

The **25**th

**SMALL
ENGINE
TECHNOLOGY
CONFERENCE**

SETC
2019

“Small Powertrains-
Innovating for Their Future Role”

PRELIMINARY PROGRAM
Ver.2

VENUE: International Conference
Center Hiroshima

DATES: November 19 to 21, 2019
Technical visit on November 18



Society of Automotive Engineers of Japan, Inc.



INTERNATIONAL

Patronage of





Honda Canada
Established in 1969



F150
Launched in 1959



Insight
Launched in 1999



Honda Motor
Europe
Established in 1989



1300
Launched in 1969



Dax
Launched in 1969



DCT Dual Clutch
Transmission
Launched in 2009



American
Honda Motor
Established in 1959



CB750Four
Launched in 1969



P3
Launched in 1999



S2000
Launched in 1999



Monkey Z50A
Launched in 1969



CB92
Launched in 1959



Isle of
Man TT race
Participated in 1959



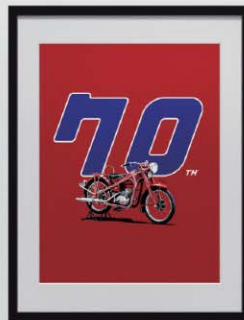
DENTA
Launched in 1979



Honda
Australia
Established in 1969



Monpal
Launched in 1999



DREAM
Launched in 1949



Honda Bicycle
Simulator
Launched in 2009



Celebration of Dreams 2019

HONDA
The Power of Dreams

Contents

Program at-a-Glance	2
Introduction of SETC2019	3 - 4
Sponsors & Advertisers	5
Committee Members	6 - 7
Conference Registration	8 - 9
Access to Venue	10 - 11
Venue	12 - 13
Technical Visits	14 - 15
Keynote Addresses	16
Specially Invited Speech	17
Plenary Session	18 - 21
Exhibition & Poster Session	22
Awards & Closing Ceremony	23
Reception & Banquet	24
Technical Sessions	25 - 35
About Hiroshima	36 - 37
Useful Websites	38
Hiroshima City Map	39

Program at-a-Glance

Time \ Date	Mon. Nov.18	Tue.Nov.19	Wed.Nov.20	Thu.Nov.21
08:00 – 09:00	<div>Technical Visits</div> <div>Registration</div>	<div>Exhibition & Poster Session</div> <div>Registration</div>	<div>Exhibition & Poster Session</div> <div>Registration</div>	<div>Exhibition & Poster Session</div> <div>Registration</div>
09:00 – 10:00		Opening Ceremony Keynote Addresses	Technical Sessions	Technical Sessions
10:00 – 11:00		Networking Break	Networking Break	Networking Break
11:00 – 12:00		Technical Sessions	Technical Sessions	Technical Sessions
12:00 – 13:00		Lunch	Lunch	Lunch
13:00 – 14:00		Technical Sessions	Technical Sessions	Awards & Closing Ceremony
14:00 – 15:00		Networking Break	Networking Break	
15:00 – 16:00		Technical Sessions	Plenary Session	
16:00 – 17:00				
17:00 – 18:00		Specially Invited Speech		
18:00 – 19:00				
19:00 – 20:00		Welcome Reception Hiroshima City Cultural Exchange Hall	Banquet ANA CROWNE PLAZA HIROSHIMA	
20:00 – 21:00				

Event	Location	Room
Registration, Poster Session	International Conference Center Hiroshima, B2F	Foyer in front of Dahlia
Opening Ceremony, Keynote Addresses, Specially Invited Speech, Plenary Session, Awards & Closing Ceremony		Himawari
Technical Sessions		Himawari , Cosmos , Ran
Lunch		Himawari , Cosmos , Ran
Exhibition & Networking Break		Dahlia
Welcome Reception	Hiroshima City Cultural Exchange Hall	Ginga (the Galaxy)
Banquet	ANA CROWNE PLAZA HIROSHIMA	Orchid

Note: Short Oral Presentations by poster session presenters take place during the Networking Break.

Introduction of SETC2019

Theme

Small Powertrains – Innovating for Their Future Role

Since its first event in 1989, Small Engine Technology Conference (SETC) continues to be the international technology conference for small powertrains and related products. SETC is jointly held each year by the Society of Automotive Engineers of Japan, Inc. (JSAE) and SAE International.

JSAE is pleased to host the 25th SETC at International Conference Center Hiroshima from November 19 through 21, 2019 with the cooperation of Japan Land Engine Manufacturers Association (LEMA).

Right in the middle of the once-in-a-century transformation, aiming for delightful and sustainable low-carbon society with harmony among various small powertrains, JSAE has chosen the theme of this conference for the year — “Small Powertrains – Innovating for Their Future Role.”

SETC History

Conference	City	Country
SETC1989	Milwaukee	USA
SETC1991	Yokohama & Hamamatsu	Japan
SETC1993	Pisa	Italy
SETC1995	Milwaukee	USA
SETC1997	Yokohama	Japan
SETC1999	Madison	USA
SETC2001	Pisa	Italy
SETC2002	Kyoto	Japan
SETC2003	Madison	USA
SETC2004	Graz	Austria
SETC2005	Bangkok	Thailand
SETC2006	San Antonio	USA
SETC2007	Niigata	Japan
SETC2008	Milwaukee	USA
SETC2009	Penang	Malaysia
SETC2010	Linz	Austria
SETC2011	Sapporo	Japan
SETC2012	Madison	USA
SETC2013	Taipei	Taiwan
SETC2014	Pisa	Italy
SETC2015	Osaka	Japan
SETC2016	Charleston	USA
SETC2017	Jakarta	Indonesia
SETC2018	Dusseldorf	Germany
SETC2019	Hiroshima	Japan

Introduction of SETC2019



This event has the Patronage of FISITA.

As the international membership organisation of the global automotive mobility systems engineering community FISITA is uniquely placed to promote excellence in mobility engineering through the delivery of visible, coordinated recognition of its member's technical conferences in support of the FISITA mission and the development of safe, sustainable and affordable mobility solutions.

www.fisita.com

Sponsors & Advertisers

JSAE Small Engine Technology Conference 2019 committees wish to express sincere gratitude and appreciate strong support of the following companies to the conference. (As of October 1, 2019)

Sponsors



Program Advertisers

- Honda Motor Co., Ltd.
- EXEDY Corporation
- Hokuriku Light Metal Co.,Ltd
- KUBOTA Corporation
- SUZUKI MOTOR CORPORATION
- Kawasaki Heavy Industries, Ltd.
- SCSK Corporation
- Yamaha Motor Co., Ltd.
- Pruefrefx Innovative Power Products GmbH
- F.C.C. Co.,Ltd.
- AVL GmbH
- HORIBA, Ltd

In Association With

- Japan Marine Industry Association (JMIA)

Committee Members

JSAE Honorary Committee 2019

Chair/Kiyotaka Fujihara	(Honda Motor Co., Ltd.)
Hiroaki Fujita	(Yamaha Motor Co., Ltd.)
Masahiro Nishikawa	(SUZUKI MOTOR CORPORATION)
Issei Ohashi	(Japan Land Engine Manufacturers Association)
Hideto Yoshitake	(Kawasaki Heavy Industries, Ltd.)

JSAE Organizing Committee 2019

Chair/Takashi Tsutsumizaki	(Honda Motor Co., Ltd.)
Takeshi Araki	(Kawasaki Heavy Industries, Ltd.)
Masayuki Baba	(Honda Motor Co., Ltd.)
Masaaki Ishibashi	(Honda Motor Co., Ltd.)
Ryosuke Ishikawa	(SUZUKI MOTOR CORPORATION)
Kensaku Isobe	(Yamaha Motor Co., Ltd.)
Hiroshi Ito	(Honda Motor Co., Ltd.)
Hibiki Koga	(Honda R&D Co., Ltd.)
Tatsuya Kuboyama	(Chiba University)
Naoyoshi Kuragaki	(Yamaha Motor Co., Ltd.)
Yohei Kurihara	(SUZUKI MOTOR CORPORATION)
Keiya Nishida	(Hiroshima University)
Tadao Okazaki	(Japan Land Engine Manufacturers Association/Kubota Corporation)
Tomoaki Yatsufusa	(Hiroshima Institute of Technology)
Koji Yoshida	(Nihon University)

JSAE Technical Committee 2019

Chair/ Michihisa Nakagawa	(Kawasaki Heavy Industries, Ltd.)
Yuji Araki	(Yamaha Motor Co., Ltd.)
Akira Iijima	(Nihon University)
Hidetoshi Ishigami	(Yamaha Motor Co., Ltd.)
Naoya Isozaki	(Kawasaki Heavy Industries, Ltd.)
Akihito Kasai	(Honda R&D Co., Ltd.)
Aki Kodai	(Kawasaki Heavy Industries, Ltd.)
Tatsuya Kuboyama	(Chiba University)
Yuji Mihara	(Tokyo City University)
Takashi Mitome	(SUZUKI MOTOR CORPORATION)
Toru Nakazono	(Japan Land Engine Manufacturers Association/Yanmar Co., Ltd.)
Tadao Okazaki	(Japan Land Engine Manufacturers Association/Kubota Corporation)
Hisayuki Sugita	(SUZUKI MOTOR CORPORATION)
Hiroya Ueda	(Honda Motor Co., Ltd.)
Koji Yoshida	(Nihon University)

JSAE General Committee

Chair/ Yasuyuki Muramatsu	(Yamaha Motor Co., Ltd.)
Takashi Mitome	(SUZUKI MOTOR CORPORATION)
Michihisa Nakagawa	(Kawasaki Heavy Industries, Ltd.)
Tadao Okazaki	(Japan Land Engine Manufacturers Association/Kubota Corporation)
Takashi Tsutsumizaki	(Honda Motor Co., Ltd.)
Koji Yoshida	(Nihon University)

Committee Members

SAE Committee 2019

General Chair/ Ken Fosaaen

Technical Chair/ Giovanni Ferrara

William Attard

Kai Beck

Giacomo Belgiorio

Alessandro Bellissima

Mikael Bergman

Glenn Bower

Nicolae Burnete

Francesco Catapano

Paolo Citti

Jan Czerwinski

Silvana Di Iorio

Pierre Duret

Hamid Erfanian

Josef Furlinger

Jaal Ghandi

Alessandro Giorgetti

Adrian Irimescu

Stephan Jandl

Peter Kaub

Roland Kirchberger

Thomas Lago

Paul Litke

Ezio Mancaruso

Mike Marcella

Luca Marchitto

Nagesh Mavinahally

Jay Meldrum

Simona Merola

Scott Miers

Marco Pierini

Giuseppe Pozzana

Enrico Rebaudo

Paul Richards

Luca Romani

Stephan Schmidt

Rene Schwerin

Sebastian Strauss

Leonid Tartakovsky

Cinzia Tornatore

Pierluigi Zampieri

(Kerdea Technologies)

(University of Florence)

(Fiat Chrysler Automobiles)

(Andreas Stihl AG & Co. KG)

(General Motors)

(Yanmar R&D Europe)

(Husqvarna AB)

(University of Wisconsin Madison)

(Universitatea Tehnica Cluj-Napoca)

(Istituto Motori CNR)

(Guglielmo Marconi University)

(University of Applied Sciences Biel-Bienne)

(Istituto Motori CNR)

(IFP School)

(BRP Inc.)

(BRP-Powertrain GmbH & Co. KG)

(University of Wisconsin Madison)

(University Guglielmo Marconi)

(Istituto Motori CNR)

(Graz University of Technology)

(Re-Sol LLC)

(Graz University of Technology)

(QirraSound Technologies Europe AB)

(USAF)

(Istituto Motori CNR)

(Maxima Racing Oils)

(Istituto Motori CNR)

(MavinTech USA)

(Michigan Technological University)

(Istituto Motori CNR)

(Michigan Technological University)

(University of Florence)

(MOVET)

(Vitesco Technologies Italy Srl)

(Consultant)

(Universita degli Studi di Firenze)

(Graz University of Technology)

(Andreas Stihl AG & Co. KG)

(Achates Power, Inc.)

(Technion Israel Inst of Technology)

(Istituto Motori CNR)

(Ducati Motor Holding SpA)

Conference Registration

Registration Fee

(Tax is not included)

Category	Advanced Online Registration ¹⁾ until Monday, September 30	Online Registration ²⁾ On-site Registration
Presenting Author and Session Chair/Co-chair ³⁾	JPY 45,000	
JSAE/SAE Member ⁴⁾	JPY 50,000	JPY 60,000
Student ⁵⁾	JPY 3,000	JPY 4,000
Accompanying Person ⁶⁾	JPY 6,000	JPY 6,000
Other than Those Above	JPY 60,000	JPY 70,000
Media ⁷⁾	Free	Free

*JPY = Japanese Yen

* Advanced Online Registration has already closed.

- 1) Advanced online registration will begin from the early August till the end of September.
Registration fee payment must be made with advanced registration.
- 2) Online registration will close on Thursday, October 31
- 3) Presenting authors and session chairs/co-chairs are required to register and make payment by Monday, September 30, 2019. Please contact the Conference Secretariat if it is difficult to do so. Otherwise, your paper will be deemed as withdrawn and thus will not appear in the proceedings.
- 4) JSAE corporate membership is inapplicable but an individual membership only.
- 5) Student includes a student presenting author who may be requested to show an ID on site.
- 6) Accompanying person is a family member of other category's participant except "Student," and is limited for one person only.
- 7) Media is a corporate capacity with regular issues.

On-site Registration Hours

Monday, November 18	14:00 – 18:00
Tuesday, November 19	08:00 – 18:00
Wednesday, November 20	08:00 – 18:00
Thursday, November 21	08:00 – 12:00

Entitlements of Registration Fee

- Admission to the Opening, Awards & Closing Ceremony
- Admission to Keynote Addresses, Specially Invited Speech and Plenary Session
- Admission to Technical Sessions with Proceedings media
- Admission to the Exhibition & Poster Session
- Admission to Welcome Reception, Lunches and Networking Breaks

Note: Neither an accompanying person nor an exhibitor is entitled for technical sessions and proceedings.

Conference Registration

Pay Events

Technical Visit **JPY 5,500** (Tax is not included)

Date: Monday, November 18

Time: A Course 9:00 - 17:15 / B Course 9:00 - 16:15

Note: Please apply for the technical visits when register online. On-site application will not be taken. The fee includes lunch.

See more details in the page 14 -15, "Technical Visits."

Banquet **JPY 5,500** (Tax is not included)

Date: Wednesday, November 20

Time: 18:30 - 21:00

Place: ANA CROWNE PLAZA HIROSHIMA

Transportation: Taxi or 10 min walk

Note: Please apply for banquet attendance ticket when register online. On-site application will not be taken unless there is any cancellation.

See more details in the page 24, "Banquet."

Payment Methods

Online Registration

All Payment must be made in Japanese Yen (JPY) with:

Credit Card: VISA / MasterCard / American Express / JCB are accepted.

Bank Transfer: Only for those who will register in Japan if preferred.

Note: A personal check is unaccepted.

On-site Registration

All Payment must be made in Japanese Yen (JPY) with:

Credit Card: VISA / MasterCard / American Express / JCB are accepted.

Note: Cash is unaccepted.

Cancellation Policy

By Monday, September 30	90% of the registration fee less handling charges to be refunded.
By Thursday, October 31	50% of the registration fee less handling charges to be refunded.
After Thursday, October 31	No refunds

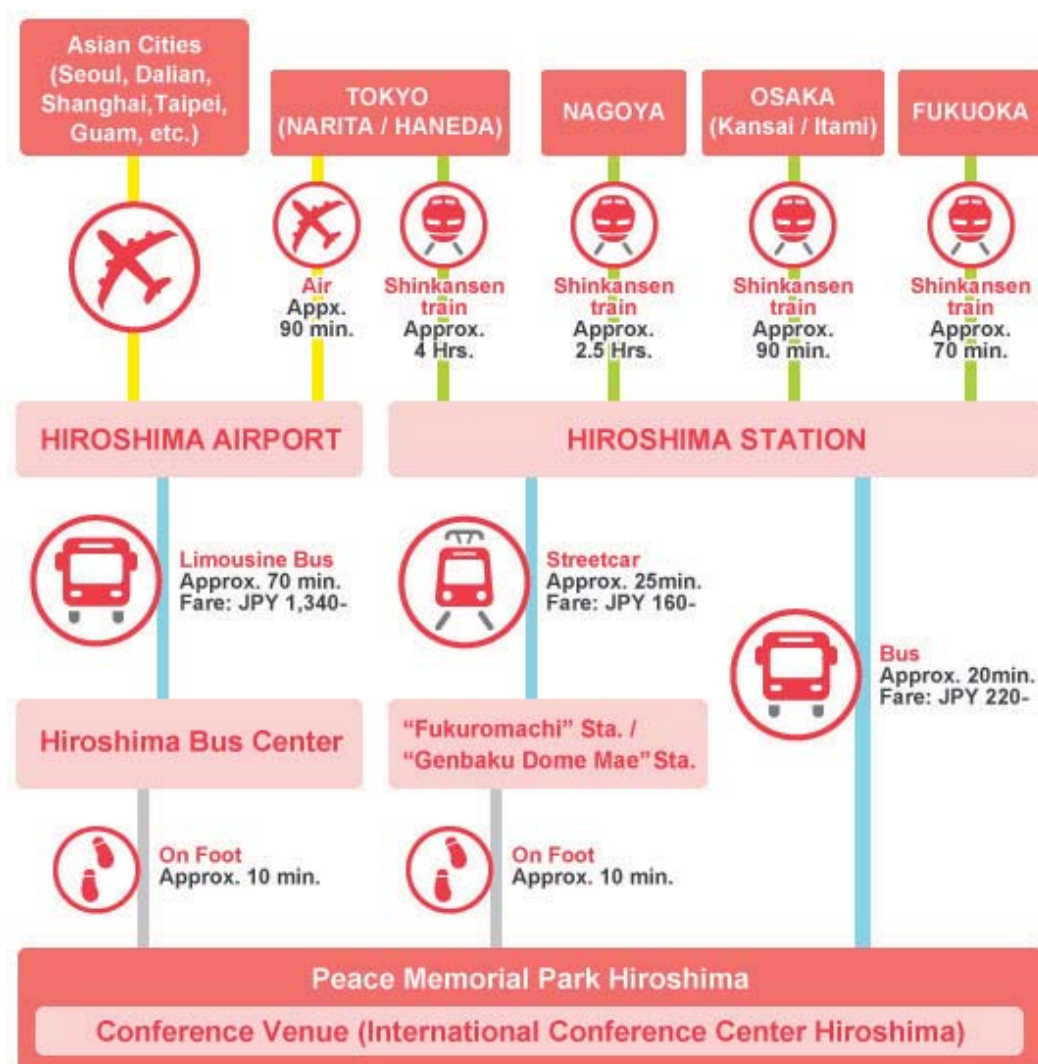
Note: Cancel request must be e-mailed to the SETC2019 Email: SETC2019@jsae.or.jp
No refunds are applicable once a banquet and/or technical visits have been applied.

In Japan, the consumption tax rate will be changed from 8% to 10% from October 1, 2019. Please check for the latest information about the treatment of the consumption tax rate at www.setc-jsae.com.

Access to Venue

Access to Hiroshima

Diagram for Easy Access to Venue



■From Hiroshima Airport

- By Limousine Bus About 70 minutes

From the airport, take the limousine bus bound for Hiroshima Bus Center from the 1st floor of the arrival gate, and get off at the Hiroshima Bus Center. From here, on foot about 10 minutes.

- By Taxi About 50 minutes

■From Hiroshima Station

- By Bus About 20 minutes

Take No. 24 Hiroshima Bus for "Yoshijima" from A-3 at the south exit of Hiroshima Station, and get off at "Peace Memorial Park."

- By Streetcar About 25 minutes

Take a streetcar for "Hiroshima-port(No.1)" and get off at "Fukuro-machi." From here, on foot about 10 minutes.

Take a streetcar for "Eba(No.6)" or "Miyajima-guchi(No.2)" and get off at "Genbaku Dome mae." From here, on foot about 10 minutes.

- By Taxi About 10 minutes

Access to Venue

■From Tokyo Airport (Narita International Airport(NRT) / Haneda Airport(HND)) to Hiroshima Station

- By domestic flight to Hiroshima Airport (approx. 90 minutes).
- By Narita Express to JR Tokyo or Shinagawa Station and transfer for Hiroshima to Shinkansen (approx. 240 minutes).

■From CHUBU CENTRAIR International Airport (NGO) to Hiroshima Station

- By Meitetsu μ -SKY to Nagoya Station (approx. 30 minutes) and transfer for Hiroshima to Shinkansen (approx. 140 minutes).

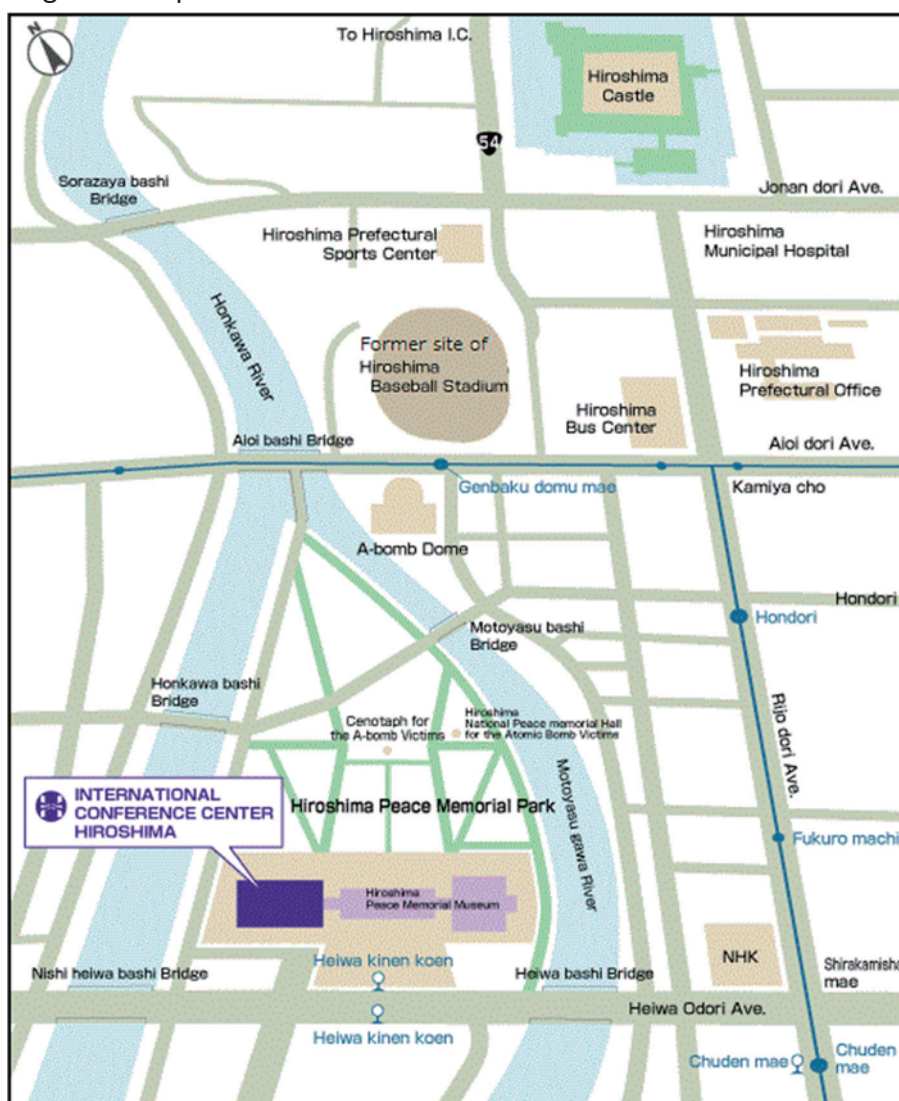
■From Kansai International Airport (KIX) to Hiroshima Station

- By JR-West Kansai International Airport Express HARUKA to Shin-Osaka Station (approx. 50 minutes) and transfer for Hiroshima to Shinkansen (approx. 90 minutes).

■From Fukuoka International Airport (FUK) to Hiroshima Station

- By Subway Airport Line to Hakata Station (approx. 15 minutes) and transfer for Hiroshima to Shinkansen (approx. 70 minutes).

Surrounding Area Map

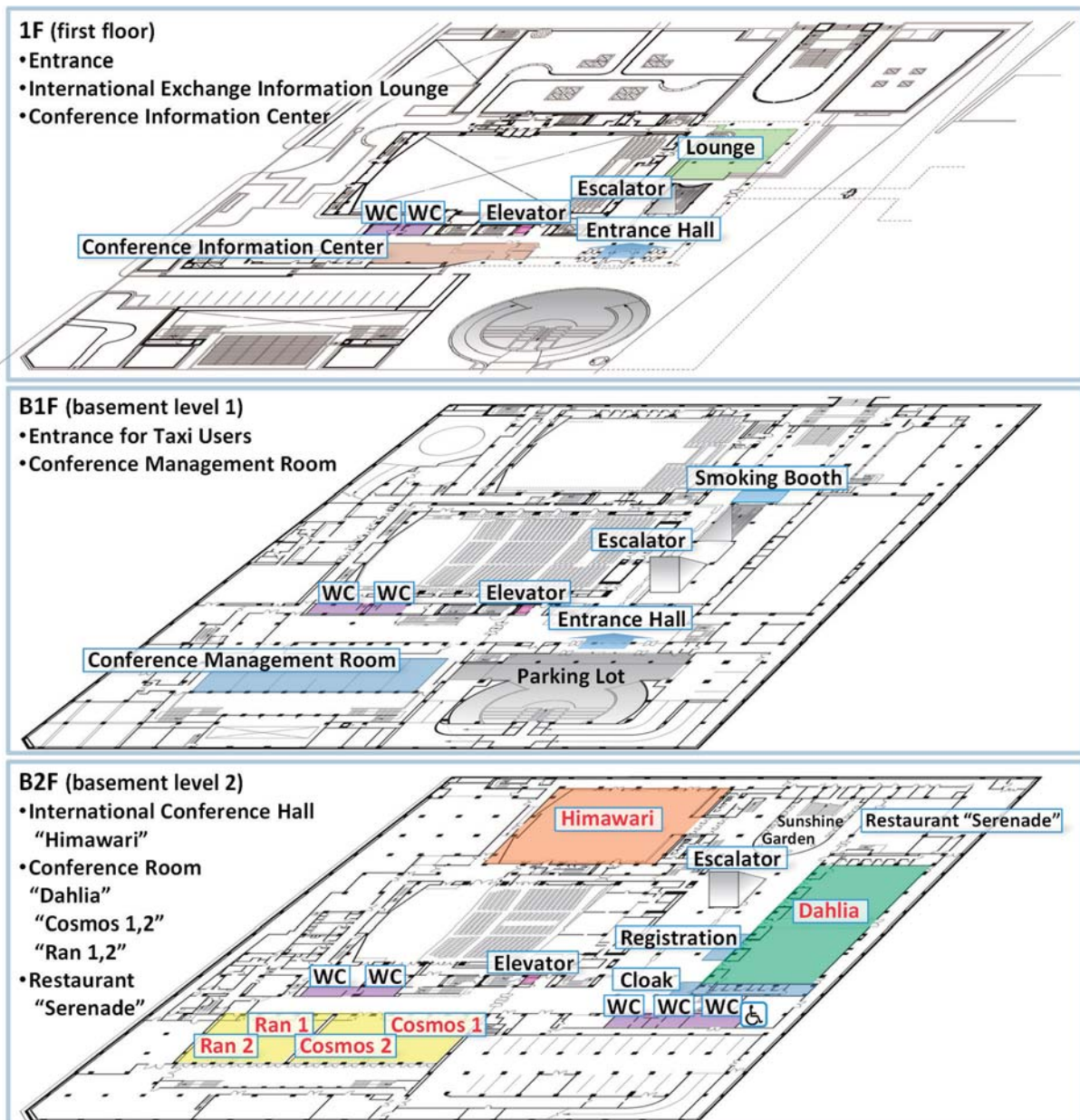


Venue

International Conference Center Hiroshima

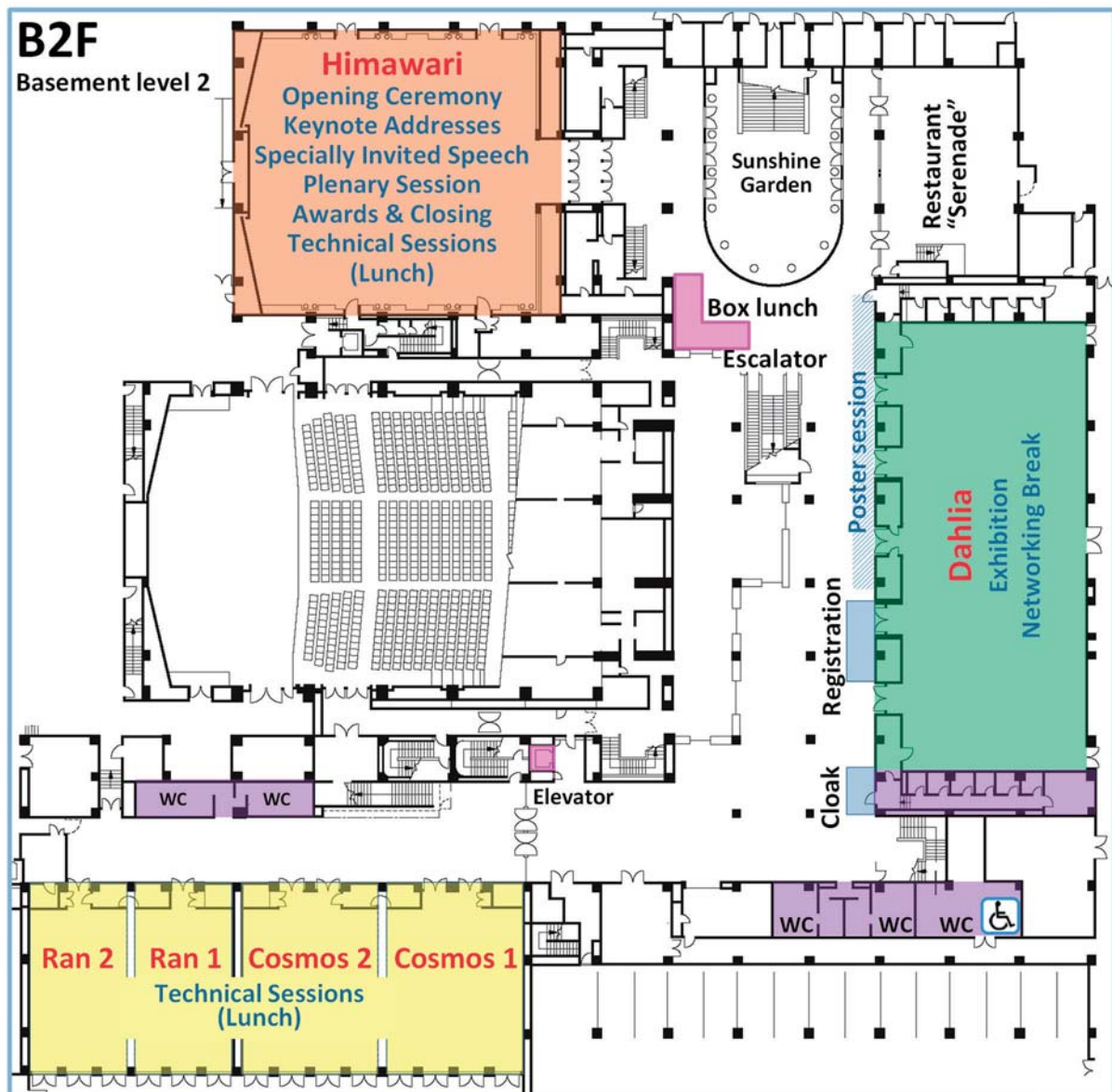


Exterior and interior views and the layouts of the conference sites



Venue

International Conference Center Hiroshima



- Conference Information Center
 - Located on the first floor (1F)
 - Open from 9:00 to 21:00 during business days
 - Copy (B&W, color), print out and fax service
- Lunch
 - Your box lunch can be picked up at the foyer located on basement level 2 (B2F)
- Free Wi-Fi Service
 - Free public Wi-Fi service "Hiroshima Free Wi-Fi" is available (in the lobby at the first floor only)
- Coin Lockers
 - Available on the first floor (1F), basement level 1 (B1F), basement level 2 (B2F)
- Smoking
 - Smoking booth is located at basement level 1 (B1F)

Technical Visits

Date: Monday, November 18.

Time: A Course 9:00 - 17:15 / B Course 9:00 - 16:15

Technical Visits will be arranged under the cooperation of the following organization on Monday, November 18. SETC2019 Technical Visits offer unique courses of interests. You can select from the following two courses.

Course A presents you great experiences through the visits to Mazda Museum, Engineering Department of Hiroshima University and the local brewery street of Saijo. In addition to the prepared factory tour, you obtain an opportunity to have a special technical presentation by Mazda's engineers. Meet earnest students and researchers at Hiroshima University for the latest news in their guided tour of the facilities. To get ready for the scheduled conference in the next days, relax and indulge yourself in the unique and unforgettable aroma of world-famous Japanese Sake on the brewery street.

Course B, after taking you to Mazda Museum as the other does, invites you to Itsukushima, a.k.a. Miyajima, one of the world-famous heritages of Japan. The magnificent Torii gate and historic solemn shrine, both painted beautifully in the traditional vermilion, welcome you for memorable time. It is scheduled well enough to provide you with the opportunity to witness the wooden buildings seemingly floating on the water. Do not forget the friendly deer roaming in the island, but take a little precautions not to get too close to them



The Mazda Museum, operated by Mazda Motor Corporation, a Japanese multinational automaker headquartered in Hiroshima, is a corporate museum located within the premises of Mazda Motor Corporation having a total area of 2,230,000m² (551acre). This time you will tour around the museum with a guide. The exhibits include:

- Video presentation regarding the history of the city of Hiroshima and Mazda, and how the automaker has put importance on craftsmanship in automotive manufacturing.
- The history of Mazda from its foundation up to today, along with the exhibition of historic cars.
- Exhibition of the rotary engine, Mazda's renowned technology, with various engine cut models and components. The racing car that won the Le Mans 24 Hour Race is also put on display.
- Presentation on the automotive development process from planning to production, as well as on SKYACTIV technology.
- Factory tour of the actual car assembly line.
- Mazda's perspective on the environmental issues, which is highlighted in "Sustainable Zoom-Zoom 2030."

Mazda will give you a special lecture for the Technical Visit, in addition to the usual visit to the museum.



Technical Visits



HIROSHIMA UNIVERSITY

national and municipal schools existed in Hiroshima district. After completing the reforms centered on reinforcement of its graduate school system (expansion of Master's and Doctor's programs) for every faculty in 2006,

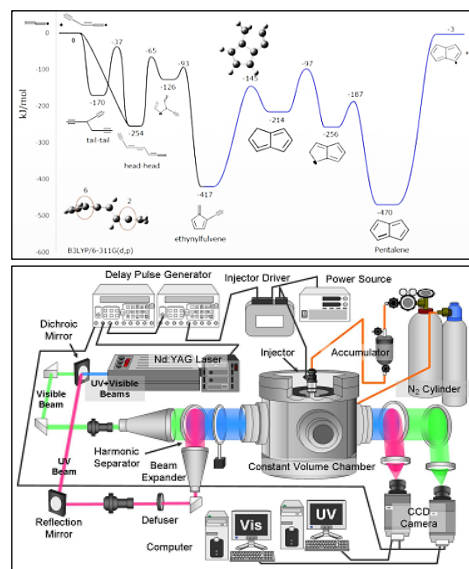


HU has become one of the largest comprehensive research universities in Japan having 11 faculties and 11 graduate schools. In 2013, HU was designated by Japan's Ministry of Education, Culture, Sport, Science and Technology (MEXT) as a participant of the Ministry's Top Global University Project. HU is making steady progress

as a global university taking on worldwide challenges.

Tours to the laboratories majoring the heat and power engineering in Departments of Mechanical Systems Engineering and Mechanical Science and Engineering are planned as follows.

- Combustion Engineering Laboratory; Combustion fundamentals, Combustion chemical kinetics, Flame propagation, SI engine knocking, Catalytic converter
- Fluid Engineering Laboratory; Liquid atomization, SI and CI engine sprays, Laser diagnostics for mixture formation, Engine exhaust pulsating flow, Piston oil jet cooling
- Hiroshima University-Advanced Core for Energetics (HU-ACE); Fuel from biomass, Hydrogen production, storage and combustion, Pulse detonation engine, Laser ignition



Saijo Sakagura Dori

Saijo district is famous for its sake breweries, which is comparable to Nada in Hyogo and Fushimi in Kyoto. Currently, nine Sake breweries are in operation near Saijo Station. Sakagura Dori (Sake Breweries Streets) was designated as one of the "33 Heritage Constellations of Industrial Modernization" by the Japanese Ministry of Economy, Trade and Industry. The streets has unique ambience created by a lot of towering red brick chimneys, roofs covered with red tiles, a collection of sake storehouses built with Dozo-Zukuri which is characterized by the beautiful contrast between the white Shikkui (white paste used as a glue covering the walls) and Namako-Kabe (black tiles affixed to the wall), as well as Machiya, traditional wooden homes having narrow frontage with Senbon Goshi (evenly spaced vertical timber bars).

During the Technical Visit, you will walk around the Sakagura Dori described above with a guide, and will visit several Sake Breweries where you can learn the process of Sake brewing through video presentation. Enjoy Sake tasting, and shopping of Sake products.



Photo provided : Hiroshima Prefecture



Photo provided : Hiroshima Prefecture

Itsukushima Shrine

It is said that Itsukushima Shrine, one of the Three Scenic Views of Japan, was established by Saeki-no-Kuramoto. In the late Heian Period, the current shrine building was constructed in its present form, as a shrine on the sea, with the assistance of Taira-no-Kiyomori. The conception of a shrine whose grounds include the sea, with its form ever changing with the ebb and flow of the tides, is like nothing else in the world. In December of the year Heisei 8 (1996), Itsukushima Shrine was registered as a World Heritage Site. Looking out over the Inland Sea before it and crowned to its rear by Mt. Misen, a sacred mountain where the gods are believed to have descended to earth, Itsukushima Shrine strikes a harmony between natural and man-made beauty.



Photo provided : Hiroshima Prefecture



Photo provided : Hiroshima Prefecture

Note: Technical Visits are on-line registration only. On-site registration is not available.

Keynote Addresses

Date: Tuesday, November 19
Time: 9:00 to 10:00
Place: International Conference Hall "Himawari," B2F

Speech Theme



Yuji Marui

Chair, Motorcycle Technical
Evaluation Committee
Monozukuri Center, Motorcycle
Operations, Honda Motor Co., Ltd.

HONDA

Fun with Fulfillment and Excitement

Honda R&D Co., Ltd. Motorcycle R&D Center

1984 – 2006 Engineer of non-ferrous metals,
Materials Engineering Division of Motorcycles
2006 – 2007 Manager,
Materials Engineering Division of Motorcycles
2008 – 2012 Chief Officer,
Motorcycle Materials Technology
2013 – 2016 General Manager,
Components Development Division
2017 – 2018 Chair,
Motorcycle Technical Evaluation Committee

Honda Motor Co., Ltd. Monozukuri Center, Motorcycle Operations

2019 – Chair,
Motorcycle Technical Evaluation Committee
Chair,
Global Council of Materials Engineering

Speech Theme



Helmut Eichlseder

Ph. D. / Head of the Institute for
Internal Combustion Engines and
Thermodynamics, TU Graz

ivt
Institut für
Verbrennungskraftmaschinen
und Thermodynamik

Challenges and Trends for Small Engine Technology

Education:

1978 – 1984 Study of Mechanical Engineering Graz University of
Technology
1989 Doctorate Degree (PhD) at TU Graz
2001 Univ.-Prof. for Internal Combustion Engines at TU Graz

Career:

1984 Calculation Engineer in AVL Graz
1985 – 1990 University Assistant at "Institute for IC engines and
Thermodynamics" at TU Graz (Head: Prof. R.
Pischinger)
1990 Development engineer in BMW's Diesel Development,
Steyr
1991 Head of Department „predevelopment – new
technologies"
1993 – 1997 Head of Department "combustion development Diesel";
functional development of new DI Diesel engine family
of 4, 6 and 8 cylinder
1997 – 2001 Head of Departments "Alternative Combustion Systems"
and then „DI Gasoline Engines" in Gasoline
development, BMW Munich
2001 Univ.-Prof. for Internal Combustion Engines at TU Graz
2002 Head of the Institute for Internal Combustion Engines
and Thermodynamics, TU Graz

Specially Invited Speech

Date: Tuesday, November 19

Time: 17:00 to 18:00

Place: International Conference Hall “Himawari,” B2F

In accordance with this hard-to-get opportunity of the conference held in Hiroshima, we specially invited a renowned engineer of Mazda Motor Corporation, Mr. Mitsuo Hitomi. He is the key person leading the developments in Mazda of environmentally friendly combustion engines named SKYACTIV. He would give us his important insights on the future power source of vehicles and his visions foreseeing the next step evolutions of internal combustion engines.

Speech Theme

Importance of internal combustion engine (ICE) improvements



Mr. Mitsuo Hitomi

Senior Innovation Fellow
Mazda Motor Corporation

April 2019	Senior Innovation Fellow
April 2017	Managing Executive Officer Senior Technical Fellow; In charge of Technical Research Center and Integrated Control System Development
April 2015	Managing Executive Officer; In charge of Technical Research Center, Powertrain Development and Integrated Control System Development
April 2014	Managing Executive Officer; In charge of Technical Research Center, Powertrain Development and Electric Drive System Development
February 2014	Executive Officer; In charge of Technical Research Center and Powertrain Development
June 2013	Executive Officer; In charge of Technical Research Center and Powertrain Development; General Manager, Powertrain Development Division
April 2011	Executive Officer; General Manager, Powertrain Development Division; Assistant to the Officer in charge of Cost Innovation
February 2010	General Manager, Powertrain Development Division
August 2007	Deputy General Manager, Powertrain Advance Development Department
October 2000	General Manager, Powertrain Development Division
April 1979	Joined Toyo Kogyo Co., Ltd. (present Mazda Motor Corporation)
Date of Birth	May 2, 1954

(As of April 1, 2019)

Plenary Session

Date: Wednesday, November 20

Time: 15:00 - 17:30

Place: International Conference Hall “Himawari”

Theme

ICE and E-Motor - Which will be in the Future Mainstream of Small Powertrains?

Environmental protection and energy saving are featured topics among others in the field of transportation and mobility. Some of the powertrains, utilizing electrification technologies effectively, have reduced emission of CO₂ while they have attracted more customers in these years. In addition, you see some political movements to encourage electrification of automobiles including restriction of internal combustion engine (ICE) cars in urban areas especially in Europe. The electrification of mobility, however, involves various problems such as the lower energy density of battery, time-consuming charging, resource issues brought about by utilization of rare metals, costs, infrastructure and so on, which have prevented drastic change to replace ICEs. Why don't we discuss future main streams of small powertrains, taking all the challenging issues into consideration, with the invited guests and experts in SETC2019 at Hiroshima?

Moderator



Keiya Nishida

Professor, Department
of Mechanical Systems
Engineering
University of Hiroshima,
Japan

Dr. Keiya Nishida is a Professor in the Department of Mechanical Systems Engineering, Graduate School of Engineering, University of Hiroshima, Japan. He received his B.S. in Mechanical Engineering in 1978, M.S. in Engineering of Transportation Phenomena in 1980, and Ph.D. in 1989, all from University of Hiroshima. From 1980 to 1982, he was a research and development engineer in the internal combustion engine department of Kubota Ltd, Osaka, Japan. He joined University of Hiroshima as a Research Associate in 1982, and has been involved in experimental and computational studies on the fuel spray and combustion in internal combustion engines. He became an Associate Professor in 1990 and a Professor in 2011. He spent one year from 1995 to 1996 at Department of Mechanical Engineering and Applied Mechanics, University of Michigan, USA, as a visiting scholar. Most of his studies focus on laser diagnostics and computer simulation of the fuel spray, mixture formation and combustion in Diesel and gasoline engines. Dr. Nishida holds more than 150 journal papers, 130 international conference papers, and 3 books. He got the awards such as the prize for the best paper in the field Diesel engines presented at 20th CIMAC Congress in 1993, SAE Horning Memorial Award in 1994, JSME best paper award in 1995, Best Paper Award of 17th Small Engine Technology Conference in 2011, and Lloyd's Register Manson Prize from Japan Institute of Marine Engineering in 2012, etc. He was a president of Institute of Liquid Atomization and Spray Systems – Japan in 2013 to 2014, Chair of Diesel Engine Committee of Japan Society of Automotive Engineers in 2014 to 2015. He is currently a director of Research Committee for Advanced Combustion System for Diesel Engine and a vice-head of Engine Systems Division, both of Japan Society of Mechanical Engineers.

Plenary Session

Speaker

Subject: *Electric and ICE, future prospect in the field of power source for small mobility*



Johannes Scharf

Dr.-Ing. / Vice President
"Gasoline Powertrain
Development", FEV
Europe GmbH,
Germany

Career

2016-today: Vice President "Gasoline Powertrain Development", FEV Europe GmbH

- Responsible for gasoline engines, hybrid powertrains and small engines / motorcycle powertrains
- Combustion, design, mechanics, simulation, calibration, integration and validation

2010-2016: various management positions within FEV Group

- Director "Gasoline Thermodynamics", FEV GmbH
- Department Manager "Powertrain & Chassis Dyno Testing", FEV GmbH
- Team Manager "Gasoline Combustion", FEV GmbH
- Team Manager "Air & Exhaust Management", FEV GmbH

2005-2010: Engineer "Engine Concept Simulation", Institute for Combustion Engines, RWTH Aachen University

Education

- PhD on "Turbocharging & Downsizing", RWTH Aachen University (Prof. Pischinger)
- "Mechanical Engineering", RWTH Aachen University
- "Automation & Controls", Universidad Politécnica de Madrid

Awards

- „Borchers Award" for doctor thesis
- „Springorum Award" for diploma thesis
- Scholar of „German National Academic Foundation"
- Award of „German Physical Society"

Recent publications

- 2018: Scharf, J. et al.: All clean gasoline hybrid powertrains with lambda 1 for EU7, 27th Aachen Colloquium Automobile and Engine Technology
- 2017: Scharf, J. et al.: Hybrid Optimal Combustion Engines – High Tech or Low Cost?, 38th International Vienna Motoren Symposium

Subject: *Chances and Challenges for Electrification in Small Power Trains*



Markus Neumayer

Dr.-Ing. / Ph.D
Senior Scientist at Graz
University of
Technology, Austria

Career

2008 Master in electrical engineering, Graz University of Technology

2008 Research Scientist at Graz University of Technology

2010 Research Scientist at the University of Otago/ New Zealand

2011 Ph.D. in electrical engineering, Graz University of Technology

2014 Senior Scientist at Graz University of Technology

Awards

2012 Award of Excellence by the Austrian Government:

2012 Award for Modeling and Simulation by the Austrian Government

Current Research Fields

Sensing and signal processing for small combustion engines

Measurement systems for process measurement

Model based measurement

Power measurement in electrified drive trains

Academic Activities

Tutorials on Bayesian Methods for Measurement problems at the IEEE International Instrumentation & Measurement Technology Conference (2016, 2019)

Invited Talk on Electrical Capacitance Tomography (University of Kuopio 2011)

Invited Talk on Statistical Signal Processing Methods for Estimation (Federal University of Rio de Janeiro 2014)

Invited Talk on Inverse Problems (University of Kuopio 2016)

Plenary Session

Subject: ***Charging Infrastructure and Business model are the key successful factors of electric Scooter***



Bing-Ming Lin

Deputy Director, Div. of Energy Storage Materials & Technology, Material and Chemical Lab., Industrial Technology Research Institute, Taiwan

Education

Mechanical Engineering
Chung Yuan University

Expertise & Work Experiences

Motorcycle Technology R&D in engine design and test
Electric Vehicle Technology R&D in system design and test
Battery Technology R&D in component and system design and test
Electric Scooter Industry Promotion work for over 15 years
Lithium Battery and Electric Scooter Testing Standard setting
Lithium Battery Safety Test TAF Lab. test report signatory

Current Position

1. Deputy Director, Div. of Energy Storage Materials & Technology, Material and Chemical Lab., Industrial Technology Research Institute
 2. Project Leader, Electric Scooter Industry Promotion Program, IDB, MOEA
 3. Project Leader, Electric Scooter Refueling Infrastructure Development Program, IDB, MOEA
 4. Member, Electrical Engineering Group, National Standard Technical Committee, BSMT, Chairman of TC3/SC5
 5. Executive Chairman, Electric Scooter Common Battery Technology Consortium
- Subject

Subject: ***Current Status and Future Perspective of the Capability of Rechargeable Batteries for Small Mobility Application***



Kuniaki Tatsumi

Doctor of Engineering /
Director, Technology Marketing Office
Research & Innovation Promotion Headquarters
National Institute of Advanced Industrial Science and Technology (AIST), Japan

Career

- | | |
|------|--|
| 1988 | Research Scientist, Inorganic Materials Div., AIST |
| 2001 | Deputy Director, New and Renewable Energy Div., Ministry of Economy, Trade & Industry (METI) |
| 2002 | Leader, Advanced Battery Research Group, AIST |
| 2013 | Deputy Director, Research Institute of Ubiquitous Energy Devices, AIST |
| 2014 | Director, Advanced Research Division, Panasonic |
| 2017 | Director, Technology Marketing Office, AIST |

Education

- | | |
|------|---|
| 1986 | Bachelor, Dept. of Engineering, Kyoto University |
| 1988 | Master, Molecular Engineering, Graduate School, Kyoto University |
| 2000 | Doctor of Engineering (Electrochemistry and Material Science), Kyoto University |

Research Subjects

- Electrochemical energy storage and conversion
- Rechargeable Lithium and lithium-ion batteries materials and reaction mechanisms
- Rechargeable lithium-ion batteries for automobile applications to enhance energy density, rate capability and cyclability/calendar life of lithium-ion batteries.

Plenary Session

Subject: ***The Future of the Internal Combustion Engine***

- Challenge for Innovative Combustion Technology to achieve 50% thermal efficiency



Norimasa Iida
Professor Emeritus,
Keio University, Japan

Norimasa Iida is a Professor in the Faculty of Science and Technology at Keio University, Japan. He obtained his PhD in 1983 from Keio University on the topics of propagation and extinction mechanisms of premixed flames flowing into a narrow channel from a combustible-gas-charged chamber, from where he started his career.

Norimasa Iida spent a very productive year as a Visiting Assistant Professor working at the Engine Research Center, University of Wisconsin-Madison, USA.

He headed a "Gasoline Combustion Team" of Innovative Combustion Technology program, a national project established under the Cabinet Office, Government of Japan as a part of the "Cross-ministerial Strategic Innovation Promotion Program (SIP)".

Norimasa Iida has contributed his research work in the combustion and emission of internal combustion engines with his special interests in life cycle assessment for next generation vehicles. He, as a leader in HCCI combustion research, has published more than 300 papers on the subject, most of which are presented at SAE International, JSAE and JSME.

Norimasa Iida is currently serving as Auditor of JSAE Board of Directors.

Career

- 1973 Graduated from Department of Mechanical Engineering, Faculty of Engineering, Keio University, Japan
- 1980 Earned Doctor of Engineering at Keio University
- 1983 Became Assistant, Faculty of Science and Technology, Keio University
- 1985 Became Assistant Professor, Faculty of Science and Technology, Keio University
Appointed Visiting Professor in Mechanical Engineering Department, University of Wisconsin, Madison, USA
- 1990 Headed Ceramics Methanol Engine Project, Kanagawa Academy of Science and Technology, Japan
- 1991 Became Associate Professor, Faculty of Science and Technology, Keio University
- 1997 Became Professor, Faculty of Science and Technology, Keio University
- 2016 Became Project Professor, Graduate school of science and technology, Keio University
- 2019 Became Professor Emeritus at Keio University

Exhibition & Poster Session

Period: Tuesday, November 19 through Thursday, November 21
Place: Room “Dahlia,” B2F

The exhibition offers an excellent showcase for small engine manufacturers as well as related component & equipment suppliers, measurement instruments and system providers in the peripheral industries in exchange of technological opinions and ideas with small engine researchers and engineers who are mainly research paper presenters.



For academia, the poster session is aimed at undergraduate and graduate university students who would like to expose their research activities to the participants of the conference. For companies and institutes, the poster session is also aimed to promote the challenging exploratory study which does not have enough data but is innovative. A short oral presentation by a student will be requested to evaluate for an award.



Opening Hours

Tuesday, November 19	10:00 to 17:00
Wednesday, November 20	10:00 to 17:00
Thursday, November 21	10:00 to 13:00

Application for an Exhibit Space Reservation and Fee

@ JPY120,000 (Tax is not included)

The application due Friday, August 30

Please find more information at the following SETC web site: <http://www.setc-jsae.com/>

Application for Poster Session

Free participation, but presenters must register to attend SETC2019. The details are announced at the SETC web site: <http://www.setc-jsae.com/>

List of Exhibitors

Honda Motor Co., Ltd.	HORIBA Ltd.
Kawasaki Heavy Industries, Ltd.	Infineum UK. Ltd.
SUZUKI MOTOR CORPORATION	ATSENSE INC.
Yamaha Motor Co., Ltd.	Satyam Venture Engineering Services Private Limited
Vitesco Technologies Japan K.K	TAIHO KOGYO Co., Ltd.
Prufrex Innovative Power Products GmbH	Chevron Japan Ltd.
AVL GmbH	dSPACE Japan
EXEDY Corporation	SCSK Corporation
Ono Sokki	FunctionBay K.K.

*Random Order As of October 22

Awards & Closing Ceremony

Date: Thursday, November 21

Time: 13:00 - 14:00

Place: International Conference Hall "Himawari," B2F

The ceremony will begin by the conference summary, and the announcement of the each prize awardees will follow.

The Summary of the Conference

A representative of JSAE will announce the summary at the beginning of the ceremony.

Awards

Awardees will be announced and given certificates in recognition of:

- High Quality Paper Awards 10 papers
- The Best Paper Award One out of the 10 High Quality Papers
- High Quality Presentation Awards 5 Presenting authors
- The Best Poster Award 1 poster
- The Best Collegiate Event Award 1 paper



Announcement & Introduction of SETC2020

A representative of SAE International will announce and introduce the next SETC to be held in the USA.

Farewell Remarks

A representative of JSAE will make farewell remarks at the end of the ceremony.

Reception & Banquet

Welcome Reception Free of charge (for all registered attendees)

Date: Tuesday, November 19

Time: 18:30 - 20:30

Place: Hiroshima City Cultural Exchange Hall

The reception will be held at the large conference room, "Ginga (the Galaxy)" located on 3rd floor of the Hiroshima City Cultural Exchange Hall, which is in the vicinity of the conference venue. It is an excellent opportunity to get together and mingle with your friends spending the first evening of the conference.



Banquet Attendance fee: JPY 5,500

Date: Wednesday, November 20

Time: 18:30-21:00

Place: ANA CROWNE PLAZA HIROSHIMA

Online registration required. No ticket available on the day unless there is any vacancy occurred by cancellation. The seats will be reserved on first come first served basis. A person without registration may be declined to apply an on-site registration, or put on the waiting list depending on the situation.

The banquet will be served at Ballroom "Orchid," on the 3rd floor of ANA CROWNE PLAZA HIROSHIMA. That hotel is one of the major international hotels in Hiroshima, also located near the conference venue. During the banquet, the guests can enjoy performances of "Hiroshima Kagura," which is one of the Japanese most well-known traditional dances for celebrations. You have a wonderful time watching the gorgeous and dynamic dancing, which tells the story of Japanese famous myth on "Yamata-no-orochi." After the performance, Guests can take photos with the performers for your souvenir.



Directions

Both event sites of Hiroshima City Cultural Exchange Hall and ANA CROWNE PLAZA HIROSHIMA are conveniently located. They are within walking distances from the conference venue. Taxis are also available for the guests who have difficulties to access there on foot.



Technical Sessions

SETC2019 Session Timetable						
		Ran 1	Ran 2	Cosmos 1	Cosmos 2	Himawari
Tuesday, November 19th	8:30-10:00	Opening Ceremony & Keynote Speech (Himawari)				
	10:00-10:30	Networking Break & Poster Session				
	10:30-12:00	Collegiate Events	Alternative Fuels I	Diesel Engine I	Measurement & Simulation I	Fuel Supply Systems
		Chair	Takashi Mitome	Toru Nakazono	Tomoaki Yatsufusa	Tadao Okazaki
		Co-Chair	Stefan Sturm	Michael Lang	Adrian Irimescu	Stephan Schmidt
		3	20199532 / 2019-32-0532	20199526 / 2019-32-0526	20199590 / 2019-32-0590	20199567 / 2019-32-0567
	12:00-13:15		20199581 / 2019-32-0581	20199592 / 2019-32-0592	20199538 / 2019-32-0538	20199546 / 2019-32-0546
			20199621 / 2019-32-0621		20199545 / 2019-32-0545	
		Lunch & Poster Session				
			Materials & Manufacturing	Alternative Fuels II	Diesel Engine II	Measurement & Simulation II
	13:15-14:45	Chair	Aki Kodai	Hiroya Ueda	Tomoaki Yatsufusa	Tadao Okazaki
		Co-Chair	Christoph von Hiller	Michael Lang	Giovanni Ferrara	Stephan Schmidt
		3	20199504 / 2019-32-0504	20199515 / 2019-32-0515	20199596 / 2019-32-0596	20199548 / 2019-32-0548
			20199516 / 2019-32-0516	20199607 / 2019-32-0607	20199599 / 2019-32-0599	20199570 / 2019-32-0570
	14:45-15:15		20199544 / 2019-32-0544	20199620 / 2019-32-0620	20199618 / 2019-32-0618	20199518 / 2019-32-0518
						20199568 / 2019-32-0568
		Networking Break & Poster Session				
				Functional Safety	Small & Micro CHP Systems	Measurement & Simulation III
Wednesday, November 20th	8:30-10:00	Chair	Takashi Mitome	Toru Nakazono	Minoru Iida	Yasuyuki Muramatsu
		Co-Chair	Giovanni Ferrara	Alessandro Bellissima	Stephan Schmidt	Kai Beck
		3	20199537 / 2019-32-0537	20199576 / 2019-32-0576	20199550 / 2019-32-0550	20199555 / 2019-32-0555
				20199588 / 2019-32-0588	20199542 / 2019-32-0542	20199623 / 2019-32-0623
	10:00-10:30			20199604 / 2019-32-0604	20199543 / 2019-32-0543	20199525 / 2019-32-0525
		Networking Break				
		Special Speech (Himawari)				
	10:30-11:30		Emissions I	Alternative Fuels III	HCCI I	Measurement & Simulation IV
		Chair	Hiroki Deguchi	Toru Nakazono	Tatsuya Kuboyama	Tadao Okazaki
		Co-Chair	Mikael Bergman	Kai Beck	Glenn Bower	Stefan Sturm
		3	20199613 / 2019-32-0613	20199595 / 2019-32-0595	20199522 / 2019-32-0522	20199502 / 2019-32-0502
	11:30-13:00		20199612 / 2019-32-0612	20199606 / 2019-32-0606	20199608 / 2019-32-0608	20199552 / 2019-32-0552
						20199571 / 2019-32-0571
	13:00-14:30		Emissions II	Alternative Fuels IV	HCCI II	Engine Technology II
		Chair	Hiroki Deguchi	Toru Nakazono	Akira Iijima	Yutaka Nitta
		Co-Chair	Stefan Sturm	Ken Fosaaen	Glenn Bower	Roland Kirchberger
		3	20199513 / 2019-32-0513	20199611 / 2019-32-0611	20199528 / 2019-32-0528	20199582 / 2019-32-0582
Thursday, November 21st	8:30-10:00		20199617 / 2019-32-0617	20199614 / 2019-32-0614	20199573 / 2019-32-0573	
	10:00-10:30		Lubricants	Engine Components I	Vehicle Components	NVH Technology I
		Chair	Yuji Mihara	Takahito Murase	Masayuki Baba	Chanat Ratanasumawong
		Co-Chair	Mikael Bergman	Adrian Irimescu	Alexander Winkler	TBA
		3	20199505 / 2019-32-0505	20199508 / 2019-32-0508	20199597 / 2019-32-0597	20199512 / 2019-32-0512
	11:30-13:00		20199510 / 2019-32-0510	20199523 / 2019-32-0523		20199593 / 2019-32-0593
			20199601 / 2019-32-0601	20199541 / 2019-32-0541		20199609 / 2019-32-0609
	13:00-14:30					
	14:30-15:00					
	15:00-17:30					
Friday, November 22nd	8:30-10:00		Advanced Combustion I	Engine Components II	Vehicle Dynamics	NVH Technology II
		Chair	Koji Yoshida	Takahito Murase	Hisayuki Sugita	Chanat Ratanasumawong
		Co-Chair	Simona Silvia Merola	Mike Marcella	Glenn Bower	TBA
		3	20199565 / 2019-32-0565	20199530 / 2019-32-0530	20199569 / 2019-32-0569	20199531 / 2019-32-0531
	10:00-10:30		20199551 / 2019-32-0551	20199610 / 2019-32-0610	20199572 / 2019-32-0572	20199533 / 2019-32-0533
					20199578 / 2019-32-0578	20199587 / 2019-32-0587
	10:30-12:00					
	11:30-13:00		Advanced Combustion II	Engine Components III		NVH Technology III
		Chair	Akihito Kasai	Naoya Isozaki		Tadao Okazaki
		Co-Chair	Simona Silvia Merola	Mike Marcella		TBA
		3	20199586 / 2019-32-0586	20199553 / 2019-32-0553		20199527 / 2019-32-0527
Saturday, November 23rd	12:00-14:00		20199616 / 2019-32-0616	20199584 / 2019-32-0584		20199594 / 2019-32-0594
			20199622 / 2019-32-0622	20199585 / 2019-32-0585		
	14:00-16:00					
	16:00-18:00					
	18:00-20:00					
	20:00-22:00					

Technical Sessions

(As of October 31, 2019)

Advanced Combustion

Organizers: Akihito Kasai (Honda R&D Co., Ltd.), Koji Yoshida (Nihon University), Adrian Irimescu (Istituto Motori-CNR)

20199551	Effects of Sub-Chamber Configuration on Heat Release Rate in a Constant Volume Chamber Simulating Lean-Burn Natural Gas Engines
----------	--

Yuzuru Nada, Yoshiyuki Kidoguchi, Yuto Yamashita, Ryo Furukawa (Tokushima University)
Ryu Kaya, Hideaki Nakano, Shinichi Kobayashi (Honda R&D Co., Ltd)

20199565	Design and Development of a High-Efficiency Single Cylinder Natural Gas-Fueled Jet Ignition Engine
----------	---

Nathan Peters, Michael Bunce, Hugh Blaxill (MAHLE Powertrain)

20199586	Influence of Zn, Mo, P, S-contained Engine Oil Additives on Abnormal Combustion in a Spark Ignition Engine
----------	---

Tatsuya Kusumoto, Toshimasa Uta (Idemitsu Kosan Co.,Ltd.), Takuya Izako, Akira Iijima (Nihon University)

20199616	Numerical Study on Characteristics of Spray Under Air Flow in Gasoline Engine
----------	--

Min Guo, Qingrong Fan (Wuhan University of Technology), Keiya Nishida (Hiroshima University), Chaoqun Wu (Wuhan University of Technology)

20199622	Improvement of Combustion Characteristics of Gas-Heatpump Engine Using Low Temperature Plasma Ignition System
----------	--

Tatsuya Kuboyama, Yasuo Moriyoshi (Chiba University), Osamu Matsumoto (Sustainable Engine Research Center), Takahiro Tsukamoto (Chiba University), Hideaki Maeshima (Toyota Industries Corporation)

Technical Sessions

(As of October 31, 2019)

Alternative fuels

Organizers: Toru Nakazono (LEMA/YANMAR Co. Ltd.), Hiroya Ueda (Honda R&D Co., Ltd.), Stephan Jandl (Graz University of Technology)

- | | |
|----------|---|
| 20199515 | RANS Simulation of Hydrogen-Rich Reformate Jet Mixing and the Effect of Injection Method on Particle Emission
Leonid Tartakovsky, Andy Thawko (Technion - Israel Institute of Technology) |
| 20199526 | Effect of Thermal Barrier Coating on Performance and Emissions of a DI Diesel Engine
Yogeshwar Paik, Krishna Kumar Pandey, Chinmaya Ranjan Sahu, Saroj Kumar Barik, Sivalinagm Murugan (National Institute of Technology Rourkela) |
| 20199581 | Influence of the Kind of Fuel Kind in the Ignition of Diesel Dual Fuel Operation with Introduced Natural Gas Combining EGR and Supercharging
Yasufumi Yoshimoto (Niigata Institute of Technology), Eiji Kinoshita, Takeshi Otaka (Kagoshima University) |
| 20199595 | The Experimental Investigation of the Performance and Emissions Characteristics of Direct Injection Diesel Engine by 2nd Generation Oil and Diesel Oil
Annisa Bhikuning, Xin Li, Ryunosuke Sugawara, Eriko Matsumura, Jiro Senda (Doshisha University) |
| 20199606 | Utilization of Castor Oil-Based Ethyl Ester Biodiesel in a Diesel Engine
Ekarong Sukjit, Disatorn Dejvajara, Somkiat Maithomklang, Anupap Pumpuang (Suranaree University of Technology) |
| 20199607 | The Effect of Ethanol Fuels on the Power and Emissions of a Small Mass-Produced Utility Engine
Saager Paliwal, Glenn R Bower (University of Wisconsin-Madison) |
| 20199611 | The Combustion Characteristic of Fuel Additives with Diesel-Ethanol Fuel Blends on Engine Performance
Kampanart Theinnoi, Boonlue Sawatmongkhon, Thawatchai Wongchang (King Mongkut's University of Technology North Bangkok), Ekarong Sukjit (Suranaree University of Technology), Sathaporn Chuepeng (Kasetsart University) |
| 20199614 | Evaluation of Optimal Water Content on an Emulsified Fuel Droplet for Diesel Engine
Junichi Aoki, Tomoyuki Kaneko, Junya Tanaka (Kogakuin university) |
| 20199620 | Study for Higher Efficiency and Lower Emissions in Turbo Charged Small Gas Engine Using Low Caloric Biomass Model Gas
Kenta Shiomi, Ryogo Kato, Eriko Matsumura, Jiro Senda (Doshisha University), Ryoichi Hagiwara, Yuta Watanabe, Toru Nakazono (YANMAR CO., Ltd.) |
| 20199621 | Performance and Emission Parameters of an LHR Engine Run on Jatropha Biodiesel and Its Diesel Blend
Sanju Sureshan Nair, Krishna Kumar Pandey (National Institute of Technology Rourkela) |

Collegiate Events

Organizers: Takashi Mitome (SUZUKI MOTOR CORPORATION), Teresa Castiglione (University of Calabria)

- | | |
|----------|---|
| 20199532 | Rework of an In-Line Two-Cylinder Engine for the Application in Formula Student
Michael Feigl, Dominik Rößmann, Michael Josef Trzesniowski (University of Applied Sciences FH Joanneum) |
|----------|---|

Technical Sessions

(As of October 31, 2019)

Diesel Engine

Organizers: Masahiko Sugimoto (Kubota Corporation), Paul Litke (Air Force Research Laboratory)

- | | |
|----------|---|
| 20199590 | An Analysis of Diesel Spray Characteristics with Small Injection Amount Under Similarity Law Condition
Yu Jin, Chang Zhai, Keiya Nishida, Yoichi Ogata (Hiroshima University) |
| 20199592 | Effects of Spray Internal EGR Using CO₂ Gas Dissolved Fuel on Combustion Characteristics and Emissions in Diesel Engine
Tomoyuki Mukayama, Yoshitaka Hattori, Jumpei Yamamoto (Doshisha University), Masaki Kuribayashi, Go Asai (YANMAR CO., LTD.), Eriko Matsumura, Jiro Senda (Doshisha University) |
| 20199596 | Effect of Dwell Time of Split Injection on Diesel Spray Development and Mixture Formation Processes
Jaeheun Kim, Shinichi Kakami, Keiya Nishida, Yoichi Ogata (Hiroshima University) |
| 20199599 | LES Study on Correlation of Chemiluminescent Species and Heat Release Process in a Diesel Engine
Beini Zhou, Takayuki Adachi, Jin Kusaka (Waseda University) |
| 20199618 | An Effect of Cooled-EGR on Diesel Engine Performance Fueled with Coconut-Oil Methyl Ester
Koji Yoshida (Nihon University) |

Emissions

Organizers: Hiromi Deguchi (SUZUKI MOTOR CORPORATION), Leonid Tartakovsky (Technion-Israel Institute of Technology)

- | | |
|----------|--|
| 20199513 | Bosch On Board Diagnostic Solutions for Motorcycles
Holger Jessen (Robert Bosch GmbH), Kushal Agarwal (Robert Bosch Engineering and Business Solutions Pvt Ltd.), Sabu Abhijith (Bosch Limited, India), Shreyas Hande (Robert Bosch Engineering and Business Solutions Pvt Ltd.), Matthias Tappe (Robert Bosch GmbH) |
| 20199612 | Visualization and Analysis of Droplets Behavior in Aftertreatment Systems: II . Improvement of Vaporization Efficiency by Surface Texturing
Naoki Sugiyama, Tetsuo Nohara, Masayuki Ochiai (Tokai University) |
| 20199613 | Visualization and Analysis of Droplets Behavior in Aftertreatment Systems: I . Experimental Study by Acrylic SCR Dosing Simulator
Tetsuo Nohara, Naoki Sugiyama, Masayuki Ochiai (Tokai University) |
| 20199617 | Sensor Integrated Substrate for Future Exhaust System of Two Wheelers
Kosaku Ito (Vitesco Technologies Japan K.K), Sven Seifert (Vitesco Technologies Emitec GmbH) |

Technical Sessions

(As of October 31, 2019)

Engine Components

Organizers: Takahito Murase, Naoya Isozaki (Kawasaki Heavy Industries, Ltd.), Adrian Clenci (University of Pitesti, Romania)

20199508	Development of a Novel Hybrid-Piston for the Application in High Performance Two Stroke Engines Christian Bechter, Thomas Herb (Mahle König KG), Frieder Zimmermann, Axel Jahn (Fraunhofer Institut Werkstoff- und Strahltechnik IWS, Dresden)
20199523	Optimum Design of Assist Mechanism for Motorcycle Multi-Plate Clutch Misaki Minoha, Ryoichi Imai, Hidenori Kitazawa, Osamu Mano, Shinya Miyagawa, Kouji Yoneyama (EXEDY Corporation)
20199530	Friction Reduction of an All-Aluminum Cylinder for Motorcycles by a Mirror Finished Bore with Dimples Yuta Murase, (Yamaha Motor Co.,Ltd)
20199541	A Study of Porous Material as Heat Storage Medium for Exhaust Turbocharged Gasoline Engine Application Dongsheng Dong, Tatsuya Kuboyama, Yasuo Moriyoshi (Chiba University)
20199553	Optimization of Multi Plate Wet Clutch Design for Performance and Life K Nitin Rajaram Bhone, Ashutosh Padmakar Jahagirdar (ENDURANCE TECHNOLOGIES LTD)
20199584	Dynamic Implicit Analysis of Valve Train with Cylinder Head Assembly Prasanth Venkatesan, Sangam Laxman Kute, Sreenivasulu T, Karthik S, Rod Giles (Royal Enfield)
20199585	Piston Durability Analysis Including Side-Thrust Loads Ashwin Balaji Govindaraj, Sangam Laxman Kute, Sreenivasulu T, Rod Giles (Royal Enfield)
20199610	Development of a Method to Predict Performance of Sensing System with Air Mass Flow Sensor by CFD Kosuke Suematsu, Kento Nosaka, Tadao Okazaki (Kubota Corporation)

Engine Controls

Organizers: Hidetoshi Ishigami (Yamaha Motor Co., Ltd.), Yutaka Nitta (SUZUKI MOTOR CORPORATION), Ken Fosaaen (Kerdea Technologies)

20199511	Study of OBD Stage II Misfire Detection System for Small Motorcycles Toshiki Kataoka, Hirotaka Fukuta, Takashi Sawada, Satoshi Miwa (AISAN INDUSTRY CO.,LTD.)
20199519	Sensor Fusion Concept for Improved Rotational Speed Measurement in Small Engines Markus Neumayer, Thomas Suppan, Thomas Bretterklieber (Graz University of Technology)
20199568	Research on Method of Sensor Fault Detection for OBD-II Compliant Motorcycles Based on Temperature Estimation Atsushi Watanabe (Keihin Corporation)

Technical Sessions

(As of October 31, 2019)

Engine Technology

Organizers: Yuji Araki (Yamaha Motor Co., Ltd.), Yutaka Nitta (SUZUKI MOTOR CORPORATION), Nagesh Mavinahally (MavinTech USA)

- | | |
|----------|---|
| 20199509 | Tumble Flow Enhancement Applied for Low-load Condition of Engines by Utilizing Reverse Flow Phenomenon in Intake Port
Yohei Nakamura, Makoto Fujikubo, Yosuke Inoue (Honda R&D Co., Ltd.) |
| 20199580 | Study on Commonization of Basic Structure of Combustion Chamber in Development of General Purpose Engine for Environmental Performance Improvement
Takayuki Aoki, Takahiro Tsuchiyama (Honda R&D Co., Ltd.) |
| 20199582 | Experimental Investigations on a Novel Expansion Engine for Waste Heat Recovery
Michael Lang (Graz University of Technology) |
| 20199591 | Flexible Valve Timing Strategies for Boosting a Small Four-Stroke Spark Ignition Engine Performance.
Mohd Razali Hanipah, Muhammad Haziq Adham Rosli (Universiti Malaysia Pahang) |

Fuel Supply Systems

Organizers: Akira Iijima (Nihon University), Simona Merola (Istituto Motori-CNR)

- | | |
|----------|--|
| 20199535 | Development of an Injection System for Small Engines with Adaptive Control for Sensorless Lambda Operation
Sebastian Hook (PRÜFREX Innovative Power Product GmbH), Bernhard Ernst, Marek Lajda (Engineering e Motion GmbH & Co.KG) |
| 20199546 | Performance Investigation of a PFI Gasoline Engine by Applying Various Kinds of Fuel Injectors
Fuchao Shen (Chiba University), Toshiya Iio, Yudai Miyatani, Akira Tsunoi (Bosch), Tatsuya Kuboyama, Yasuo Moriyoshi (Chiba University) |

Technical Sessions

(As of October 31, 2019)

HCCI

Organizers: Akira Iijima (Nihon University), Tatsuya Kuboyama (Chiba University), Adrian Irimescu (Istituto Motori-CNR)

- | | |
|----------|--|
| 20199522 | Combustion Characteristic of Offset Orifice Nozzle Under Multi Pulse Ultrahigh Pressure Injection and PCCI Combustion Conditions
Pop-Paul Ewphun, Miku Otake, Tsuyoshi Nagasawa, Susumu Sato, Hidenori Kosaka (Tokyo Institute of Technology) |
| 20199528 | Investigation of the Effect of Enhanced In-Cylinder Flow on HCCI Combustion in a Rapid Compression and Expansion Machine
Yiwen Zhong, Kazuya Ogawa, Tatsuya Kuboyama, Yasuo Moriyoshi (Chiba University), Kei Yoshimura (SUZUKI MOTOR CORPORATION) |
| 20199573 | A Study of a 2-Stroke CAI Combustion Engine with High Robustness Against Fuel Types
Mashu Kurata (Honda R&D Co., Ltd) |
| 20199608 | Improvements on the CFR Engine Three Pressure Analysis GT-Power Model for HCCI and Late SI Conditions
Jorge Pulpeiro Gonzalez, Christopher P Kolodziej (Argonne National Laboratory) |

Hybrids, Electric Drives and Fuel Cells

Organizers: Yasuyuki Muramatsu (Yamaha Motor Co., Ltd.), Kai Beck (Andreas Stihl AG & Co. KG)

- | | |
|----------|---|
| 20199525 | Acoustics and Drivability as the Main Drivers for Customer Satisfaction in an Electrified 2-Wheeler
Hubert Friedl, Christian Hubmann, Bernhard Graf, Patrick Falk (AVL List GmbH) |
| 20199555 | Development of Hydrogen Powered Fuel Cell e-Snowmobiles
Patrick Pertl, (HyCentA Research GmbH) |
| 20199623 | Replacement of 50cc Two-Stroke engine with an Electric Powertrain
Jesse Beeker (Simple Tech Innovation) |

Lubricants

Organizers: Yuji Mihara (Tokyo City University), Toru Nakazono (LEMA/YANMAR Co., Ltd.), Mike Marcella (Maxima Racing Oils)

- | | |
|----------|---|
| 20199505 | Developing High-Performance Motorcycle Oils
Michael Marcella, (Maxima Racing Oils) |
| 20199510 | Identifying the Limitations of the Hot Tube Test as a Predictor of Lubricant Performance in Small Engine Applications
Jason John Hanthorn, (Lubrizol) |
| 20199601 | Impact of Soot and Engine Oil Additive Characteristics on Metallic Wear Using Electron Microscopy and Confocal Microscopy
Panyakorn Rungsritanapaisan, Preechar Karin (King Mongkut's Institute of Technology Ladkrabang) |

Technical Sessions

(As of October 31, 2019)

Materials and Manufacturing

Organizers: Aki Kodai (Kawasaki Heavy Industries, Ltd.), Roland Schierling (Andreas Stihl AG & Co. KG)

- | | |
|----------|---|
| 20199504 | Influence of Surface Compound Layer on Fatigue Strength of Nitrided Chromium Molybdenum Steel
Tsuyoshi Kubota (Yamaha Motor Co.,Ltd), Osamu Umezawa (Yokohama National University) |
| 20199516 | Development of High Productivity and Low Cost Card Edge Type ECU for Motorcycles
Yuichi Takeda, Daisuke Sugio, Koji Inose (HONDA R&D Co.,Ltd.), Syuichi Takioka (Keihin Corporation) |
| 20199544 | Development of Laser-welded Press Frames Applied for Small Scooters Using High-tensile Steel Plate Providing Light Weight and High Production Efficiency
Sunao Kawano, Takeru Kobayashi (Honda R&D Co., Ltd.) |

Measurement and Simulation

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

- | | |
|----------|---|
| 20199502 | Spectroscopy Based Tool for Temperature Evaluation During the Spark Discharge
Simona Silvia Merola, Adrian Irimescu (Istituto Motori - CNR) |
| 20199518 | Advanced 2-Wheeler Powertrain Test Setup for Dynamic Fuel Consumption Measurement with Increased Accuracy, Repeatability and Data Quality
Harald Mayrhofer, (AVL List GmbH) |
| 20199538 | Experimental Study of Aerodynamic Drag Control on Bluff Body Using Synthetic Jets
Shunsuke Watanabe, Naoto Kato, Hiroaki Hasegawa (Utsunomiya University) |
| 20199542 | Improvement of On-Board In-Cylinder Gas Flow Model and Wall Heat Transfer Prediction Model for CI Engines Using PIV Measurements Under Motoring and Firing Conditions
Mitsuhisa Ichiyanagi, Gerard Ndizeye, Yuji Sawamura, Reina Saito, Kotaro Takahashi, Koki Otsubo, Takashi Suzuki (Sophia University) |
| 20199543 | Improvement of On-Board Wall Heat Transfer Model and Polytropic Index Prediction Model for CI Engines Using Measurement of Combustion Chamber Wall Heat Flux
Mitsuhisa Ichiyanagi, Zhiyuan Liu, Haoyu Chen, Koki Asano, Koki Otsubo, Emir Yilmaz, Takashi Suzuki (Sophia University) |
| 20199545 | Development of Drive Cycle Using Fleet Data for Two-Wheelers in Indian Market
Arvind Satish, Abhijith Sabu, Johnson Xavier Saldanha (Bosch Limited), Nagesh A P (IIT Madras) |
| 20199548 | Piston Temperature Measurement During Engine Warm-Up and Application for Analysis of Piston Behavior
Akira Ishibashi, Kunihiro Hiraoka, Shinya Kubota, Masanobu Saito (SUZUKI MOTOR CORPORATION) |
| 20199550 | Study on Performance Prediction Method of Super-High Expansion Ratio Engine
Hiroshi Tonoshiro (Kanagawa Institute of Technology) Yasufumi Oguri (Chiba University), Akihito Okazaki (Kanagawa Institute of Technology) |
| 20199552 | Analysis of Cycle to Cycle Variation in Port Injection Gasoline Engine by Simultaneous Measurement of Time Resolved PIV and PLIF
Santa Haramiishi, Takahiro Watanabe, Minoru Iida (Yamaha Motor Co.,Ltd), Satoshi Hokimoto, Tatsuya Kuboyama, Yasuo Moriyoshi (Chiba University) |

Technical Sessions

(As of October 31, 2019)

Measurement and Simulation (Continued)

20199567	Prediction of Air Temperature Distribution in Rider's Periphery of Idling Motorcycle by CFD Using DES Model Yuzo Fujita, Hiroshi Tatsumi (Honda R&D Co., Ltd.)
20199570	Study on Oil Consumption in the Small Engine for the Motorcycle Taichi Kohno, Yoshinari Ninomiya, Naoyuki Suda (SUZUKI MOTOR CORPORATION)
20199571	Effects of Shape of Ion-Probe on Flame Detecting Characteristics in 2-Stroke Gasoline Engine Tomoaki Yatsufusa, Rio Kamei (Hiroshima Institute of Technology)

NVH Technology

Organizers: Tadao Okazaki (LEMA/Kubota Corporation), Thomas Lagö (QirraSound Technologies Europe AB)

20199512	A Study on the Decay Process in the Time-Frequency-Dependent Combustion-Noise-Generation Model for Diesel Engines Hitoshi Oguchi, Koki Minato, Takehiko Seo, Masato Mikami (Graduate School of Sciences and Technology for Innovation, Yamaguchi University)
20199527	High Frequency Structure-Borne Noise Analysis on Agricultural Tractor by Using Combined Dynamical Energy Analysis and Transfer Path Analysis Approach Satoshi Morita (Yanmar R&D Europe), Martin Richter, Gregor Tanner (University of Nottingham)
20199531	Acoustic Study on Motorcycle Helmets with Application of Novel Porous Material Hans Rämmal, Jüri Lavrentjev (TalTech, Mechanical and Industrial Engineering)
20199533	Endurance of Micro-Perforated Elements in Unmanned Ground Vehicle's Small Diesel Engine Silencer Application Hans Rämmal, Jüri Lavrentjev (TalTech, Mechanical and Industrial Engineering)
20199587	Extraction of Modification Parts of Mechanical Structure Based on Mutual Mode Kinetic Energy Distribution for Vibration Reduction Masami Matsubara, Koki Morikawa (Toyohashi university of technology), Tomohiko Ise (Kindai University), Shozo Kawamura (Toyohashi university of technology), Kohei Furuya (Gifu university)
20199593	Pass-By Noise Prediction of a Vehicle Raja Gopal Balakrishnan, Santosh Kumar Gannu, Krishnamurthy GS, Rod Giles, Abhilash Maiti (Royal Enfield)
20199594	Establishment of Evaluation Model for Sound Quality Applicable for Motorcycle Exhaust Sound Having Temporal Variations Kazuhiko Tanaka (Honda R&D Co.,Ltd.), Shigeaki Nishina (Honda Reserch Institute Japan Co., Ltd.), Haruomi Sugita, Takeo Kato, Masahiko Sekita (Honda R&D Co.,Ltd.)
20199609	Performance Evaluation & Optimization of Torsional Vibration Damper System (TVDS) in Multi-Plate Clutches for Improved Driving Comfort Girish Raghunath Kokane, Ashutosh Padmakar Jahagirdar, Ravindra Vyankatrao Kharul (Endurance Technologies Ltd)

Technical Sessions

(As of October 31, 2019)

Two Stroke Engine

Organizers: Tatsuya Kuboyama (Chiba University), Roland Kirchberger (Graz University of Technology)

- | | |
|----------|--|
| 20199524 | Intermittent Injection for a Two-Stroke Direct Injection Engine
Francesco Balduzzi, Luca Romani, Lorenzo Bosi, Giovanni Ferrara (Università degli Studi di Firenze) |
| 20199549 | Simulation Analysis of the Scavenging Process Between a Uniflow and Loop Scavenging Concept
Stefan Sturm, (Graz University of Technology) |
| 20199562 | The Influence of Lean Combustion by the Spark Ignition Under Flow Conditions
Kojiro Yoshida , Yosuke Abe, Masaya Iimura, Takuma Furusho, Takafumi Imai, Kazutoshi Hoshi, Akira Iijima (Nihon University) |
| 20199579 | Calcium in Oil Effects on Pre-Ignition of Two-Stroke Engine
Kuniyoshi Eto, Masaki Kihara (YAMABIKO CORPORATION) |

Vehicle Dynamics

Organizers: Masayuki Baba (Honda R&D Co., Ltd.), Hisayuki Sugita (SUZUKI MOTOR CORPORATION), Pierluigi Zampieri (Ducati Motor Holding spa)

- | | |
|----------|--|
| 20199569 | A Study of the Control Logic of Electronically Controlled Suspension for Motorcycle
Takenori Terada, Kazuhiro Ichikawa, Hideyuki Kato, Taro Iwamoto (Kawasaki Heavy Industries, Ltd.) |
| 20199572 | Rider Model for Motorcycle Racing Simulation
Masatsugu Nishimura, Yoshitaka Tezuka (Honda Racing Corporation), Mattia Bruschtta (University of Padova), Toru Yoshii (VI-grade Japan Ltd.), Francesco Ambrogi (VI-grade s.r.l.) |
| 20199578 | Motorcycle Out-of-Plane Dynamics Estimation: An Approach Based on Sharp 71 Model
Alexander Winkler, Gernot Grabmair (University of Applied Sciences Upper Austria) |

Vehicle Components

Organizers: Masayuki Baba (Honda R&D Co., Ltd.), Hisayuki Sugita (SUZUKI MOTOR CORPORATION), Nicolae Vlad Burnete (Technical University of Cluj-Napoca)

- | | |
|----------|--|
| 20199597 | Effect of Dean Number on Heat Transfer Characteristics for Square Channel Spiral Coil Sub-Cooled Condenser
Hardeep Singh (Sophia University), Junya Washiashi, Jun Liu (Keihin Corporation), Mitsuhsa Ichiyanagi, Takashi Suzuki (Sophia University) |
|----------|--|

Functional Safety

Organizers: Takashi Mitome (SUZUKI MOTOR CORPORATION), Marco Pierini (University of Florence)

- | | |
|----------|---|
| 20199537 | Estimation of Rider's Compensatory Control Action Useful for Controllability Class Evaluation by Vehicle Dynamics Simulation
Maki Kawakoshi, Takashi Kobayashi, Makoto Hasegawa (Japan Automobile Research Institute) |
|----------|---|

Technical Sessions

(As of October 31, 2019)

Small and Micro Combined Heat and Power Systems

Organizers: Toru Nakazono (LEMA/YANMAR Co. Ltd.), Alessandro Bellissima (YANMAR R&D Europe)

20199576 **Intake Manifold Exhaust Condensed Water Injection for a Clean and Efficient Natural Gas Micro-CHP-Engine: Strategies and Restraints.**

Youssef Beltaifa, Maurice Kettner (Karlsruhe University of Applied Sciences)

20199588 **Miller Valve Timing and Stoichiometric Combustion for a Naturally Aspirated Single Cylinder Cogeneration Gas Engine**

Jörn Judith, Maurice Kettner, Denis Neher (Karlsruhe University of Applied Sciences), Danny Schwarz, Markus Klaissle (SenerTec Kraft-Wärme-Energiesysteme GmbH)

20199604 **Effect of Fuel Composition in Bio-Syngas on NO in Emission with SI-ICE**

Shota Iwai, Kazushi Fukadu, Hiroshi Enomoto (Kanazawa University)

About Hiroshima

About

Hiroshima is a beautiful city blessed with a rich natural environment, nestled between lush green mountains and the tranquil Seto Inland Sea, with six rivers flowing through its center.

On August 6, 1945, the city was reduced to ashes by the first atomic bombing in human history. Nevertheless, thanks to the unflagging efforts of its people, and support from inside and outside of Japan, Hiroshima achieved a remarkable recovery and has since sought to spread the ideal of perpetual peace.

Peace Memorial Park welcomes scores of people every year, and in 1996, the Atomic Bomb Dome was registered as a UNESCO World Heritage Site.

Hiroshima has recently been dubbed the "City of Water," and in addition to the pleasure boat cruises and open cafés, visitors can travel around historic sites such as Hiroshima Castle and Shukkei-en while perusing the city's three art galleries. There are also plenty of unique local delicacies to try, including okonomiyaki and oyster cuisine.

For beautiful city landscapes that coexist harmoniously with nature, look no further than Hiroshima!

Peace Memorial Park

This park was constructed as a commemorative facility in accordance with the Hiroshima Peace Memorial City Construction Law promulgated in August 1948, under the project to make the whole neighborhood of the Nakajima district into a symbol of ever-lasting peace and a recreation area for citizens. Subsequently, the park was renovated into its current design in preparation of the 50th anniversary of the A-bombing. The park, including the A-bomb Dome area, occupies an area of 122,100 m². In February 2007, this park was designated as a place of scenic beauty in Japan for the first time among the parks renovated after World War II.

The Hiroshima Peace Memorial Ceremony is held in this park on August 6 every year.



Hiroshima Castle

Mori Terumoto, a powerful feudal lord whose domain once covered much of the Chugoku Region, began construction on Hiroshima Castle in the year Tensho 17 (1589), choosing for it a location with convenient access to both water and land transportation. At that time, large-scale construction work commenced on the castle structures, including its stone walls and fences, towers and keep, as well as the surrounding castle town. Although Mori would later be demoted by the Tokugawa



Shogunate after the Battle of Sekigahara, Hiroshima Castle continued to be maintained throughout the Edo Period by successive feudal lords, from Fukushima Masanori to Asano Nagaakira, whose clan would control the castle, and with it the domain, for twelve generations.

About Hiroshima

The original castle keep and several other structures remained through the Meiji Period, but, unfortunately, the castle was completely destroyed in the Atomic Bombing of Hiroshima. The castle keep was rebuilt in the year Showa 33 (1958) and made into a museum introducing Hiroshima's history through assorted informational materials and scale models.

The museum currently holds special exhibitions roughly seven times per year, as well as various other activities meant to raise awareness of Hiroshima and Hiroshima's history. Additionally, reconstruction of the wooden outer citadel was completed in Heisei 6 (1994), and, at the same time, the castle's stone walls and inner fences, which had remained intact since before the Edo Period, were designated as historic sites.

Itsukushima Shrine

It is said that Itsukushima Shrine, one of the Three Scenic Views of Japan, was established by Saeki-no-Kuramoto. In the late Heian Period, the current shrine building was constructed in its present form, as a shrine on the sea, with the assistance of Taira-no-Kiyomori. The conception of a shrine whose grounds include the sea, with its form ever changing with the ebb and flow of the tides, is like nothing else in the world. In December of the year Heisei 8 (1996),

Itsukushima Shrine was registered as a World Heritage Site. Looking out over the Inland Sea before it and crowned to its rear by Mt. Misen, a sacred mountain where the gods are believed to have descended to earth, Itsukushima Shrine strikes a harmony between natural and man-made beauty.



Useful Websites

SETC2019

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

Society of Automotive Engineers of Japan, Inc. (JSAE)

<https://www.jsae.or.jp/en/>

SAE International

<https://www.sae.org/>

SAE Journals

<https://www.sae.org/publications/journals>

Hiroshima Travel Guide

<https://www.japan-guide.com/e/e2160.html>

Hiroshima Prefectural Government

<http://visithiroshima.net/>

Hiroshima City

<http://www.city.hiroshima.lg.jp/english/>

Welcome to Hiroshima movie

<https://youtu.be/FhdQYWt4AM8>

<https://youtu.be/lSkIoN1RCsY>

International Conference Center Hiroshima (Conference Venue)

<http://www.pcf.city.hiroshima.jp/icch/english.html>

Hiroshima City Cultural Exchange Hall (Reception Venue)

https://h-bkk.jp/foreign_language/

ANA CROWNE PLAZA HIROSHIMA (Banquet Venue)

<https://www.anacrowneplaza-hiroshima.jp/language/english/index.html>

Hiroshima Airport

<http://www.hij.airport.jp/english/>

West Japan Railway Company

<http://www.westjr.co.jp/global/en/>

Japan Rail Pass

<http://www.japanrailpass.net/en/index.html>

VISA Information of Japan

https://www.mofa.go.jp/j_info/visit/visa/index.html

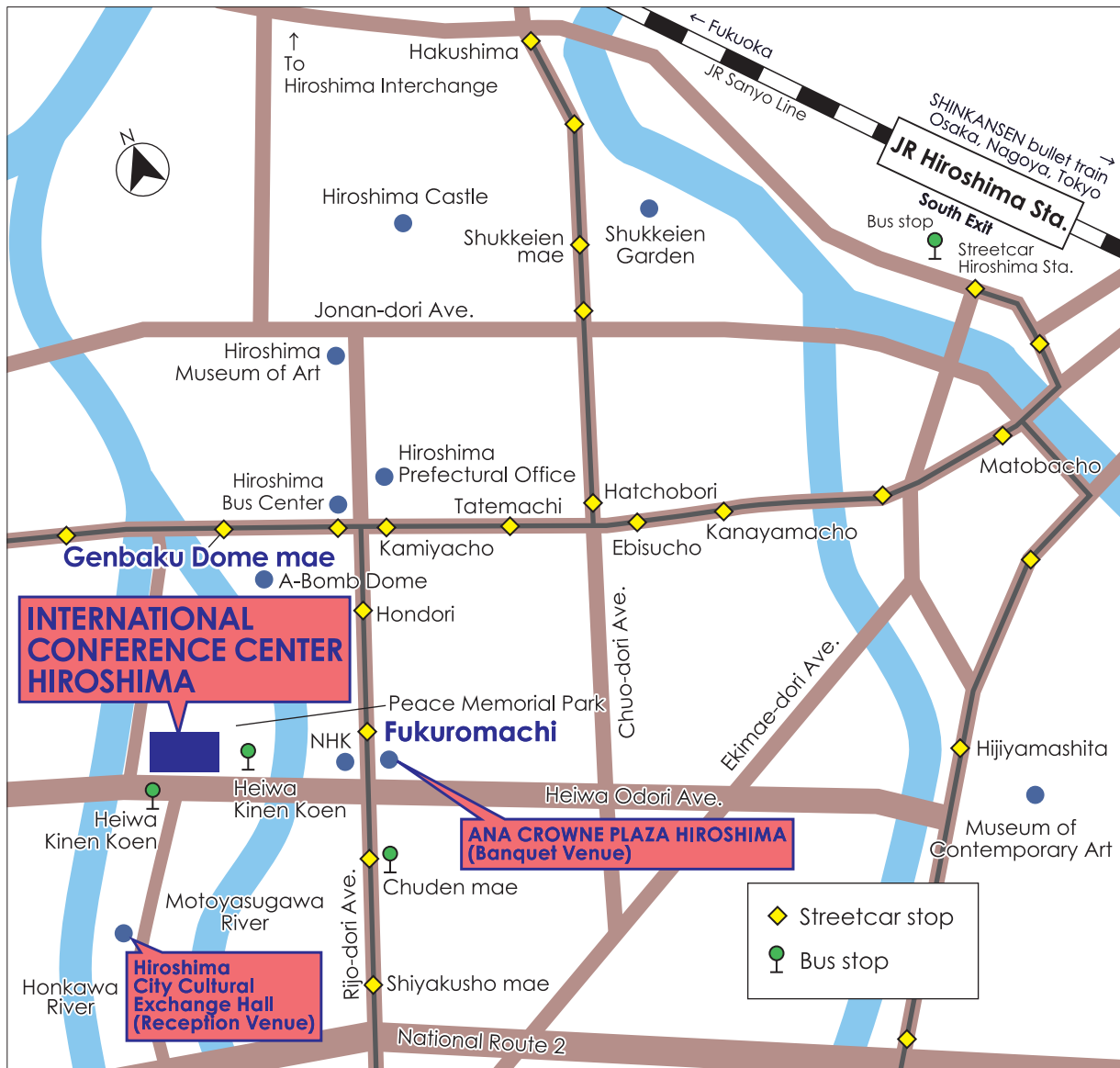
Mazda Museum

<http://www.mazda.com/en/about/museum/>

Hiroshima University

<https://www.hiroshima-u.ac.jp/en>

Hiroshima City Map





Solution partners of experimental production

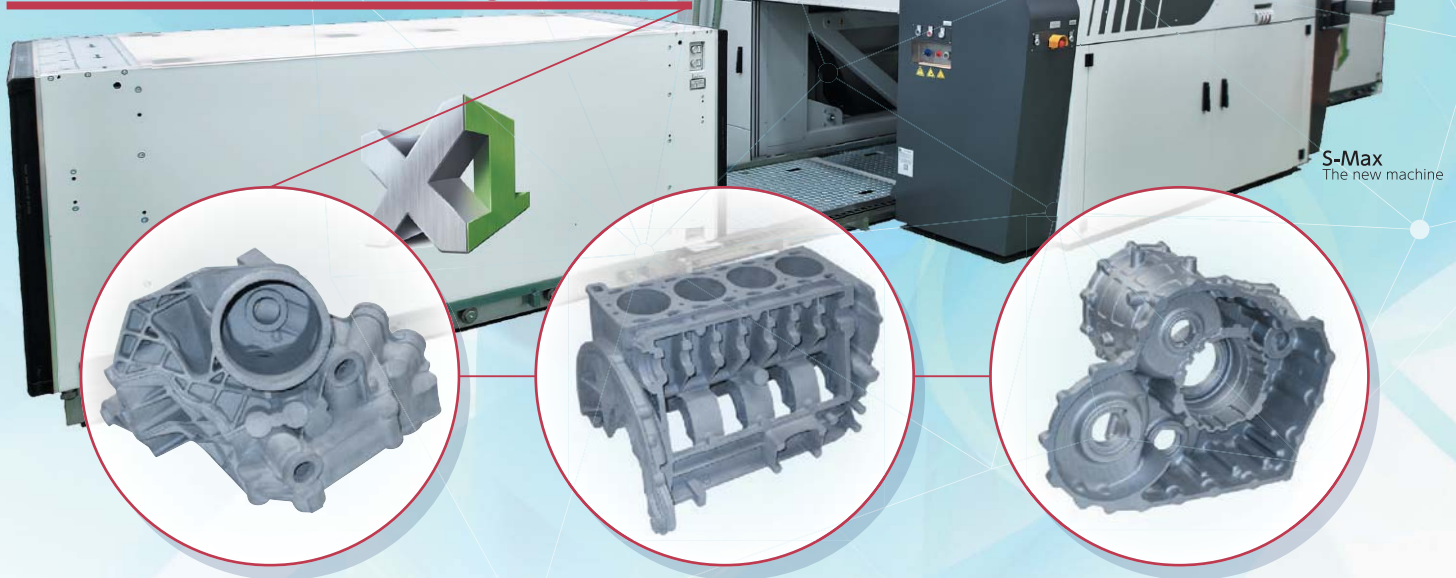


Japan Factory



Thailand Factory

Sand accumulation forming technique



Casting manufacturer developing prototypes with high quality and short lead-time

We are a casting manufacturer that provides high-quality aluminum sand casting parts. Our main products are trial parts for prototype vehicles (four wheels / two wheels) and engine parts for motor sports vehicles. Our characteristic is integrated manufacturing services: from making wooden mold, casting to precision machining. We have introduced a number of advanced systems such as a 3D laminated sand mold printer, casting simulation and a high precision X-ray device to satisfy customer demands for high quality products with short lead-times.



Experimental production part sand casting manufacturer

Hokuriku Light Metal Industry Co.,Ltd.

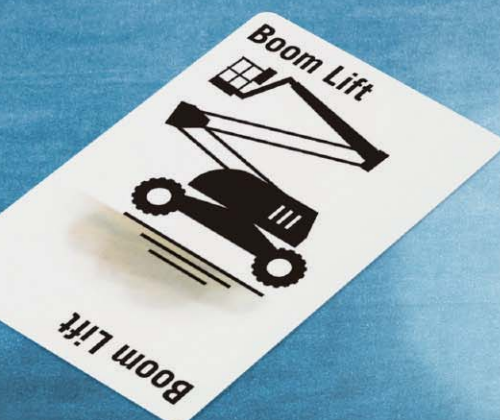
Japan Factory : 138-2 Akahama Yorii-machi, Osato-gun, Saitama-ken, 369-1211, Japan
Thailand Factory : 33/3 Moo4 T.Wangpattana,A.Bangsai, Ayutthaya, 13270, Thailand
mail : info@hokurikukeikinzoku.co.jp

北陸軽金属工業株式会社
<http://hokurikukeikinzoku.co.jp>



STAGE V
READY 2019

For Earth, For Life
Kubota



One Source Multiple Solutions

Kubota is your source for multiple engine solutions. With diesel, gasoline, LPG and natural gas options, Kubota engines power a wide variety of machines. And they maintain the same footprint across engine series, so installation is always compatible and flexible.

KUBOTA Corporation

<https://global.engine.kubota.co.jp/en/>



Contributing to the world through motorcycle drivetrain components

Creating fulfillment for our customers around the world by providing drivetrain components ranging from scooters and semi-automatics to large motorcycles.



EXEDY Corporation


1-1-1 Kidamotomiya, Neyagawa-shi, Osaka, 572-8570
E-mail: motorcycle-clutch@exedy.com
Motorcycle Clutch Headquarters

<http://www.exedy.com/>



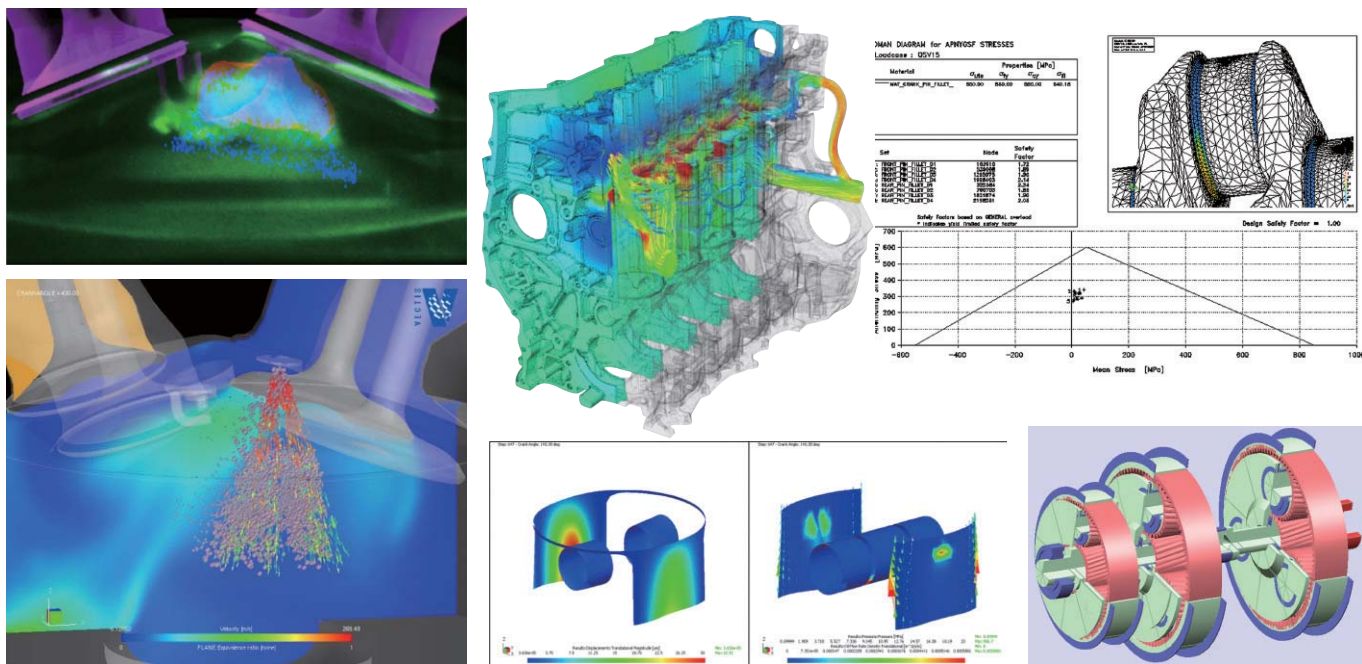


Way of Life!

A silver and black Suzuki Katana motorcycle is shown from a front-three-quarter view. It is parked on a dark surface against a dark, textured wall. A large, dark silhouette of a person in a dynamic pose is visible in the background. The motorcycle features a large headlight, a side mirror, and a 'KATANA' badge on the seat. The front wheel has a Brembo brake disc.

SUZUKI MOTORCYCLE

<https://www.globalsuzuki.com/motorcycle/>



エンジン・車輛解析用の有限要素 (FE) 前/後処理工程の自動化

SCSK SCSK株式会社



SUPERCHARGE YOUR JOURNEY

Leave everything you thought you knew about sports touring behind with the supercharge Ninja H2 SX. Surge across continents, along autobahns and through mountain passes. Go further faster on our most capable sports tourer yet. Ninja H2 SX – Supercharge Your Journey. Available in 3 versions: Ninja H2 SX, Ninja H2 SX SE and Ninja H2 SX SE+.

http://www.kawasaki-cp.khi.co.jp/index_e.html

Kawasaki



Empowered by a passion for innovation,
we create exceptional value and experiences
that enrich the lives of our customers.

Revs Your Heart





Clutch Technology for the World.



F.C.C.CO.,LTD

7000-36 NAKAGAWA HOSOE-CHO,
KITA-KU, HAMAMATSU-SHI,
SHIZUOKA, 431-1394 JAPAN
TEL: +81-53-523-2400 FAX: +81-53-523-2405

<http://www.fcc-net.co.jp/>

INTELLIGENCE IN DRIVES

PRUFREX®

PX **EFI** – Electronic Fuel Injection

**HIGHER PERFORMANCE,
SMALLER FOOTPRINT**

NEW
DRIVE FOR YOUR
BUSINESS?
→ PRUFREX.COM



- Combined ECU and Ignition coil(s) in one housing
- Scalable for max. variant flexibility
- Ignition coil with adjustable spark energy
- Flexible cabling concepts to IP standard
- Flashable application-specific PRUFREX software
- On-Board Diagnosis function via CAN or UART
- Control unit starts immediately in 4-stroke mode
- Integrated sensors
- Engine operation with no wasted spark

PRUFREX Innovative Power Products GmbH
Egersdorfer Str. 36 · 90556 Cadolzburg · GERMANY
Telephone +49 9103 7953-0 · info@prufrex.com · www.prufrex.com

INTEGRATED
DEVELOPMENT

ENGINE
TESTING

LATEST
TECHNOLOGY

VEHICLE
TESTING

POWERPACK
TESTING

ADVANCED
METHODOLOGY

YOUR SUCCESS WITH AVL SUPERIOR ENGINEERING AND TESTING SOLUTIONS

AVL is your leading partner for development of motorcycles and advanced powertrain technologies, testing solutions and simulation.

Our services range from:

- Concept to volume production
- Simulation to testing and validation
- IC engines through to electrified propulsion
- Small scooters to electric powered motorcycles
- Road to race

www.avl.com

HORIBA
Explore the future

A step ahead of the new world.

HORIBA was founded in 1945 as a student venture.

The fighting spirit of our founding father has steered us past many obstacles, and guided us towards creating countless innovative and groundbreaking products.

We want to contribute more to the vital field of “measurement”.

It is our mission to explore and discover the future of measurement and analysis.

HORIBA Ltd.
www.horiba.com



SETC2019 URL <http://www.setc-jsae.com/>
Society of Automotive Engineers of Japan, Inc. E-mail: SETC2019@jsae.or.jp