Takahiko Murano·Shin Tanaka (Toyota Motor Corporation)  
Hironobu Kitaoka (Toyota Central R&D Labs., Inc.)  
Naohiro Yuhara (Nihon University)
- 289 **Reconstruction Method of Braking Operation in A Survey Simulator to Evaluate Safety Systems (ASSESS)**  
Kazumoto Morita·Nobuhisa Tanaka·Michiaki Sekine·Takeo Okada  
(National Traffic Safety and Environment Laboratory)
- 290 **DEVELOPMENT OF A VEHICLE MODEL OF A SURVEY SIMULATOR TO EVALUATE SAFETY SYSTEMS (ASSESS)**  
Nobuhisa Tanaka·Kazumoto Morita·Toshiya Hirose·Shunsuke Takagi·  
Kazuo Matsushima (National Traffic Safety and Environment Laboratory)

[13:15~15:20]

### 61-09 Driving Simulator and its Utilization <OS> Chairperson: Satoru Furugori (Mazda Motor)

- 291 **Lane Change Assist System considering Recognition Reliability of Sensor**  
Tokihiko Akita (AISIN SEIKI CO., LTD.)  
Shigeyoshi Tsutsumi (Kagawa University (Student))  
Takahiro Wada·Syun'ichi Doi (Kagawa University)
- 292 **Research on Comfort in Automobiles during running with Biomedical Measurement**  
—Comparison between Actual Vehicle and Driving Simulator—  
Shoichiro Takehara (Tokyo metropolitan university)  
Yoshihiro Suda·Kunihiko Mabuchi·Daisuke Yamaguchi (The university of Tokyo)
- 293 **Approach to Improvement of Realistic Sensation on Universal Driving Simulator**  
Daisuke Yamaguchi·Yoshihiro Suda (The University of Tokyo)  
Toshihiko Oda (Panasonic) Masaaki Onuki (Mitsubishi Precision)  
Hiroki Ishikawa (Aishin AW) Ilgi Hong (Social System Research Institute)
- 294 **Longitudinal Dynamics and Control of Driver and Hybrid Electric Vehicle System**  
Phuc Dam·Yoshizawa Masao·Pongsathorn Raksincharoensak·  
Nagai Masao (Tokyo University of Agriculture and Technology)
- 295 **Investigation of Apparatus of Simulated Driving and Design of Exercise Test on Evaluating Driver Decision-making**  
Makoto Kihira (National Research Institute of Police Science)  
Yasumi Itoh (National Institute for Longevity Sciences, NCGG)

[15:40~16:30]

### 62-09 Traffic Flow Chairperson: Sadayuki Tsugawa (Meijo University)

- 296 **Evaluation of Driving Behaviors in Traffic Flow using Microscopic Traffic Simulation**  
Masayoshi Mori (Univ. of Tokyo) Tomohiko Yuki (Chuo University)  
Shigeyuki Yamabe·Takahiro Suzuki (Univ. of Tokyo)  
Yasuharu Kunii (Chuo University) Yoshihiro Suda (Univ. of Tokyo)
- 297 **Recognition of Vehicle Approaching from Backward Using Monocular Camera**  
Shiho Tanaka·Kenichi Yamada·Toshio Ito (DAIHATSU MOTOR CO., LTD.)
- 298 **Cancelled**

**303 (3F)**

[9:30~11:35]

### 63-09 Vehicle Dynamics and Control I <OS> Chairperson: Manabu Omae (Keio University)

- 299 **Development of an in-vehicle integrated measurement system**  
Gaku Watanabe·Tatsuo Ichige·Yoshitaka Asahara·  
Hisanobu Mizukawa·Hirokazu Tatekawa (A&D Company, Limited)
- 300 **Estimation of Vehicle Attitude using Three-Axis Acceleration and Two-Axis Angular Velocity**  
Eiichi Ono·Yumiko Miura (Toyota Central R&D Labs., Inc.)  
Taisuke Yasutomi (Toyota Motor Corporation)  
Katsuyuki Yamaguchi (Toyota Motor Corporation)

- 301 **Vehicle Motion Control of Electric Vehicle with Active Steering and Tire Lateral Force Sensor**  
Hiroshi Fujimoto·Yuya Yamauchi·Naoki Ando (Yokohama National University)
- 302 **Vehicle Stability Affected by Outer Loop Sampling Frequency on the Digital Control (First Report)**  
Yuuya Niwa (Meijo University) Kenji Takahata (Churyo Engineering)  
Masahiro Shibata·Takenori Matsubara·Muneshige Okude (Meijo University)
- 303 **Electromagnetic active suspension system to suppress torsional vibration of a heavy vehicle**  
Kimihiko Nakano·Katsuhiko Hirayama·Keisuke Suzuki·Yoshihiro Suda  
(Institute of Industrial Science, the University of Tokyo)  
Kozue Kobayashi·Kazuto Kinoshita·Takashi Sasaki (Hino Motors)  
Fumihide Kozuma·Takashi Ito (KYB)

[13:00~14:40]

### 64-09 Vehicle Dynamics and Control II <OS> Chairperson: Horiuchi Shinichiro (Nihon University)

- 304 **"Stability Index" - A set of evaluation indexes for understeer**  
Akito Takeya·Fumiaki Takagi·Masahiko Kurishige·Noriyuki Inoue·  
Hiroshi Fujioka·Toshihide Satake (Mitsubishi Electric Corporation)
- 305 **Analysis of Easiness to change direction by Lateral Acceleration Input**  
Saichirou Oshita (Oshita Laboratory)
- 306 **Effects of a Vehicle Model on Numerical Analysis of Minimum-Time Cornering**  
Masanori Harada
- 307 **A study of lateral acceleration feedback control with Steer-By-Wire System**  
Ruriko Koizumi·Yutaka Ohnuma (Toyota Motor Corporation)
- 308 **(Cancelled) Fundamental study on characteristics of rolling for passenger car**  
Arina Soga·Ichiro Kageyama (Nihon University)

[15:00~17:05]

### 65-09 Dynamics, Control and Safety of Two-wheeled Vehicles Chairperson: Junji Hirasawa <OS> (Ibaraki National College of Technology)

- 309 **Safety and Comfort of the Personal Mobility Vehicles in the Pedestrian Flows**  
Chihiro Nakagawa·Chihiro Nakagawa·Kimihiko Nakano·Yoshihiro Suda  
(University of Tokyo)  
Yoshihiro Kawarasaki·Yusuke Kosaka (Toyota Motor Corporation)
- 310 **Cornering Characteristics Analysis and Driving Stability Control for a Motorcycle**  
Shaopeng Zhu (Keio University) Hidekazu Nishimura  
(Graduate School of System Design and Management, Keio University)
- 311 **Lane-Keeping Performance of Motorcycles Using Steer-by-Wire System**  
Yoshitaka Marumo (Nihon University)  
Nozomi Katagiri (Graduate School of Nihon University)  
Hitoshi Tsunashima (Nihon University)
- 312 **Development of ABS for Super Sports Motorcycles Using a Brake-by-Wire System**  
Yutaka Nishikawa·Takehiko Nanri·Kazuya Takenouchi·Kazuhiko Tani·  
Shinji Takayanagi·Shuichi Fukaya (Honda R&D Co., Ltd.)
- 313 **Influence of breaking force to turning characteristics of two wheeled vehicle**  
Ichiro Kageyama·Ichiro Kageyama·Yukiyo Kuriyagawa (Nihon University)

**304 (3F)**

[9:30~12:10]

### 66-09 Alternative Fuels <OS> Chairperson: Eiji Tomita (Okayama University)

- 314 **Experimental visualization and numerical analysis of high pressure injection DME spray**  
Takeshi Okamoto·Kazuki Chiba  
(Graduate school of science and engineering Ibaraki university)  
Mitsuru Konno (Ibaraki university)

## 5.22 (Fri.)

- 315 Adaptation of conventional common rail type diesel injection system to DME fuel**  
Shinya Nozaki·Toshifumi Noda·Teruaki Ishikawa·Masashi Kasaya (BOSCH)  
Tadanori Yanai·Atsuhiko Kawamura·Yoshio Sato·Hiroshi Oikawa (NTSEL)
- 316 Development and Engine Bench Testing of a Common Rail Type DME Injection System (Second Report)**  
—Influence of Injection Pressure for Engine performance characteristic—  
Tadanori Yanai·Atsuhiko Kawamura·Yoshio Sato·Hiroshi Oikawa  
(National Traffic Safety and Environment Laboratory)  
Shinya Nozaki·Toshifumi Noda·Teruaki Ishikawa (Bosch Corporation)
- 317 Study on Factors Affecting Output Range of a Natural-Gas-Fueled PCCI Engine**  
Jeongho KANG·Takuji ISHIYAMA·Kazuyuki KODA (Kyoto University)  
Shunsaku NAKAI (Osaka Gas Co., Ltd.)  
Hironori YOSHINAKA (Yanma Co.,Ltd.)
- 318 Pre-chamber spark plug for gas engine**  
Koji Yamanaka·Tomoya Suzuki·Toshikazu Shimizu (DENSO)  
Yosuke Siraga·Shunsaku Nakai·Seiichi Ito (OSAKA GAS)
- 319 The Development Study of Hydrogen Engine for Microbus**  
Yuki Shimizu·Yuki Shimizu·Hideyuki Iwasaki·Yuki Mizushita·  
Hiroyuki Shirakura·Masaaki Takiguchi  
(Tokyo City University (ex-Musashi Institute of Technology))

[13:15~14:55]

### 67-09 LPG Engine

<OS> Chairperson: Mitsunori Ishii  
(Kanagawa Institute of Technology)

- 320 Combustion Characteristics of Compressed Ignition Type LPG with Blending Rates of Bio-diesel**  
Sung Kim·Seang Wock Lee·Ho In Kang (Daelim College)  
Yong Seok Cho·Doo Sung Baik (Daejin University)  
Sang Gi Oh (Kyeonggi Institute of Technology)  
San Hae Kim (Kookmin University)
- 321 Effect of a Difference of Laminar Burning Mechanism between LPG and Gasoline on SI Engine Combustion**  
Norifumi Mizushima (National Traffic Safety and Environment Laboratory)  
Kei Yoshimura·Jin Kusaka (Waseda University)
- 322 A Study on a High Compression ratio LPG Engine with Liquid Fuel Injection System**  
Norifumi Mizushima·Susumu Sato·Yasuhiro Ogawa·Toshiro Yamamoto  
(National Traffic Safety and Environment Laboratory)  
Umerujan Sawut·Buso Takigawa·Koji Kawayoko·  
Gensaku Konagai (Nikki Co., Ltd.)
- 323 Development for Practical Use of LPG Vehicle with Liquid Fuel Injection System**  
Gensaku Konagai·Buso Takigawa·Masashi Iwasaki·Kouji Kawayoko·  
Gheyret Tohti·Teruyuki Wakabayashi (Nikki Co.,Ltd.)  
Toshiro Yamamoto·Susumu Sato·Norifumi Mizushima·Yasuhiro Ogawa  
(National Traffic Safety and Environment Laboratory)

**311+312 (3F)**

[9:30~12:10]

### 68-09 Car Robotics I

<OS> Chairperson: Shin Kato  
(National Institute of Advanced Industrial Science and Technology)

- 324 Synthesis of Integrated Driver Model in Longitudinal Control Based on Urban Driving Behavior Labeling**  
Masao Nagai·Pongsathorn Raksincharoensak·Wathanyoo Khaisongkram  
(Tokyo University of Agriculture and Technology)  
Masamichi Shimosaka·Taketoshi Mori·Tomomasa Sato  
(The University of Tokyo)
- 325 Hurry Driving State Detection Algorithm Based on Urban Driving Database**  
Pongsathorn Raksincharoensak·Takeshi Iijima·Kozo Maeda·Yohei  
Michitsuji·Masao Nagai  
(Tokyo University of Agriculture and Technology)
- 326 Hierarchical Symbolization of Driving Behavior based on Mode Segmentation and Its Application to Behavior Prediction**  
Ato Nakano·Hiroyuki Okuda·Tatsuya Suzuki·Shinkichi Inagaki  
(Nagoya University)  
Soichiro Hayakawa (Toyota Technological Institute)

- 327 Intention Recognition of Driver and Car Robotics Simulator**  
Hideyuki Ando (ZMP INC.)  
Gen Oobayashi·Toru Yamaguchi (Tokyo Metropolitan University)
- 328 Identification of vestibulo-ocular reflex model for state estimation of drivers**  
Katsuyuki Fukuda Goro Obinata Kazunori Hase  
YoungWoo Kim Hiroto Hamada Tasuku Usui
- 329 Statistical Prediction Model for Driving Behavior**  
Chiyomi Miyajima·Yoshihiro Nishiwaki·Chiyomi Miyajima·Kazuya  
Takeda (Nagoya University)  
Ryuta Terashima·Toshihiro Wakita (Toyota Central R&D Laboratories)

[13:20~15:25]

### 69-09 Car Robotics II

<OS> Chairperson: Toshihiko Morita (Fujitsu Laboratories)

- 330 A Course Map Generation and Employment of the map for Autonomous Driving on Precincts Roads**  
Shin Kato·Naohisa Hashimoto (AIST) Sadayuki Tsugawa (Meijo Univ. / AIST)
- 331 Development of collision avoidance robotic car based on Biomimetics**  
Yasuhiro Sano Watanabe seigo (Nissan Motor CO., LTD.)  
Toshiyuki Andou (Nissan Motor CO., LTD.)  
Noriyasu Andou·Ryouhei Kanzaki (Tokyo University)
- 332 GPS-based Automatic Steering Control using On-limits Region Information**  
Manabu Omae·Takeki Ogitsu·Hiroshi Shimizu (Keio University)
- 333 Pedestrian Detection and Collision Avoidance System Based on Monocular**  
Pongsathorn Raksincharoensak·Yuta Takimoto·Hirotomo Muroi·  
Ikuko Shimizu·Masao Nagai (Tokyo University of Agriculture and Technology)  
Michael Darms·Rolf Adomat (Continental)
- 334 A Deceleration Control Method for Collision Avoidance based on Perceptual Risk of Proximity**  
Takahiro Wada·Shun'ichi Doi·Shoji Hiraoka (Kagawa University)

[15:45~17:25]

### 70-09 Intelligent Guidance and Control Technologies

<OS> Chairperson: Yoshimasa Ochi (National Defense Academy)

- 335 [Keynote Speech] Flying Qualities of the Airplane with Tough Characteristics for Heavy Side Wind**  
Ryoji Katayanagi
- 336 Flight Control for Realization of Custom-made Handling Characteristics**  
Masayuki Sato (Japan Aerospace Exploration Agency)  
Atsushi Satoh (Iwate University)
- 337 Bio-inspired Control Approach for MAV**  
Hiroshi Sato·Akira Namatame (National Defense Academy)
- 338 Approaches to Realize Collective Motion Control of Micro Air Vehicles**  
—Feasibility of Biological Collective Motion Control—  
Yoshinobu Inada (Japan Aerospace Exploration Agency)  
Hiroaki Tokita·Masanao Futakami·Kazuma Horie·Hideaki Takanobu  
(Kogakuin University)

**313+314 (3F)**

[9:30~12:10]

### 71-09 Engine Components and Tribology I

Chairperson: Akemi Ito (Hino Motors)

- 339 Friction characteristics of steel piston for diesel engine**  
Masaaki Takiguchi·Shunsuke Sato  
(Tokyo City University (ex-Musashi Institute of Technology))  
Katsuyuki Osawa·Yoshiyuki Iwasaki (MAHLE Engine Components Japan)
- 340 An Experimental Study on Effect of Piston Friction and Lubricating Oil Consumption on Lower Tension Piston Rings**  
Naoki Iijima·Shuma Aoki·Junichi Imamura·Masaaki Takiguchi  
(Tokyo City University (ex-Musashi Institute of Technology))
- 341 Innovative lightweight design with rough cast aluminum cylinder liners**  
Berthold Reppen (MAHLE Technologies Holding (China) Co., Ltd.)  
Ulrich Bischofberger·Stefan Spangenberg·  
Karlheinz Bing (MAHLE Motorkomponenten GmbH)

- 342 **Study on Internally Geared Hypocycloid Mechanism (Second Report)**  
—Horizontally Opposed Type Multi-Cylinder Engine Application—  
Takashi Matsuda Motohiro Sato (Shizuoka University)
- 343 **Development of Permanently Engaged Gear Mechanism for Idle Stop System**  
Kazuhiro Sakai·Toshiaki Asada·Kazuaki Sugimura·Ryosuke Nagata  
(TOYOTA MOTOR CORPORATION)
- 344 **Comparison of MBD simulation with measurements for roller-finger-follower with HLA valve train system behavior in higher engine speed**  
Jun Bots (OGINO KOGYO CO.,LTD.)  
Tomohisa Kumagai (CD-adapco JAPAN CO.,LTD.)  
Taizo Fujimura·Susumu Tahayama (OGINO KOGYO CO.,LTD.)  
Koichi Hatamura (Hatamura Engine Research Office Ltd.)

[13:15~15:55]

**72-09 Engine Components and Tribology II**  
Chairperson: Tetsushi Suzuki (Toyota Motor)

- 345 **Development of the sliding bearing with tin overlay for diesel engines**  
Shigeyuki Suga·Takashi Tomikawa·Hitoshi Wada (Taiho kogyo)
- 346 **Development of lead free high performance thermoplastic bearing materials for automotive parts**  
Kenji Mihara·Axel Pasternak·Thomas Storch·Klaus Deicke·  
Rolf Reinicke·Klaus Damm (KS Gleitlager)
- 347 **Measurement of Oil Film Thickness in the Main Bearings of an Operating Engine Using Thin-Film Electrodes**  
Takumi Kataoka·Naoya Kato (NIPPON SOKEN)  
Takashi Kikuchi (Toyota Motor Corporation)
- 348 **Measurement of oil film thickness of ball joint for suspension**  
Hiroki Ishii·Kazuhide Uchida·Tetsuya Morino (NIPPON SOKEN,INC.)  
Yasushi Fukui·Zenji Nakajima (TOYOTA MOTOR CORPORATION)
- 349 **A Study on the Mechanism of the Bearing Race Damage due to the Bearig Creep**  
Akemi Ito·Keiichi Tsuchihashi (Hino Motors, Ltd.)
- 350 **A Theoretical Study on Lubrication Mechanism of Tribofilm Derived from Oil Additives**  
Tasuku Onodera·Takanori Kuriaki·Yusuke Morita  
(Graduate School of Engineering, Tohoku University)  
Ai Suzuki (NICHe, Tohoku University)  
Michihisa Koyama (INAMORI Frontier Research Center, Kyushu University)  
Hideyuki Tsuboi·Nozomu Hatakeyama·Akira Endou·Hiromitsu

414+415 (4F)

[9:30~11:35]

**73-09 Advanced Technology for Manufacturing Engineering**  
<OS> Chairperson: Kazuo Muto  
(Shizuoka Institute of Science and Technology)

- 351 **[Keynote Speech] Proposal of Analysis method, Particle method for opening up New field in Automotive Engineering**  
Kazuo Muto (A)
- 352 **Calculation of stir resistance of fluid using particle method**  
Isamu Sakai
- 353 **Crankshaft centering machine with balance measurement function by laser sensor**  
Akihiro Yoshimoto (Komatsu Machinery Corp.)
- 354 **Development on Advanced Hybrid coating technology for Functional Coatings**  
Tetsuyoshi Wada (Sulzer Metco (Japan) Ltd.)
- 355 **Establishment of fine quality requirements by new technology innovation**  
—Eliminating coating defects using various equipments—  
Masatoshi Yagyu (Engineer) Hitoshi Gono (Group Manager)  
Kentaro Tanaka (Engineer)

[13:20~15:00]

**74-09 Computational Fluid Dynamics of Aerodynamics**  
<OS> Chairperson: Ryutaro Koyama (Nissan Motor)

- 356 **Recent development of the vortex method and its contribution to the progress of new CFD technology**  
Akira Ojima (College Master Hands, Inc.)  
Kyoji Kamemoto (Yokohama National University)
- 357 **Large-Eddy Simulation for vehicle aerodynamics in unsteady crosswind condition**  
Takuji Nakashima (Hiroshima University)  
Makoto Tsubokura (Hokkaido University)  
Kozo Kitoh (Kozo Kitoh Technology, Inc.)  
Takeshi Ikenaga·Yasuaki Doi (Hiroshima University)
- 358 **(Cancelled) Predicting Thermal Performance of Automotive Lamp using CFD**  
Youngki Chang·Sangchan Park·Miro Kim (Hyundai Mobis)
- 359 **Simultaneous Evaluation on Air-cooling and Aerodynamics Performance for Motorcycle using CFD Analysis**  
Toshihisa Abe·Toru Shimizu·Yoshihiko Sunayama·Shigemitsu Shibata·  
Eiichi Nakamura (SUZUKI MOTOR CORPORATION)
- 360 **Practical prediction of engine cooling fan performance with RANS**  
Itsuei Kohri (Tokyo City University (ex-Musashi Institute of Technology))  
Akio Tazaki  
(Graduated school of Tokyo City University (ex-Musashi Institute of Technology))  
Yuko Matsushima (Mitsubishi Fuso Track and Bus Corporation)

[15:20~17:00]

**75-09 Computational Fluid Dynamics of Engine and Fuel Cell**  
<OS> Chairperson: Toru Takabayashi (Honda R&D)

- 361 **Numerical Simulation of Cavitation Phenomenon Under High Fuel Pressure Condition**  
Yasuo Moriyoshi·Kouki Suga (Chiba Univ.)  
Masato Kubota (Toyota Motor Co.)
- 362 **Numerical simulation of water transport in GDL and MEA of polymer electrolyte fuel cell**  
Juanfang Liu·Eru Kurihara (Hokkaido University)  
Nobuyuki Oshima (Hokkaido university)  
Wanyuan Shi (Chongqing University)
- 363 **Large eddy simulation for predicting combustion-instability and fuel mixing process in SI engine**  
Yohei Suruga·Yutaka Shirai·Ken Naitoh (Waseda University)
- 364 **Prediction of the cyclic variations of an ICE with LES**  
Franco Magagnato·Astrid Walcker·Martin Gabi  
(University of Karlsruhe)

501 (5F)

[9:30~11:10]

**76-09 Diesel Combustion**  
Chairperson: Masahiko Ohtani (Isuzu Motors)

- 365 **The optimization method of DI engine parameters by KIVA**  
Kenji Hiraoka·Yusuke Imamori·Shinsuke Murakami·  
Hiroyuki Endo·Koji Satake·Toshiaki Monaka  
(MITSUBISHI HEAVY INDUSTRIES)
- 366 **Comparison of mesh structure in KIVA-4 code with less mesh dependent spray model in DI diesel engine simulation**  
Yusuke Imamori·Kenji Hiraoka·Shinsuke Murakami·  
Hiroyuki Endo (Mitsubishi Heavy Industries, Ltd)  
Rolf Reitz·Christopher Rutland (University of Wisconsin-Madison)
- 367 **Direct Observation of Clean Diesel Combustion using Bore Scope in a Single Cylinder Engine**  
Ryusuke Fujino·Yuzo Aoyagi·Hideaki Osada·  
Takuya Yamaguchi (New A.C.E Institute CO.,LTD.)
- 368 **Evaluation of Deposits in Diesel EGR Cooler (1st Report: Development of Evaluation Method)**  
Yoshitaka Shibasaki·Atsushi Sugimo·Naoya Goto  
(Sanoh Industrial Co.,Ltd.)  
Masataka Arai (Gunma University)

[13:00~15:05]

**77-09 Diesel After Treatment**  
 Chairperson: Nakaba Tamura (Toyota Motor)

- 369 **Microscopic Visualization of PM Trapping and Regeneration Phenomena in Diesel Particulate Catalyst-Membrane Filter (DPMF)**  
Preechar Karin·Preechar Karin·Katsunori Hanamura (Tokyo Institute of Technology)
- 370 **Development of NOx trap catalyst with hollow structural particle**  
Yoshinori Tsushio·Kouichiro Harada·Hiroshi Yamada·Hideharu Iwakuni·Seiji Miyoshi·Akihito Takami (Mazda Motor Co.)
- 371 **The Effect of Lean NOx Trap on 6 Cylinder Diesel Engine with High-Boost, Wide-Range and High EGR**  
Tetsuya Murayama·Kazuaki Shimada·Masayuki Kobayashi·Takayuki Adachi·Yuzo Aoyagi (New ACE)  
Hisakazu Suzuki·Yuichi Goto·Yoshio Sato (NTSEL)
- 372 **The study of NOx and PM Reduction Using a Plasma-assisted SCR System**  
Yoshihiro Kawada·Shinya Sato·Mitsuru Hosoya (Hino Motors, Ltd.)  
Satoshi Sato·Akira Mizuno (Toyoashi University of Technology)
- 373 **Measurement of roadside NOx vehicle emission and its photochemical analysis**  
Yutaka Matsumi·Tomoyuki Ide·Yuka Miyao·Tomoki Nakayama·Julie Pearce (Nagoya University)  
Hiroyuki Isawa (Toyota Motor Corporation)

[15:25~17:05]

**78-09 Nano-particle in Exhaust from Automotive**  
 <OS> Chairperson: Masataka Arai (Gunma University)

- 374 **Real-time Mass Spectrometry of Exhaust Gas from Automobiles Utilizing Laser Ionization (1)**  
—Development of Simultaneous Analyzer of Multicomponents—  
Kentaro Misawa (Tokyo Institute of Technology)  
Kotaro Suzuki (National Traffic Safety and Environment Laboratory)  
Koichi Tanaka (Toyama)  
Jun Matsumoto (Tokyo Metropolitan University)  
Shun-ichi Ishiuchi·Jiro Saikawa·Shun-ichi Hayashi·Masaaki Fujii (Tokyo Institute of Technology)
- 375 **Real-time mass spectrometry of exhaust gas from automobile utilizing laser ionization (2)**  
—Emission trends in driving mode—  
Kotaro Tanaka (National Traffic Safety and Environment Laboratory)  
Kentaro Misawa (Tokyo Institute of Technology)  
Koichi Tanaka (Toyama, Inc.)  
Jun Matsumoto·Shunichi Ishiuchi·Jiro Saikawa·Shunichi Hayashi·Masaaki Fujii (Tokyo Institute of Technology)
- 376 **NOx and PM Reduction by After-treatment in a High Boost, Wide Range and High EGR Rate Diesel Engine (First Report)**  
—Particle Size Distribution and Number Density by Increasing EGR Rate and Injection Pressure—  
Kazuaki Shimada·Yuzo Aoyagi·Hideaki Osada·Tetsuya Murayama (New A.C.E institute co., Ltd.)  
Masataka Arai (Graduate School of Engineering Gunma University)
- 377 **Influences of Lubricating Oil Consumption on PM Emission in Gasoline Engine**  
Hideto Inagaki·Teruaki Kondo (Toyota Central R&D Labs., Inc.)

**502 (5F)**

[9:30~12:10]

**79-09 S.I.Engine**  
 Chairperson: Yoshiki Morinaga (Daihatsu Motor)

- 378 **Development of New 1.8-Liter Engine for Hybrid Vehicle**  
Kiyoshi Naiki (TOYOTA MOTOR CORPORATION)  
Toshihiro Kawai (TOYOTA MOTOR CORPORATION)  
Nobuki Kawamoto·Naoki Takeda·Kenji Hayashi (TOYOTA MOTOR CORPORATION)
- 379 **Visualization of In-cylinder Flow and Accuracy Verification of the Lite CAE**  
Rei Ishida·Tazuki Watanabe·Daisuke Goto·Takashi Kaneko·Makoto Kaneko·Koji Morikawa (FUJI HEAVY INDUSTRIES Ltd.)

- 380 **Research and Development of VCR Engine Mechanism**  
Yuuki Takahashi·Hidenori Komatsubara (Yamagata University Graduate School of Science and Engineering)
- 381 **Visualization of Droplet Interaction in Gasoline Injector**  
Nobuyuki Kawahara (Okayama University)  
Eiji Tomita·Shinichi Nakagoshi (Okayama University)  
Mamoru Sumida (Mitsubishi Electric Corp.)
- 382 **Effects of Dilution on Iso-octane Premixed Propagating Flames (Comparison between CO<sub>2</sub> and N<sub>2</sub> dilution)**  
Akihiro Hayakawa·Kosuke Maruyama·Yohei Kurokawa·Shoichi Kobayashi·Toshiaki Kitagawa (Kyushu university)
- 383 **The Effect of Ethanol on Small Displacement SIDI Engine**  
Fumiya Tsukamoto·Haruaki Suzuki (Shizuoka University)  
Hiroaki Inoue (Suzuki)

[13:15~14:55]

**80-09 S.I.Engine and After Treatment**  
 Chairperson: Koji Morikawa (Fuji Heavy Industries)

- 384 **(Cancelled) Development of Atmospheric Air-level Emission Vehicle Technology for Gasoline Engines**  
Koichi Inoue·Shunichi Mitsuishi (NISSAN MOTOR CO., LTD.)
- 388 **Development of HC reduction system at cold start**  
—Reduction of in-cylinder wet using gas flow—  
Makoto Tomimatsu·Hiroyuki Ichinose·Mamoru Yoshioka (Toyota Motor Corporation)  
Hideaki Kosuge·Yukihiko Takahashi (NIPPON SOKEN, INC.)
- 385 **Catalytic activity of Pd dispersed on Mn-substituted lanthanum hexa-aluminate**  
Shintaro Yagi·Yusuke Ogata·Sho Taniguchi·Akihiko Tomoda (F.C.C. CO. LTD.)
- 386 **Velocity profiles of pulsation flows in a catalytic converter**  
Masaya Ota·Shinya Tanaka·Jiro Funaki (Doshisha University)  
Hirochika Tanigawa (Maizuru National College of Technology)  
Katsuya Hirata (Doshisha University)
- 387 **Evaluation of adsorption and desorption performance of butane gas in carbon canister (Second Report)**  
—Calculation of Butane diffusion in carbon packed bed—  
Kazunari Sato·Koji Yamazaki (MAHLE Filter Systems Japan Corp)  
Noriyuki Kobayashi·Hiroyuki Tanaka·Hiroshi Endo (Nagoya University)  
Yasuo Mizuno (Aichi Institute of Technology)

**511+512 (5F)**

[9:30~11:10]

**81-09 Muscle Modeling and Injury Prediction**  
 <OS> Chairperson: Yasuhiro Dokko (Honda R & D)

- 389 **Development of Occupant Motion Analysis Technique with Muscle Activity**  
Takahiko Sugiyama·Hideyuki Kimpara (Toyota Central R&D Labs., Inc.)  
Chikara Nagai (Nagoya University)  
Masami Iwamoto (Toyota Central R&D Labs., Inc.)
- 390 **Development of a Human Whole Body FE Model with Muscular Bar Elements and the Application to Occupant Motion Analysis during Frontal Impacts**  
Hideyuki Kimpara·Takahiko Sugiyama·Kyuengbo Min·Masami Iwamoto (Toyota Central R&D Labs., Inc.)
- 391 **Development of a Human Upper Extremity FE Model with Muscular Solid Elements for Representing Muscle Stiffness Change**  
Yuko Nakahira·Takahiko Sugiyama (Toyota Central R&D Labs., Inc.)  
Chikara Nagai (Nagoya University)  
Masami Iwamoto (Toyota Central R&D Labs., Inc.)
- 392 **Occupants' Lower Extremity Injury Analysis during Frontal Impacts Taking into Account Muscle Activity for Breaking and Anisotropic Damage of Bones**  
Masami Iwamoto·Yuko Nakahira (Toyota Central R&D Labs., Inc.)  
Shinji Kajiuira·Eiichi Tanaka (Nagoya University)

## 5.22 (Fri.)

[13:00~14:40]

### 82-09 Pedestrian Dummy and Leg Protection <OS> Chairperson: Hiroshi Kuniyuki (Nissan Motor)

- 393 Estimation of Knee Injury Measures for a Pedestrian Dummy  
Yukou Takahashi·Masayoshi Okamoto·Akihiko Akiyama·  
Yuji Kikuchi (HONDA R&D Co., Ltd.)
- 394 Estimation of Injury Measures for a Pedestrian Dummy Pelvis  
Akihiko Akiyama·Masayoshi Okamoto·  
Yukou Takahashi (HONDA R&D Co., Ltd.)
- 395 A Study on Behavior of Flexible Legform Impactor (First Report)  
—Comparative Study with Behavior of TRL Legform Impactor—  
Masaaki Kuwahara·Tsuyoshi Yasuki·  
Yuichi Kitagawa·Hiroshi Miyazaki·  
Fumio Matsuoka (TOYOTA MOTOR CORPORATION)
- 396 A Study on Behavior of Flexible Legform Impactor (Second Report)  
—Comparative Study with Leg Behavior of Human FE Model—  
Hiroshi Miyazaki·Yuichi Kitagawa·  
Tsuyoshi Yasuki·Masaaki Kuwahara·  
Fumio Matsuoka (TOYOTA MOTOR CORPORATION)

[15:00~16:40]

### 83-09 Injury Reduction Technologies <OS> Chairperson: Yukihiro Yamazaki (Honda R & D)

- 397 Robust design of Pop-up Engine Hood in Dynamic Behavior for Pedestrian Safety  
Nobuhiro Iwai·Yasuhiro Miyata·  
Yusuke Inomata (Nissan Motor Co., LTD.)
- 398 Development of an evaluation system for a driving seat reducing neck injury based on mechanical impedance  
Shunsuke Fukushima·Yuhei Nomoto·Yoshiyuki Tanaka·  
Toshio Tsuji (Hiroshima University)  
Toru Takeshima·Masaya Yamashita (DELTA KOGYO)
- 399 The Study of Occupant Protection Seat for Frontal Collisions which pursued the Improvement of the Ridedown Effect  
Eiji Masutani (TS TECH Co., Ltd)
- 400 A Study of Effectiveness of the Seat Belt of Rear Seat Occupant at Vehicle Frontal Collision  
Tetsuo Maki·Masashi Tsuchiya·Hideo Sakai  
(Tokyo City University (ex-Musashi Institute of Technology))

## Small Auditorium (5F)

[9:30~11:35]

### 84-09 The Latest CAE and Test Technologies for NVH IV <OS> Chairperson: Takeshi Toi (Chuo University)

- 401 Effect of Microscopic Internal Structure on Sound Absorption Property of Polyurethane Foam by X-ray Computed Tomography  
tsuyoshi yamashita·kazuhiro suzuki·hideki adachi·  
souichiro nishino·yo tomota (Ibaraki university)
- 402 Damping Coating Optimazation by using Modal Modification Method  
Hideki Kawai·Hirotaka Shiozaki (Mitsubishi Motors Corporation)
- 403 Improved Convergence of Vehicle Body Vibration using Vibration Mode Control  
Hideki Ogiue (NISSAN MOTOR) Takashi Domae
- 404 Reduction of Drivetrain Bending Vibration of Truck with Quality Engineering and Optimization of Design Parameters  
Shigetaro Yahata
- 405 Vehicle interior noise and vibration reduction method using driving point inrtance sensitivities of body structure  
Seigo Yamamoto·Norimasa Kobayashi·  
Hiroo Yamaoka (TOYOTA Motor Corporation)

- 406 (Cancelled) Countermeasure of vehicle noise by sound quality equivalent model

Yoshihisa Iwanaga·Hirotaka Shiozaki·  
Masanori Kawagoe (Mitsubishi Motors Corporation)

[13:15~15:20]

### 85-09 Sound Quality <OS> Chairperson: Yasuo Ishii (Honda R & D)

- 407 Development of Vehicle Modeling Technique of High Precision by Hybrid SEA Based on Experiment and Analysis  
Kazunobu Kurata (Chuo University)  
Hiromichi Ohisa (K&A)  
Kazuya Harayama (KOTOBUKIYA FRONTE)  
Takeshi Toi (Chuo University)
- 408 Development of Reduction Technique of Acoustic Insulation for Vehicle by Hybrid SEA Based on Experiment and Analysis  
Kazunobu Kurata (Chuo University)  
Hiromichi Ohisa (K&A)  
Kazuya Harayama (KOTOBUKIYA FRONTE)  
Takeshi Toi (Chuo University)
- 409 Introduction of the fluctuation sound analysis basic theory and the application examples.  
Masaru Okoshi (ONOSOKKI Co., Ltd)  
Shohei Yamamoto (ALPINE ELECTRONICS, INC.)
- 410 Types of Car Sound Quality categorised by Frequency Dynamic  
—Categorisation of Automobile Sounds for Objectivisation—  
Norio Kubo·Norio Kubo (Yokohama Institute of Acoustics, Inc.)
- 411 Sound Quality Tuning of Mode-Switching Powerplant by Sound Simulation Methods  
Svend Gada (Briel & Kjaer Sound & Vibration Measurements A/S)

[15:40~16:55]

### 86-09 Noise Evaluation Chairperson: Takeshi Ishiyama (Japan Automobile Research Institute)

- 412 Elucidation of Fluctuating Aerodynamic Noise  
Takafumi Makihara (TOYOTA MOTOR CORPORATION)
- 413 Wind Noise Analysis around Motorcycle Rider  
Haruomi Sugita·Yasushi Takahashi·Yukinori Kurakawa·  
Yoshihiro Namiki (Honda R&D Co., Ltd.)
- 414 Development of Compact High Efficiency Blower Fan for HVAC  
Masaharu Sakai·Toshinori Ochiai (DENSO CORPORATION)  
Yasushi Mitsuishi (NIPPON SOKEN, INC.)