SAE INTERNATIONAL

JSAE

UNIVERSITÀ DEGLI STUDI FIRENZE
DIEF DIPARTIMENTO DI INGEGNERIA INDUSTRIALE

MOVET

November **10 - 13 2025**
Florence, Italy

PROGRAM

SETC

Florence 2025

THE 29th SMALL POWERTRAINS AND ENERGY SYSTEMS TECHNOLOGY CONFERENCE

Under the patronage of

REGIONE TOSCANA

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Engines

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When it comes to engines, we've been on the leading edge of technology and innovation since our foundation. But we don't simply provide you with functional power: **we redefine your energy resilience** with industry-leading electrification, hybrid solutions, alternative fuels and innovative products, **to create better lives and communities in a more sustainable future.**

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This program has not been printed in order to reduce paper consumption and support environmental sustainability.

Welcome to SETC 2025 in Florence, Italy!

SAE International, in collaboration with JSAE, presents the **29th Small Powertrains and Energy Systems Technology Conference (SETC 2025)** - the premier global event dedicated to advancing small powertrain and energy system applications. SETC 2025 offers a unique opportunity to explore innovative technologies, share expertise, and connect with industry leaders, OEMs, suppliers, and academia from all over the world.

Taking place from **November 10 - 13, 2025**, in **Florence**, a city celebrated for its art, history, and timeless charm, the conference brings together technological innovation and cultural inspiration in a setting like no other.

Florence is the capital of the **Tuscany Region**, a land renowned worldwide for its natural beauty - from its stunning coastline to the rolling hills that produce world-class wine and olive oil, and the majestic Apennine mountains. Yet, Tuscany is also a cradle of science and engineering, home to inventors and architects who have shaped the course of technological progress.

From **Matteucci's pioneering work on the first prototypes of the electric telephone** to the **first internal combustion engine by Barsanti and Matteucci**, from the iconic **Vespa designed by Corradino D'Ascanio** to ***Bizzarrini that supported the development of some legendary supercars (like the Ferrari 250 GTO)***, Tuscany has always embodied the perfect fusion of art and science, beauty and functionality. Today, this legacy continues across the region's universities, laboratories, and industries - places where vision meets precision and innovation takes tangible form.

We are honored to host SETC 2025 in this land of creativity, ingenuity, and tradition - and we look forward to welcoming you to Florence for an inspiring and unforgettable experience.

Giovanni Ferrara
General Chair - SAE SETC 2025

PROGRAM-AT-GLANCE

TIME	Monday November 10, 2025	Tuesday November 11, 2025	Wednesday November 12, 2025	Thursday November 13, 2025
08:00				
08:30				
09:00	Technical Visits (optional)	Opening Ceremony & Keynotes	Plenary Session	Technical & NPT Sessions
09:30				
10:00		Coffee Break	Coffee Break	Coffee Break
10:30				
11:00		Technical & NPT Sessions	Technical & NPT Sessions	Technical & NPT Sessions
11:30				
12:00				
12:30				
13:00		Lunch	Lunch	Awards & Closing Ceremony
13:30				
14:00		Technical & NPT Sessions	Technical & NPT Sessions	Lunch
14:30				
15:00				
15:30				
16:00		Coffee Break & Poster Sessions	Coffee Break & Poster Sessions	
16:30				
17:00		Technical & NPT Sessions	Technical & NPT Sessions	
17:30				
18:00				
18:30				
19:00		Welcome Reception		
19:30				
20:00				
20:30				
21:00			Gala Dinner	
21:30				
22:00				

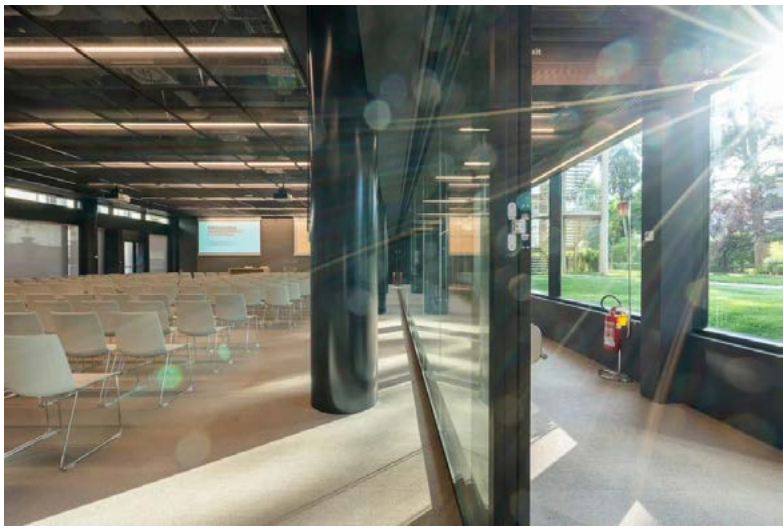
REGISTRATION

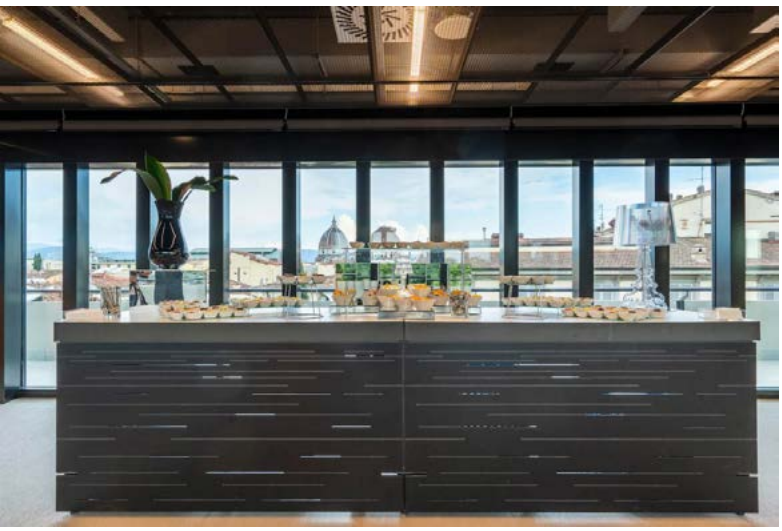
EXHIBITION

CONFERENCE VENUE

Palazzo degli Affari

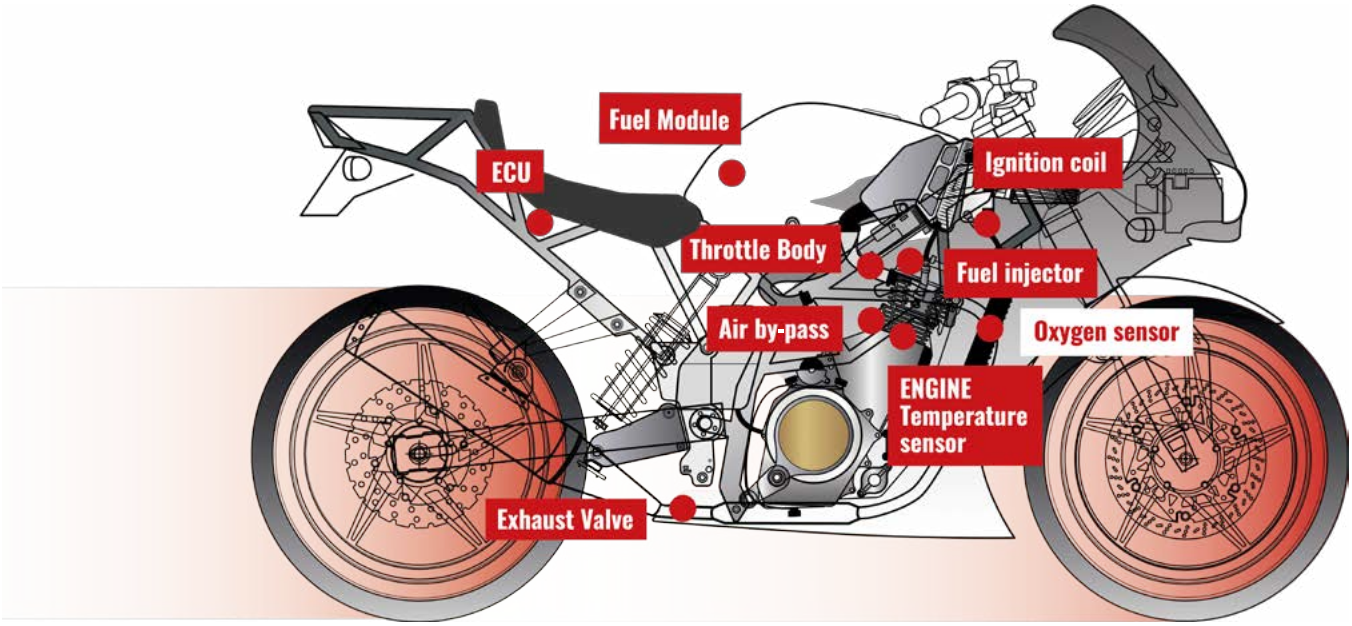
Completely renovated in 2021 and inaugurated in 2022, Palazzo degli Affari is an excellent congress venue dominated by a panoramic terrace.
It is a modular and completely convertible space, with solutions to guarantee acoustic comfort and multi-sensory features, always at the forefront of environmental sustainability – energy from renewable sources, eco-sustainable materials, and low-emission electromagnetic pollution.





DELLORTO DUMAREY

DELLORTO & DUMAREY FLOWMOTION
A SOLID PARTNER to OEMs for the whole MOTORCYCLE ENGINE MANAGEMENT SYSTEM
GLOBLAL PARTNER



Complete Range of Components Supply

• ECU • Fuel Module • Throttle Body • Air By-pass • Fuel Injector • ENGINE Temperature Sensor • Oxygen Sensor • Ignition Coil • Exhaust Valve

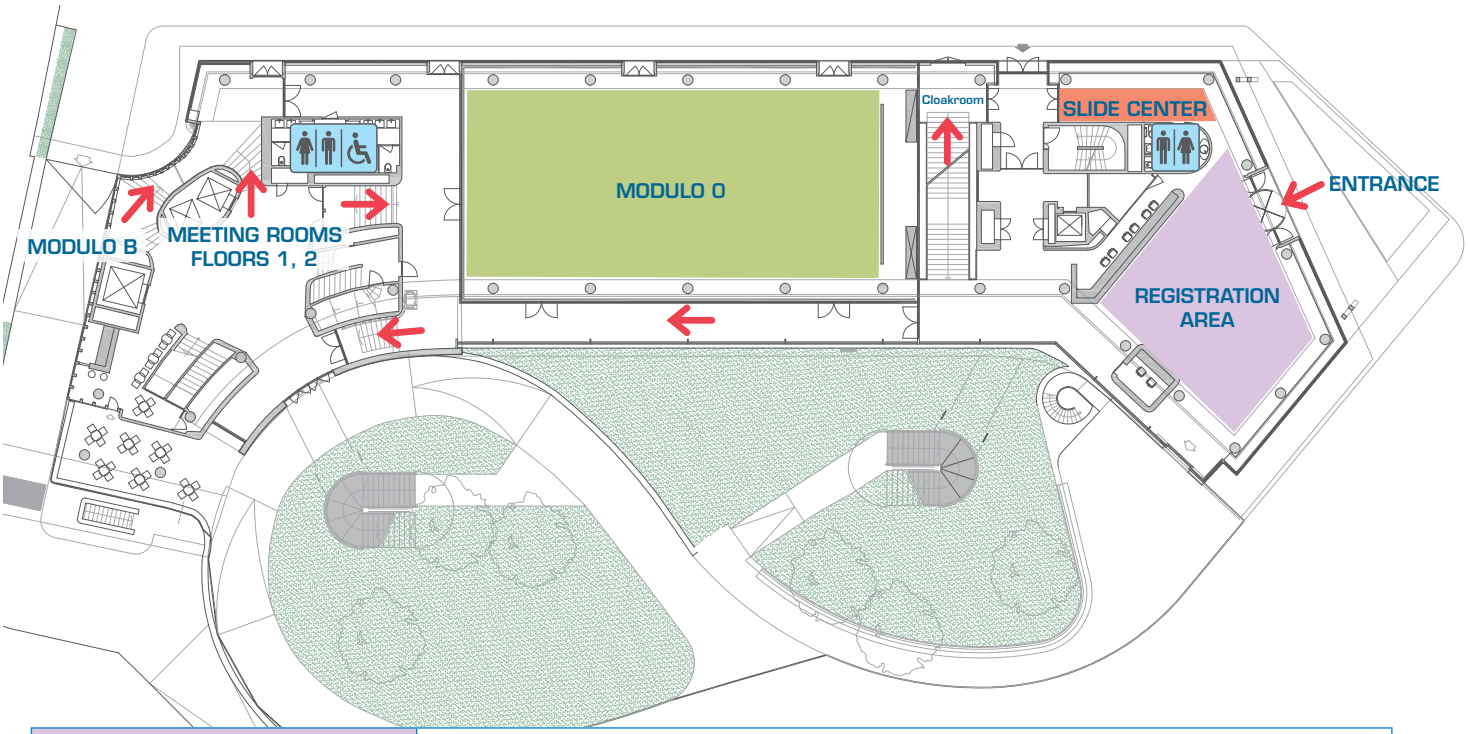
DELLORTO
ENGINE CONTROL UNITS – Developed at Italy HQ – Manufactured by DOJV in India
THROTTLE BODY & SENSORS – Developed at Italy HQ – Manufactured by DO in Italy / India / China
FUEL MODULE – Developed and manufactured by DOJV in China
CALIBRATION – Vehicle testing facilities at R&D HQ in Italy – Calibration Team also available in India and China

DUMAREY
INJECTORS – Developed at Italy HQ – Manufactured by Dumarey in Italy
CUSTOMIZATION ABILITY – Wide range of injector's variants available. New applications development capability
R&D CENTER – Port fuel injector R&D, Labs, Validation in Dumarey

WWW.DELLORTO.IT **WWW.DUMAREY.COM**

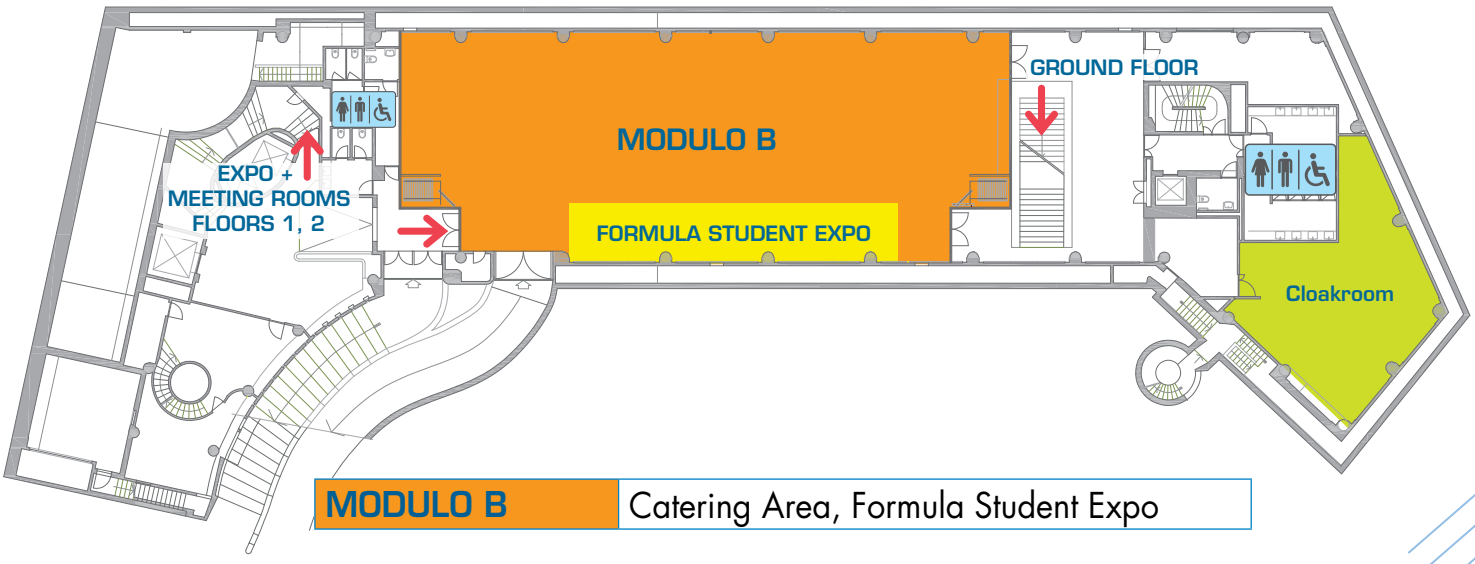
VENUE FLOORPLAN MAPS

Ground Floor



REGISTRATION AREA	Registration
SLIDE CENTER	Presenter ready room
MODULO 0	Exhibition, poster sessions, catering area

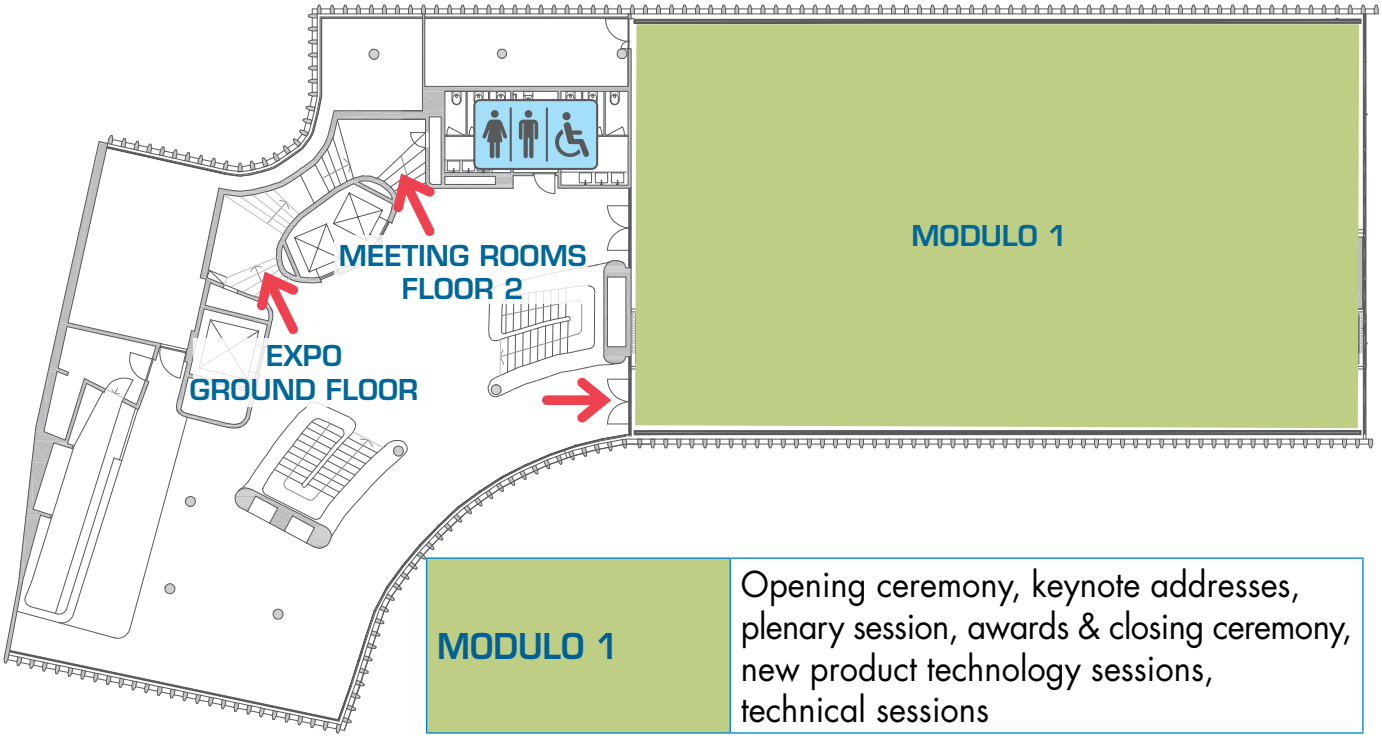
Basement



MODULO B	Catering Area, Formula Student Expo

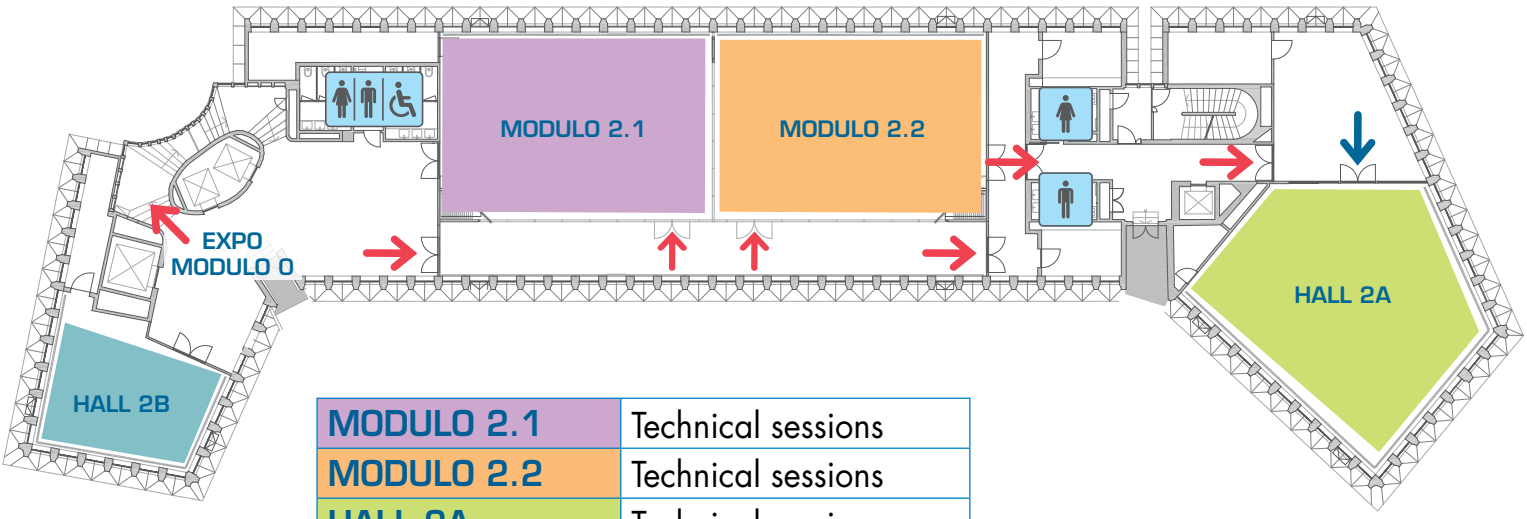
VENUE FLOORPLAN MAPS

First Floor



MODULO 1	Opening ceremony, keynote addresses, plenary session, awards & closing ceremony, new product technology sessions, technical sessions

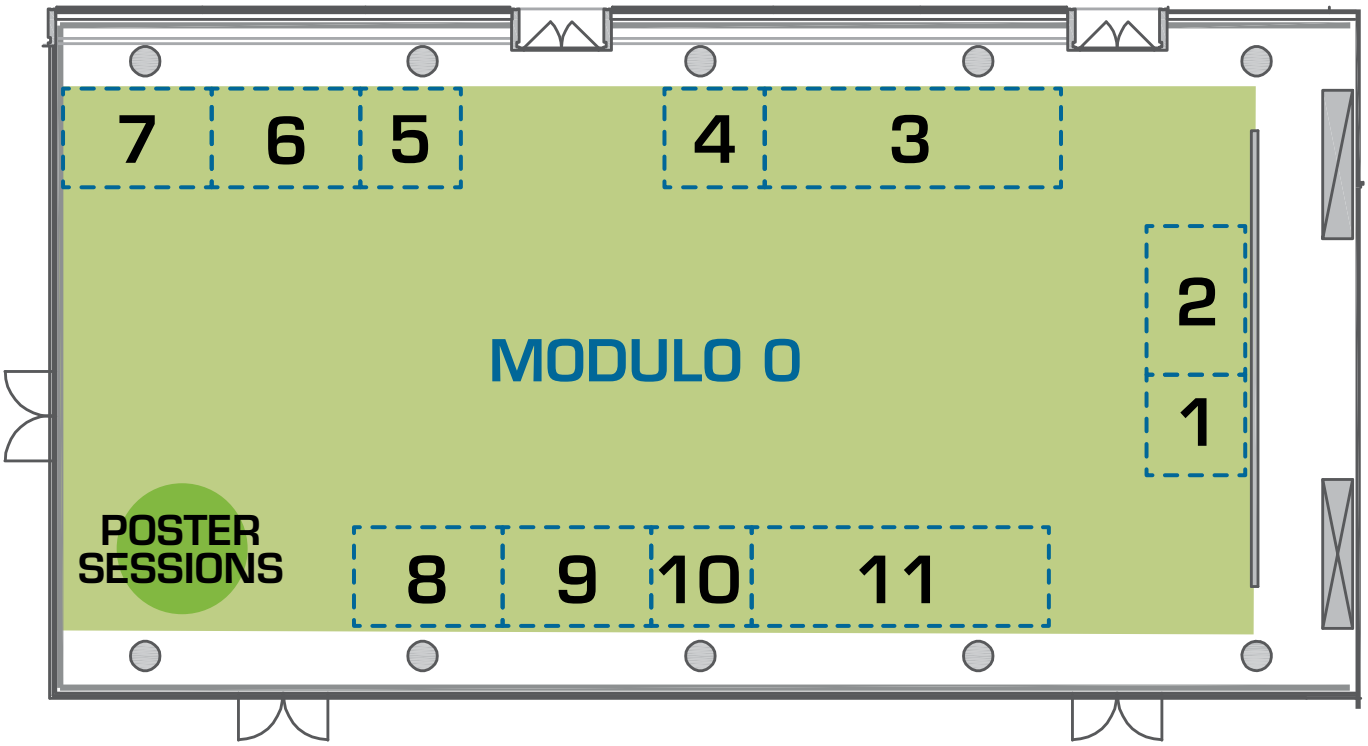
Second Floor



MODULO 2.1	Technical sessions
MODULO 2.2	Technical sessions
HALL 2A	Technical sessions
HALL 2B	Technical sessions

EXHIBITION & POSTER SESSIONS

The exhibition area of the congress will take place in the ROOM Modulo 0, which will also host the poster sessions.



AZIENDA	NUMERO
UNIFI	1
DELL'ORTO - DUMAREY FLOWMOTION TECHNOLOGIES	2
HONDA	3
ASSO WERKE	4
MECOIL DIAGNOSI MECCANICHE	5
BETAMOTOR	6
ITnA TU GRAZ	7
PONTLAB	8
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CONVERGENT SCIENCE	10
KUBOTA	11

RECEPTION & BANQUET

Welcome Reception

Free of charge (for all registered attendees)

Date: **November 11, 2025**
Time: **18:30 – 19:30**
Place: **Palazzo Affari - MODULO 0 & MODULO B**

The first day will conclude with a welcome reception at the conference venue, offering everyone a chance to come together, celebrate the start of the congress, and enjoy an informal moment of networking and camaraderie.

Banquet

Attendance Fee: **€120,00**
Date: **November 12, 2025**
Time: **19:20 – 23:00**
Place: **Palazzo Borghese**
Address: **Via Ghibellina, 110, 50122 Florence, Italy**

The banquet will offer guests the opportunity to savor traditional dishes from the local cuisine, accompanied by live music performed by the University of Florence Orchestra. We hope the evening will provide memorable moments for all attendees.

On-site applications will not be accepted.

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Carlo Alberto Rinaldini, *University of Modena and Reggio Emilia (Italy)*
Pierre Savignac, *IFP Energies nouvelles (France)*
Frank Schwarz, *BMW Motorcycle (Germany)*
Stanisław Szwaja, *Czestochowa University of Technology (Poland)*
Bernardo Tormos Martinez, *Universitàt Politecnica de Valencia (Spain)*
Paolo Trassi, *Betamotor (Italy)*
Jurgen Tromayer, *TU Graz (Austria)*
Giovanni Vichi, *Yanmar R&D Europe (Italy)*
Alexander Winkler, *University of Applied Sciences Upper Austria (Austria)*

TECHNICAL TRIP

DATE: NOVEMBER 10, 2025

On November 10th, 2025, tours will be organized to allow participants to visit some of the most interesting sites in the area.
Participants will be able to choose **one of the following tours:**

- Piaggio Museum & DUMAREY Flowmotion Technology
- Piaggio Museum & Asso Werke
- Betamotor
- Mecoil

TECHNICAL TRIP

Piaggio Museum & DUMAREY Flowmotion Technology

Date: **10 November, 2025**
Start time: **09:00 AM**
Duration: **8 hrs**

Meeting point:
Piazza Vittorio Veneto 4, Florence
(in front of the NH Hotel)

Websites:
www.museopiaggio.it/en
www.dumarey.com/solution-category/injectors-and-fuel-rails/

MUSEO PIAGGIO

Opened in 2000 and renovated in 2018, the Piaggio Museum in Pontedera (Pisa) is Italy's largest museum dedicated to two-wheelers, with over 5,000 m² of space, more than 350 iconic vehicles, and nearly 950,000 visitors to date. Housed in one of the oldest factory buildings, it celebrates over a century of Italian industrial innovation.
The collection spans pre-war rail and aeronautical machines, the iconic Vespa scooters, three- and four-wheeled Piaggio vehicles (like the Ape and Porter), and the racing legacy of Aprilia, Gilera, and Moto Guzzi, which together boast 104 world titles. The museum also highlights Piaggio's contributions to mobility across ships, trains, planes, cars, and motorcycles.
A dedicated space for temporary exhibitions features works in art, fashion, science, and technology, with past shows including pieces by Dalí, Picasso, and leading Italian artists. The Piaggio Historical Archive further enriches the experience, offering insight into Italy's social and industrial evolution through the lens of transport.

DUMAREY

Dumarey Flowmotion Technologies, part of the Dumarey Group, is a center of excellence located in Pisa. The plant specializes in the development and manufacturing of gasoline injectors, diesel emission components, and engine management systems for both the automotive and two-wheeler sectors.
With over 500 million injectors delivered since 1992, Dumarey Flowmotion Technologies is a trusted partner to leading global OEMs. The company is recognized for delivering reliable, cost-effective, and customized solutions that enhance engine performance and reduce emissions. The production is driven by advanced automation and digitalization, ensuring consistency, quality, and efficiency at every stage.
Beyond today's technologies, Dumarey is at the forefront of innovation—developing next-generation injector systems for CO^2-neutral fuels such as hydrogen and e-fuels.
During the visit of the plant, you will explore the production facility and discover how Dumarey Flowmotion Technologies is shaping the future of clean, efficient mobility.

Important Notice:
For confidentiality reasons, individuals working in companies within the same sector (potential competitors) are strongly advised to refrain from applying to attend the visit to Dumarey.

A light lunch will be offered by Dumarey during the visit.

TECHNICAL TRIP

Piaggio Museum & Asso Werke

Date: **10 November, 2025**
Start time: **09:00 AM**
Duration: **8 hrs**

Meeting point:
Piazza Vittorio Veneto 4, Florence
(in front of the NH Hotel)

Websites:
www.museopiaggio.it/en
www.assowerke.it/en/home

MUSEO PIAGGIO

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ASSO WERKE

Asso Werke is a leading, full-liner manufacturer of thermal engine components for both two-stroke and four-stroke engines. With over 70 years of experience, Asso Werke has built a reputation for excellence, offering a broad and highly specialized product portfolio that meets the needs of even the most demanding customers in the high-performance vehicle industry. Asso Werke customers includes some of the world's most prestigious manufacturers of performance vehicles, a testament to the quality, precision, and innovation that define our products.
The core product offerings include Pistons, Cylinders and Liners, Piston Rings and Engine Blocks.
During the visit, you will be guided through the heart of the production process. You'll see firsthand the craftsmanship and advanced technology behind the components – from the historic foundry department to the cutting-edge production of forged pistons. You'll explore the CNC machining equipment, as well as the comprehensive coating and surface treatment processes, which ensure performance, durability, and efficiency at the highest levels.

A light lunch will be offered by Asso Werke during the visit.

TECHNICAL TRIP

Visit to the Betamotor Factory and Live Demonstration by a Trial Rider

Date: **10 November, 2025**
Start time: **09:00 AM**
Duration: **6 hrs**

Meeting point:
Piazza Vittorio Veneto 4, Florence
(in front of the NH Hotel)

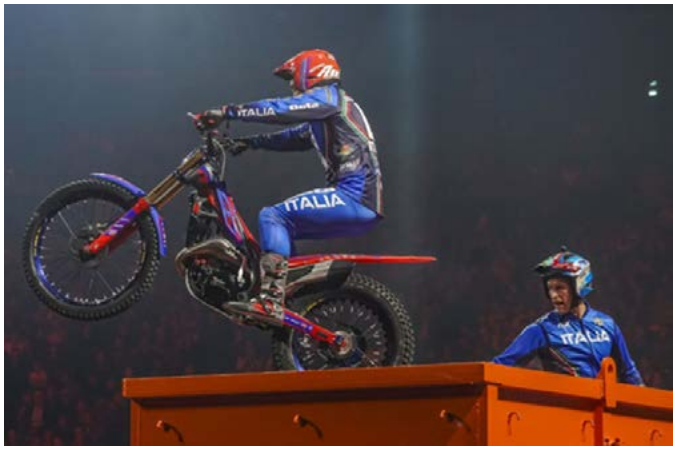
Website:
www.betamotor.com/en/

Betamotor is a leading Italian manufacturer of high-performance off-road motorcycles, headquartered in Rignano sull'Arno (Florence), with over a century of history and a strong presence in international racing.

Betamotor has established itself as a leader in the off-road motorcycle sector, producing a full range of Enduro, Trial, and Motocross bikes equipped with both 2-stroke and 4-stroke engines, combining advanced technical solutions with continuous development driven by real-world racing. The brand's dominance in Enduro World Championships is a testament to its commitment to performance and innovation. Every Betamotor motorcycle is designed for maximum agility, power delivery, and control.

The visit includes a guided tour of Betamotor's advanced production facility, where each motorcycle is engineered and assembled. It concludes with a live demonstration of a rider showcasing their skills on a trial bike, highlighting the bike's precision handling and performance.

A light lunch will be offered by Betamotor during the visit.



TECHNICAL TRIP

Mecoil

Date: **10 November, 2025**
Start time: **02:00 PM**
Duration: **3,5 hrs**

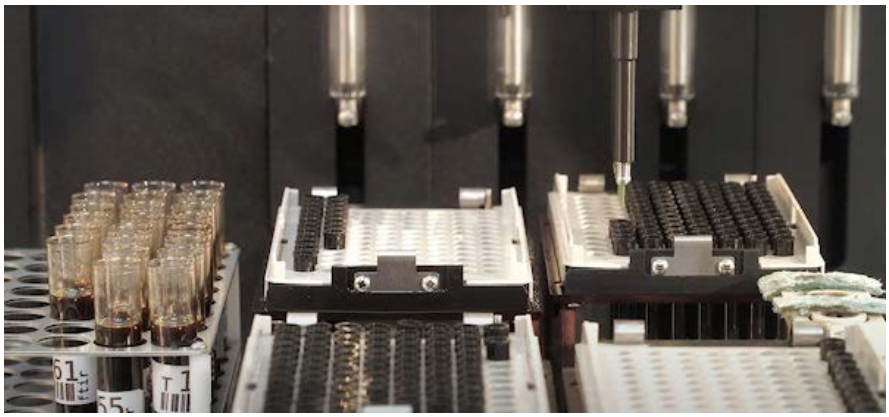
Meeting point:
Conference Venue
Registration Area

Website:
www.mecoil.net/en/

Mecoil Diagnosi Meccaniche S.r.l., is a private, independent company focused in predictive maintenance and condition monitoring through advanced in-service oil analysis. Established in Firenze in the late 1980s, Mecoil serves various industries—including power generation, petrochemicals, and engine manufacturing—by providing non-destructive diagnostics to assess machinery health and optimize lubricant usage. Some tests, such as Viscosity, Total Acid Number, or Karl Fischer, are well-known belonging to QC approach and have many applications in other petroleum analysis fields. Some other dedicated methods, such as RDE Spectrometry or Lasernet Fines, have been specifically designed for in-service lubricant analysis.

During your visit, you will have the opportunity to tour this state-of-the-art laboratory, equipped with some of the most advanced in-service oil analysis instruments available on the market and the powerful cloud based LAN system "Permantenere" on duty. You'll discover how such automated and highly specialized processes deliver tailor-made analyses that provide critical insights into both oil condition and machine reliability.

A snack will be offered by Mecoil during the visit.



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https://www.global-kawasaki-motors.com/

SESSIONS TIMETABLE

TUESDAY, November 11

8:30	9:00	**Opening (Modulo 1)**				
9:00	9:30	**Keynote Session (Modulo 1)**				
9:30	10:00					
10:00	10:30	Coffee break (Modulo 0 & Modulo B)				
		Modulo 1	**Modulo 2.1**	**Modulo 2.2**	**Hall 2A**	**Hall 2B**
Session		New Product Technology (1 of 5)	Measurement and Simulations (1 of 3)	Advanced Combustion	Renewable Energy and Alternative Fuels (1 of 7)	Materials and Manufacturing (1 of 2) & Lubricants and Tribology
Chair		*Kai Beck*	*Stephan Schmidt*	*Christian Antetomaso*	*Davide Di Domenico*	*Silvio Defanti*
Co-Chair		*Takuya Warashina*	*Keisuke Ito*	*Teruyoshi Morita*	*Yuji Araki*	*Tadao Okazaki*
10:30	11:00	25SETC-0014	2025-32-0013 / 20259213	2025-32-0001 / 20259201 🎖	2025-32-0058 / 20259258	2025-32-0005 / 20259205
11:00	11:30	25SETC-0019	2025-32-0014 / 20259214	2025-32-0002 / 20259202	2025-32-0065 / 20259265	2025-32-0006 / 20259206
11:30	12:00	25SETC-0063	25SETC-0145	2025-32-0004 / 20259204	2025-32-0061 / 20259261	25SETC-0123
12:00	12:30	25SETC-0178	2025-32-0019 / 20259219 🎖	2025-32-0003 / 20259203	2025-32-0062 / 20259262	2025-32-0100 / 20259300
12:30	13:00	Lunch break (Modulo 0 & Modulo B)				
13:00	13:30					
Session		New Product Technology (2 of 5)	Engine Technology	Two Stroke Engines (1 of 2)	Renewable Energy and Alternative Fuels (2 of 7)	Hybrid and Electric Drives (1 of 3) & Collegiate Event
Chair		*Rita Di Gioia*	*Luca Romani*	*Carlo Alberto Rinaldini*	*Chiara Guido*	*Adrian Irimescu*
Co-Chair		*Takuya Warashina*	*Masahito Saito*	*Tatsuya Kuboyama*	*Yuji Mihara*	*Stephen Teng*
13:30	14:00	25SETC-0045	2025-32-0090 / 20259290	2025-32-0030 / 20259230	25SETC-0075	2025-32-0095 / 20259295
14:00	14:30	25SETC-0171	2025-32-0087 / 20259287	2025-32-0024 / 20259224	2025-32-0059 / 20259259	25SETC-0126
14:30	15:00	25SETC-0050	2025-32-0089 / 20259289	2025-32-0026 / 20259226	2025-32-0049 / 20259249	2025-32-0045 / 20259245
15:00	15:30	25SETC-0061	2025-32-0088 / 20259288	2025-32-0028 / 20259228	2025-32-0050 / 20259250	
15:30	16:00	**Poster session (Modulo 0)**				
16:00	16:30	Coffee break (Modulo 0 & Modulo B)				
Session		Emissions and Environmental Impacts (1 of 3)	NVH Technology	Small Energy Systems	Renewable Energy and Alternative Fuels (3 of 7)	Diesel Engine
Chair		*Davide Di Domenico*	*Simona Merola*	*Maurice Kettner*	*Tommaso Lucchini*	*Luigi Arnone*
Co-Chair		*Michihisa Nakagawa*	*Keisuke Namekawa*	*Tadao Okazaki*	*Yuji Mihara*	*Yusuke Suzuki*
16:30	17:00	2025-32-0074 / 20259274	2025-32-0021 / 20259221 🎖	2025-32-0039 / 20259239	2025-32-0052 / 20259252	2025-32-0067 / 20259267
17:00	17:30	2025-32-0077 / 20259277	2025-32-0020 / 20259220	2025-32-0040 / 20259240	2025-32-0053 / 20259253 🎖	25SETC-0056
17:30	18:00	2025-32-0073 / 20259273	2025-32-0022 / 20259222 🎖	2025-32-0038 / 20259238 🎖	25SETC-0185	2025-32-0068 / 20259268

🎖 Candidates for Top 10 Papers Award

SESSIONS TIMETABLE

WEDNESDAY, November 12

8:30	9:00	**Panel Session (Modulo 1)**			
9:00	9:30				
9:30	10:00				
10:00	10:30	Coffee break (Modulo 0 & Modulo B)			
		Modulo 1	**Modulo 2.1**	**Modulo 2.2**	**Hall 2A**
Session		New Product Technology (3 of 5)	Engine Components	Vehicle Dynamics and Safety (1 of 2)	Measurement and Simulations (2 of 3)
Chair		*Kai Beck*	*Adrian Irimescu*	*Alexander Winkler*	*Stephan Schmidt*
Co-Chair		*Keisuke Namekawa*	*Michihisa Nakagawa*	*Shingo Ueda*	*Keisuke Ito*
10:30	11:00	25SETC-0034	2025-32-0080 / 20259280	2025-32-0033 / 20259233	2025-32-0018 / 20259218
11:00	11:30	25SETC-0168	2025-32-0079 / 20259279	2025-32-0036 / 20259236	2025-32-0016 / 20259216
11:30	12:00	25SETC-0170	2025-32-0081 / 20259281	2025-32-0037 / 20259237	2025-32-0011 / 20259211
12:00	12:30	25SETC-0053	2025-32-0078 / 20259278		2025-32-0017 / 20259217
12:30	13:00	Lunch break (Modulo 0 & Modulo B)			
13:00	13:30				
Session		New Product Technology (4 of 5)	Powertrain Controls (1 of 2)	Two Stroke Engines (2 of 2)	Renewable Energy and Alternative Fuels (4 of 7)
Chair		*Giovanni Paolicelli*	*Maurice Kettner*	*Enrico Mattarelli*	*Giovanni Vichi*
Co-Chair		*Satoshi Takayama*	*Shigeho Sakoda*	*Akira Iijima*	*Kensuke Suzuki*
13:30	14:00	25SETC-0173	2025-32-0085 / 20259285	2025-32-0023 / 20259223	2025-32-0056 / 20259256
14:00	14:30	25SETC-0175	2025-32-0083 / 20259283	2025-32-0025 / 20259225	2025-32-0057 / 20259257
14:29	15:00	25SETC-0029	2025-32-0084 / 20259284	2025-32-0029 / 20259229	2025-32-0046 / 20259246
15:00	15:30	25SETC-0180	2025-32-0082 / 20259282	2025-32-0027 / 20259227	2025-32-0054 / 20259254
15:30	16:00	**Poster session (Modulo 0)**			
16:00	16:30	Coffee break (Modulo 0 & Modulo B)			
Session		New Product Technology (5 of 5)	Hybrid and Electric Drives (2 of 3)	Emissions and Environmental Impacts (2 of 3)	Renewable Energy and Alternative Fuels (5 of 7)
Chair		*Rita Di Gioia*	*Lorenzo Berzi*	*Massimo Delogu*	*Stanislaw Szwaja*
Co-Chair		*Teruyoshi Morita*	*Masaki Segawa*	*Hiromi Deguchi*	*Naoto Horibe*
16:30	17:00	25SETC-0182	2025-32-0093 / 20259293	2025-32-0071 / 20259271	25SETC-0115
17:00	17:30	25SETC-0183	2025-32-0096 / 20259296	2025-32-0075 / 20259275	2025-32-0055 / 20259255
17:30	18:00	25SETC-0184	2025-32-0091 / 20259291		2025-32-0051 / 20259251

Candidates for Top 10 Papers Award

SESSIONS TIMETABLE

THURSDAY, November 13

		Modulo 1	Modulo 2.1	Modulo 2.2	Hall 2A
Session		Renewable Energy and Alternative Fuels (6 of 7)	Vehicle Dynamics and Safety (2 of 2)	Emissions and Environmental Impacts (3 of 3)	Data-driven Digitalization & Powertrain Controls (2 of 2)
Chair		*Giovanni Cecere*	*Alexander Winkler*	*Luigi Arnone*	*Lerina Aversano*
Co-Chair		*Yuji Araki*	*Shingo Ueda*	*Yusuke Suzuki*	*Shigeho Sakoda*
8:30	9:00	2025-32-0047 / 20259247	2025-32-0035 / 20259235	2025-32-0069 / 20259269	2025-32-0041 / 20259241
9:00	9:30	2025-32-0063 / 20259263	2025-32-0031 / 20259231	2025-32-0076 / 20259276	2025-32-0042 / 20259242
9:30	10:00	2025-32-0066 / 20259266	2025-32-0034 / 20259234	2025-32-0070 / 20259270	2025-32-0086 / 20259286
10:00	10:30	Coffee break (Modulo 0 & Modulo B)			
Session		Renewable Energy and Alternative Fuels (7 of 7)	Measurement and Simulations (3 of 3)	Materials and Manufacturing (2 of 2)	Hybrid and Electric Drives (3 of 3)
Chair		*Adrian Irimescu*	*Roland Kirchberger*	*Silvio Defanti*	*Lorenzo Berzi*
Co-Chair		*Keiya Nishida*	*Kensuke Suzuki*	*Tadao Okazaki*	*Stephen Teng*
10:30	11:00	2025-32-0064 / 20259264	2025-32-0015 / 20259215	25SETC-0122	2025-32-0098 / 20259298
11:00	11:30	2025-32-0048 / 20259248	25SETC-0141	2025-32-0008 / 20259208	2025-32-0094 / 20259294
11:30	12:00	25SETC-0156	2025-32-0010 / 20259210	2025-32-0007 / 20259207	2025-32-0097 / 20259297
12:00	12:30	2025-32-0060 / 20259260	2025-32-0012 / 20259212		
12:30	13:00	**Awards & Closing Ceremony (Modulo 1)**			
13:00	13:30				
13:30	14:00	Lunch break (Modulo 0 & Modulo B)			
14:00	14:30				

Candidates for Top 10 Papers Award

PLENARY SESSIONS

TUESDAY, November 11
Modulo 1

8:30 - 9:00
Opening Ceremony

Speakers
Simona Merola, *CNR-STEMS (SAE Technical Chair)*
Giovanni Ferrara, *University of Florence (SAE General Chair)*
Michihisa Nakagawa, *Kawasaki Motors (JSAE SETC General Chair)*
Giuseppe Pozzana, *Movet Chair*
Debora Berti, *Research Pro Rector of University of Florence*
Filippo Giabbani, *Chair of Invest in Tuscany*

9:00 - 9:30
Keynote speech: Beyond Limits, Unstoppable Engine Innovation

Speaker: Hideyuki Goto
Mr Goto has graduated from Waseda University with Master degree of Mechanical Engineering.
He has joined Kubota Corporation in 2000 and since then he has dedicated in development of small size diesel engine. He is currently General Manager of Engine Engineering Dept in Kubota Corporation.
He is responsible for engine product development but also for new ICE technology, including diversified fuel, such as hydrogen, HVO and etc.

PLENARY SESSIONS

TUESDAY, November 11
Modulo 1

9:30 - 10:00
Keynote speech: Approach to fundamental research for hydrogen internal combustion engines

Speaker: Hiroya Ueda
Mr Ueda has Graduated from Keio University with a Master's degree in Mechanical Engineering.
Joined Honda Motor Co., Ltd. in 1998.
Since then, has been extensively engaged in engine research and development across mass production, next-generation engine technologies, and racing engine development. After serving as Technical Strategy Leader for environmental technologies and engine technologies, he is currently manages the Power Unit Development Division for motorcycles and power products.
Beside his career at Honda, he has acted as the Chairperson of the Research Steering Committee at HySE (Hydrogen Small Mobility & Engine technology Association) upon its establishment and also served as Chairperson of TC Committee of SETC in 2022.

Chair: Kotaro Shiozaki (Kubota)
Mr Shiozaki is Marketing manager at Engine Division of Kubota Corporation. He is dedicated to promoting not only new product but also new technologies such as Hydrogen engine and use of HVO to various stakeholders.

Co-Chair: Giovanni Paolicelli (Asso-Werke)
Giovanni Paolicelli graduated with a Master's degree in Vehicle Engineering from the University of Pisa and started his professional career at Asso Werke as a Design Engineer.
He later moved up to the role of Project Manager, where he was responsible for the design and development of components for internal combustion engines in the high-performance automotive sector, from luxury road cars to racing applications.
Since 2022, he has been the Head of the Innovation Business Unit. In this role, he directs strategic projects aimed at developing components that use next-generation fuels, new materials, and innovative manufacturing processes.

PLENARY SESSIONS

WEDNESDAY, November 12
Modulo 1

8:30 - 10:00

Panel discussion: Innovation and sustainability in small vehicles and motorcycles beyond the powertrain

Speakers:
Paolo Brivio (PIRELLI)
Modestino De Feo (ARAMCO)
Corrado Fittavolini (ENI)
Omar Cividini (BREMBO)

Chair: Hiroshi Kawanabe (Kyoto University)
Prof. Kawanabe is a member of the Combustion & Power Engineering Lab at the Department of Energy Conversion Science at the Kyoto University Graduate School of Energy Science. He graduated with a PhD in engineering at the Kyoto University and His research focuses on improving thermal efficiency and reducing pollutant emissions in combustion systems

Moderator: Stephan Schmidt (Graz University of Technology)
Prof. Schmidt is a member of the Institute of Thermodynamics and Sustainable Propulsion System of the Graz University of Technology. He graduated with a PhD in mechanical engineering at the TU GRAZ and is currently vice Head of the Section Design of the Institute

Speaker: **Paolo Brivio** (PIRELLI)
After graduating in mechanical engineering from the Politecnico di Milano, he joined the Pirelli Group in the Tyre division as a tyre engineer. He was mainly involved in developing new testing and simulation methods, before specialising in car product development, overseeing approvals for various premium customers such as Ferrari and Porsche.
In 2008, he began his first experience in the motorcycle business as head of motorcycle racing product development.
In 2017, he returned to the car business as head of product development.
Since 2023, he holds the position of CTO for the motorcycle and cycling business.

PLENARY SESSIONS

WEDNESDAY, November 12
Modulo 1

Speaker: **Modestino De Feo** (ARAMCO)
Modestino De Feo received a degree in Chemical Engineering from the University of Salerno, Italy, in 2012, and a PhD in Tribology from École Centrale de Lyon, France, in 2016 From 2016 to 2022, he worked at TotalEnergies in France as a Lubricant Project Leader. Since 2022, he is Senior Lubricant Technologist at the Aramco Fuel Research Center (AFRC) in Paris, France.

Speaker: **Corrado Fittavolini** (ENI)
Corrado Fittavolini received his Master's degree in Energy Engineering in 2006 at Politecnico of Milano and in the same year started his professional career in Eni, at Eni's Research Centre of Milan.
For ten years he held the role of testing engineer in chassis dyno emission test cells, becoming later technical leader of the group in charge of the development of fuels (gasoline and diesel) formulation.
Recently he moved to the projects management division, where is responsible of multiple projects focused on bio-fuels, bio-components and development of racing fuels. He joints permanently Italian and European technical task forces (CONCAWE, CUNA, CEN), focused on bio-fuels development and regulations update. Recently he received the ENI Award 2025.

Speaker: **Omar Cividini** (BREMBO)
Omar Cividini graduated in Mechanical Engineering and works at Brembo for Racing Brake applications since 2002.
After beginning as a Race Engineer on track in MotoGP, he first became a Technical Liaison for NASCAR applications, then in the last 17 years he's in charge of Product & Process Development of carbon/carbon and carboceramic friction materials.

PLENARY SESSIONS

THURSDAY, November 13
Modulo 1

12:30 - 13:30
Awards & Closing Ceremony

The Summary of the Conference
Simona Merola *(SAE Technical Chair)* will announce the summary at the beginning of the ceremony

Awards
Awardees will be announced and given certificates in recognition of:
- The Best Poster Award
- High Quality Presentation Awards for Technical session
- High Quality Presentation Awards for New product technology session
- High Quality Paper Awards (Top 10)
- The Best Paper Award

Next Edition
Atsuhiko Takahashi *(JSAE)* will announce and introduce the next SETC 2026 to be held in Kyoto, Japan

Farewell Remarks
Giovanni Ferrara *(SAE General Chair)* and Michihisa Nakagawa *(JSAE General Chair)* will make farewell remarks at the end of the ceremony

TUESDAY, November 11

PROGRAM

10:30 - 12:30

SESSION New Product Technology (1 of 5)

ROOM Modulo 1

Chair **Kai Beck**
Co-Chair **Takuya Warashina**

Development of 4kW Electric Outboard Motor for Small Boats

PAPER N° 25SETC-0014
Presenter Hidek Ikeda
Authors Hideki Ikeda, Honda Motor Co., Ltd.

Engine and Electronic Control Development For the New DR-Z4S and DR-Z4SM

PAPER N° 25SETC-0019
Presenter Hiroshi Yamamoto
Authors Hiroshi Yamamoto, Suzuki Motor Corporation

Hybrid Motorcycle Powertrain Concepts Paving the Way to Future Technologies

PAPER N° 25SETC-0063
Presenter Wolfgang Schoeffmann
Authors Wolfgang Schoeffmann, Gernot Fuckar, Christian Hubmann, Christian Martin PhD, AVL LIST GmbH

Hydrogen-Fueled Small Loop-Scavenged Two-Stroke Engines: an Integrated CFD-Experimental Methodology

PAPER N° 25SETC-0178
Presenter Matteo Fiaschi
Authors Stefano Caprioli, Università di Modena e Reggio Emilia; Luca Ferretti, Convergent Science GmbH; Francesco Scrignoli, Università degli Studi di Modena; Matteo Fiaschi, Matteo D'Elia, Convergent Science GmbH; Roland Oswald, Oliver Schoegl, Graz University of Technology; Suresh Kumar Nambully, Rainer Rothbauer, Convergent Science GmbH; Enrico Mattarelli, Università di Modena e Reggio Emilia; Roland Kirchberger, Graz University of Technology; Carlo Rinaldini, Università di Modena e Reggio Emilia

TUESDAY, November 11

PROGRAM

10:30 - 12:30

SESSION Measurement and Simulations (1 of 3)

ROOM Modulo 2.1

Chair **Stephan Schmidt**
Co-Chair **Keisuke Ito**

Full cycle CFD modeling of a Wankel engine for UAV applications

PAPER N° 2025-32-0013 / 20259213
Presenter Tommaso Lucchini
Authors Tommaso Lucchini, Giovanni Gianetti, Federico Ramognino, Politecnico di Milano; Tarcisio Cerri, Sursum-Mi S.R.L.; Luca Marmorini, Marco Buttitta, Marmotors s.r.l.

Improving the efficiency of EVAP system development by utilizing CAE simulations and surrogate models

PAPER N° 2025-32-0014 20259214
Presenter Keisuke Okuno
Authors Keisuke Okuno, Atsuya Hidai, Masaki Torigoshi, Hisatoshi Kinoshita, Yamaha Motor Co., Ltd.

Cycle-to-Cycle estimation of trapped air and residual gases in lean-burn PFI hydrogen engines using a Processor-In-the-Loop approach

PAPER N° 25SETC-0145
Presenter Luca Romani
Authors Niccolò Grilli, Claudio Galli, Luca Romani, Giovanni Ferrara, Università degli Studi di Firenze

Analysis of injected mass shot-to-shot dispersion and injection rate profile for a PFI injector in actual operating conditions

PAPER N° 2025-32-0019 / 20259219
Presenter Lucio Postrioti
Authors Lucio Postrioti, Cristian Maka, Manuel Martino, Università degli Studi di Perugia

TUESDAY, November 11

PROGRAM

10:30 - 12:30

SESSION Advanced Combustion

ROOM Modulo 2.2

Chair **Christian Antetomaso**
Co-Chair **Teruyoshi Morita**

A Combustion CFD study on the Pre-chamber Jet Combustion Technology for Large Motorcycle Gasoline Engine

PAPER N° 2025-32-0001 / 20259201
Presenter Hirokazu Ando
Authors Hirokazu Ando, Takumi Tanaka, Kengo Tomizawa, Yosuke Inoue, Honda R&D Co., Ltd.

Quasi-Dimensional Simulation of a Turbulent Jet Ignition Combustion in High-Performance High-Speed Motorcycle Engine

PAPER N° 2025-32-0002 / 20259202
Presenter Alberto Ballerini
Authors Alberto Ballerini, Gianluca D'Errico, Alessandro Nodi, Politecnico di Milano; Marco Buttitta, Luca Marmorini, Marmotors S.R.L.

Ca Additive and In-cylinder Condition on Promotion of Abnormal Combustion in Supercharged SI Engine

PAPER N° 2025-32-0004 / 20259204
Presenter Kaito Kitano
Authors Kaito Kitano, Junya Tanaka, Kogakuin University

Effect of intake-air heating on combustion, performance and emissions in a light-duty engine under CNG-diesel RCCI Operation

PAPER N° 2025-32-0003 / 20259203
Presenter Sarangi Asish Kumar
Authors P. Navaneethakrishnan, Asish K Sarangi, Abhishek Suman, Seshadri Sreedhara, Indian Institute of Technology Bombay; Arvind Kumar Singh, Gas Authority of India, LTD

TUESDAY, November 11

PROGRAM

10:30 - 12:30

SESSION Renewable Energy and Alternative Fuels (1 of 7)

ROOM Hall 2A

Chair **Davide Di Domenico**
Co-Chair **Yuji Araki**

Assessment of E-fuels applicability as gasoline replacement in a small two-stroke Engine

PAPER N° 2025-32-0058 / 20259258

Presenter Luca Dalseno

Authors Sebastiano Breda, Stefano Fontanesi, Università di Modena e Reggio Emilia; Santo Merolla, Vincenzo Gagliardi, EMAK Spa; Giuseppe Cicalese, Matteo Pati, Luca Dalseno, R & D CFD Srl; Mario Kuschel, CAC Engineering GMBH

Effect of In-cylinder Hydrogen Mixture Formation on Hydrogen Combustion

PAPER N° 2025-32-0065 / 20259265

Presenter Atsushi Hisano

Authors Atsushi Hisano, Masahito Saitou, Yota Sakurai, Kawasaki Heavy Industries, Ltd.; Satoaki Ichi, Kawasaki Motors, Ltd.

Analysis of Flame Propagation Characteristics in a Hydrogen Engine using an Optically Accessible Engine

PAPER N° 2025-32-0061 / 20259261

Presenter Yuto Arai

Authors Yuto Arai, Takamori Ueno, Ryosuke Suda, Ryoichi Sato, Nihon University; Yoshinori Nakao, Kawasaki Motors, Ltd.; Yoshinari Ninomiya, Suzuki Motor Corp.; Koichiro Matsushita, Honda Motor Co., Ltd.; Tomohiko Kamio, Yamaha Motor Co., Ltd.; Akira Iijima, Nihon University

Experimental Study on Single Cylinder Diesel Engine Port Water Injection and Blends of Biodiesel for Performance & Emission

PAPER N° 2025-32-0062 / 20259262

Presenter Pranjal Jagtap

Authors Vikram Bhoite, Kaleemuddin Syed, Sandip Chaudhari, Girish Khairnar, Pranjal Jagtap, Kameswar Reddy, Greaves Cotton, Ltd.

TUESDAY, November 11

PROGRAM

10:30 - 12:30

SESSION Materials and Manufacturing (1 of 2) & Lubricants and Tribology

ROOM Hall 2B

Chair **Silvio Defanti**
Co-Chair **Tadao Okazaki**

Development of Integrated Forming of New "NMAX" YECVT Parts Using the Plate Forging Method

PAPER N° 2025-32-0005 / 20259205
Presenter Shogo Tamaru
Authors Hironari Hongo, Shogo Tamaru, Shinnosuke Uda, Yamaha Motor Engineering Co., Ltd.

Temperature effect on the static and fatigue performance of thermoset and thermoplastic composites

PAPER N° 2025-32-0006 / 20259206
Presenter Andrea Chiocca
Authors Andrea Chiocca, Michele Sgamma, Francesco Bucchi, Francesco Frendo, University of Pisa; Alessandro Franceschini, Alessio Vestri, Simone Mancini, Raffaele Squarcini, Pierburg Pump Technology Italy SpA

Evaluation of the long term creep behavior of polymeric materials using the Time-Temperature Superposition principle by Dynamic Mechanical Analysis

PAPER N° 25SETC-0123
Presenter Alexej Gamanets
Authors Alexej Gamanets, Pontlab Srl

Experimental analysis of wheel bearing friction losses under realistic driving cycleson a component and roller test bench

PAPER N° 2025-32-0100 / 20259300
Presenter Lukas Hartmann
Authors Lukas Hartmann, Lars Erxleben, Ron Rebesberger, Roman Henze, Axel Sturm, Institute of Automotive Engineering

TUESDAY, November 11

PROGRAM

13:30 - 15:30

SESSION New Product Technology (2 of 5)

ROOM Modulo 1

Chair **Rita Di Gioia**
Co-Chair **Takuya Warashina**

Lower Environmental Impact Resin Material Applications for Motorcycles

PAPER N° 25SETC-0045
Presenter Satoru Kamijo
Authors Satoru Kamijo, Honda Motor Co., Ltd.

Analysis of H2-DI application to an high-performance motorcycle engine

PAPER N° 25SETC-0171
Presenter Alberto Lorenzo Vassallo
Authors Alberto Lorenzo Vassallo, Francesco Pesce, Dumarey Automotive Italia; Luigi Teodosio, Emanuele Ugliano, Fabio Bozza, Università di Napoli Federico II

Development of new power unit for a SxS vehicle

PAPER N° 25SETC-0050
Presenter Jumpei Tokuda
Authors Jumpei Tokuda, Kawasaki Motors, Ltd.

AI-Driven Cybersecurity in Transportation: Strengthening Resilience in the Mobility Ecosystem

PAPER N° 25SETC-0061
Presenter Jessica Dapelo
Authors Jessica Dapelo, Jessica Dapelo Enterprises INC

TUESDAY, November 11

PROGRAM

13:30 - 15:30

SESSION Engine Technology

ROOM Modulo 2.1

Chair **Luca Romani**
Co-Chair **Masahito Saito**

Methodology of Minimum Energy Starting for SI Engine

PAPER N° 2025-32-0090 / 20259290
Presenter Yusuke Matsuura
Authors Yusuke Matsuura, Junya Tanaka, Kogakuin University

Clean cuts, clear conscience: Advanced engines, optimized tools, eco-friendly fuels

PAPER N° 2025-32-0087 / 20259287
Presenter Kai W. Beck
Authors Kai W. Beck, Georg Maier, Matthias Müller, Thomas Lux, Armin Kölmel, Holger Lochmann, Jens Melder, ANDREAS STIHL AG & Co. KG

Investigating the Influence of Intake Runner Configuration on Scavenging and Combustion Processes in Elliptical Rotor Engines

PAPER N° 2025-32-0089 / 20259289
Presenter Jing Qin
Authors Jing Qin, Yingbo Wang, Yiqiang Pei, Dasuo Yao, Tianjin University; Xiwen Deng, Kunming University of Science and Technology

Revolutionizing Two-Wheeler Gear Shifting: A Cost-Effective Approach for Clutch-Less Gear Shift

PAPER N° 2025-32-0088 / 20259288
Presenter Dinkar Jois
Authors Dinkar Jois, Bosch, Ltd.

TUESDAY, November 11

PROGRAM

13:30 - 15:30

SESSION Two Stroke Engines (1 of 2)

ROOM Modulo 2.2

Chair **Carlo Alberto Rinaldini**
Co-Chair **Tatsuya Kuboyama**

Effect of Plasma-Assisted Ignition on Combustion and Emission Characteristics of Two Stroke Engines with Different Fuels
PAPER N° 2025-32-0030 / 20259230
Presenter Jinru Liu
Authors Jinru Liu, Yoshiaki Yamazaki, Yusuke Otaki, Hayato Kato, Daichi Kobayashi, Tetsuo Umegaki, Tomohiko Asai, Akira Iijima, Nihon University

Optimum Bore-to-Stroke Ratio for a Flathead Uniflow Two-Stroke SI Engine and its Impact on Different Fuels
PAPER N° 2025-32-0024 / 20259224
Presenter Mario Martins
Authors Guilherme Zanchin, Roberto Hausen, Jean Lucca Fagundez, Thompson Lanzanova, Mario Martins, Federal University of Santa Maria

Performance Prediction of a Two-Stroke Aviation S.I. Engine by Means OD/1D Thermo-Fluid Dynamic Simulation Code
PAPER N° 2025-32-0026 / 20259226
Presenter Tarcisio Cerri
Authors Tarcisio Cerri, Sursum-Mi s.r.l.; Alessandro Giussani, Suter Industries AG; Tommaso Lucchini, Andrea Marinoni, Gianluca Montenegro, Angelo Onorati, Politecnico di Milano

Study of Combustion Characteristics of a Two-stroke Opposed Piston Engine using Low-octane Fuels
PAPER N° 2025-32-0028 / 20259228
Presenter Yoshiaki Yamazaki
Authors Yoshiaki Yamazaki, Ikumi Okawara, Jinru Liu, Akira Iijima, Nihon University

TUESDAY, November 11

PROGRAM

13:30 - 15:30

SESSION Renewable Energy and Alternative Fuels (2 of 7)

ROOM Hall 2A

Chair **Chiara Guido**
Co-Chair **Yuji Mihara**

The Effect of Compression Ratio in Ammonia Single Fuel Engine

PAPER N° 25SETC-0075
Presenter Tadashi Takeuchi
Authors Tadashi Takeuchi, Toyota Industries Corporation; Yoshitane Takashima, Osaka Gas Co Ltd

Development of a Combined Injection and Ignition Unit for a Gas Engine with Direct Hydrogen Injection Integrated into the Standard Spark Plug Access Hole

PAPER N° 2025-32-0059 / 20259259
Presenter Nic Rischette
Authors Nic Rischette, Sascha Holzberger, Sven Helms, Maurice Kettner, University Of Applied Sciences Karlsruhe

Numerical analysis of combustion stability and efficiency improvement in ammonia engines utilizing Passive Turbulent Jet Ignition (PTJI)

PAPER N° 2025-32-0049 / 20259249
Presenter Kangmin Ju
Authors Kangmin Ju, Hyun-Ung Kang, Jeong Hyeon Kim, Chosun University

Experimental Study of HCNG on Single Cylinder 395cc Spark Ignition Engine for Performance and Exhaust Emission.

PAPER N° 2025-32-0050 / 20259250
Presenter Kaleemuddin Syed
Authors Kaleemuddin Syed, Sandip Chaudhari, Girish Khairnar, Suresh Sajjan Ing, Greaves Cotton, Ltd.

13:30 - 15:30

SESSION Hybrid and Electric Drives (1 of 3) & Collegiate Event

ROOM Hall 2B

Chair **Adrian Irimescu**
Co-Chair **Stephen Teng**

Vehicle to Vehicle Recharge and Power Sharing for Modular Public Transportation Systems: Design and Testing of the UNIFI fleet at ENEA CASACCIA Research Center

PAPER N° 2025-32-0095 / 20259295
Presenter Lorenzo Berzi
Authors Adriano Alessandrini, Lorenzo Berzi, Marco Fabbri, Michael Franci, Michelangelo Santo Gulino, Luca Pugi, Università degli Studi di Firenze; Fernando Ortenzi, Francesco Vitiello, ENEA Centro Ricerche Casaccia

3D Electromagnetic simulation methodology for detailed characterization of small electric motor for motorcycle application

PAPER N° 25SETC-0126
Presenter Lorenzo Fazzini
Authors Lorenzo Fazzini, HPE

Design optimization and calibration of a single-cylinder, motorcycle engine for integration into a novel Formula SAE electric hybrid powertrain

PAPER N° 2025-32-0045
20259245
Presenter Pietro Fabbri
Authors Alessandro Brusa, Pietro Fabbri, Fenil Shethia, Davide Bassani, Boris Petrone, Nicolo Cavina, University of Bologna

15:30 - 16:00

SESSION Poster Session (1 of 2)

ROOM Modulo 0

Chairs **Francesco Balduzzi & Luca Romani**
Co-Chair **Akira Iijima**

Numerical study on effect of LP-EGR on ignition characteristic under hydrogen fueled small engine for range extender
PAPER N° 25SETC-0071
Presenter Hyun-Ung Kang
Authors Hyun-Ung Kang, Kangmin Ju, Jeong Hyeon Kim, Chosun University

Design and technical evaluation of a small compact planetary gear: Research on a practical case study
PAPER N° 25SETC-0076
Presenter Giovanni Cecere
Authors Giovanni Cecere, Adrian Irimescu, CNR-STEMS

Design and manufacturing of a high-pressure optical chamber for ignition system characterization
PAPER N° 25SETC-0174
Authors Giovanni Cecere, Adrian Irimescu, CNR-STEMS; Walter di Loreto, Mario Lorenzi, TAUMAT S.r.l.

Influence of Different Materials on the Surface Ignition Temperature of Hydrogen-Air Mixtures in a Constant-Volume Combustion Chamber
PAPER N° 25SETC-0177
Presenter Albert Guggenheimer
Authors Albert Guggenheimer, University of Applied Sciences Karlsruhe

TUESDAY, November 11

PROGRAM

16:30 - 18:00

SESSION Emissions and Environmental Impacts (1 of 3)

ROOM Modulo 1

Chair **Davide Di Domenico**
Co-Chair **Michihisa Nakagawa**

Integration of a Compact 4-Stroke Engine into a Model Vehicle with Dynamic Emission Analysis on a Small Chassis Dynamometer
PAPER N° 2025-32-0074 / 20259274
Presenter Marcus Gohl
Authors Marcus Gohl, APL Automobil-Pruftechnik Landau GmbH; Yasuo Moriyoshi, Tatsuya Kuboyama, Hitomu Arakawa, Chiba University

A Simulation Approach for the Impact Assessment of an Axial Flux Traction Motor Applied on Road Electric Vehicle
PAPER N° 2025-32-0077 / 20259277
Presenter Maurizio Guadagno
Authors Maurizio Guadagno, Lorenzo Berzi, Luca Pugi, Massimo Delogu, Università degli Studi di Firenze

Investigation of degradation of catalyst performance due to phosphorus poisoning in practical catalysts
PAPER N° 2025-32-0073 / 20259273
Presenter Takeru Ibara
Authors Takeru Ibara, Shiori Itou, Kazuma Yusa, Hisatoshi Kinoshita, Takuya Motegi, Yamaha Motor Co., Ltd.

TUESDAY, November 11

PROGRAM

16:30 - 18:00

SESSION NVH Technology

ROOM Modulo 2.1

Chair **Simona Merola**
Co-Chair **Keisuke Namekawa**

Order Dispersion Method by Crankpin Arrangement into Enhancements of Structural Reliability and Sound Quality for V8 Outboard Motor

PAPER N° 2025-32-0021 / 20259221
Presenter Kentaro Takanishi
Authors Kentaro Takanishi, Hideta Muramatsu, Takashi Kondo, Gaku Naoe, Honda Motor Co Ltd

Analysis of Handlebar Vibration Mechanisms and Perceptual Characteristics During Push-Walking of Electric Motorcycle

PAPER N° 2025-32-0020 / 20259220
Presenter Tsubasa Okamura
Authors Tsubasa Okamura, Ryota Otaki, Atsushi Sugaya, Tsukasa Shimizu, Yamaha Motor Co., Ltd.

Study on the Clarification of the Mechanism of Scooter Centrifugal Clutch Squeal

PAPER N° 2025-32-0022 / 20259222
Presenter Kohei Yamamoto
Authors Kohei Yamamoto, Tatsuya Iwamoto, Takashi Otsuka, Honda Motor Co., Ltd.

16:30 - 18:00

SESSION Small Energy Systems

ROOM Modulo 2.2

Chair **Maurice Kettner**
Co-Chair **Tadao Okazaki**

The effect of differential humidification and membrane thickness on PEMFC operation
PAPER N° 2025-32-0039 / 20259239
Presenter Carmine Marra
Authors Leonardo Scialpi, Alessandro D'Adamo, Carmine Marra, Università di Modena e Reggio Emilia

Experimental Investigation and 1D Modeling of a Small-Scale PEM Fuel Cell Power System.
PAPER N° 2025-32-0040 / 20259240
Presenter Christian Antetomaso
Authors Christian Antetomaso, Dario Di Maio, Giovanni Cecere, CNR-STEMS

Development of a Fuel Cell System for Small Mobility Applications with Severe Load Fluctuations
PAPER N° 2025-32-0038 / 20259238
Presenter Masaya Suzuki
Authors Masaya Suzuki, Nobuhiro Nakata, Yamaha Motor Co., Ltd.

TUESDAY, November 11

PROGRAM

16:30 - 18:00

SESSION Renewable Energy and Alternative Fuels (3 of 7)

ROOM Hall 2A

Chair **Tommaso Lucchini**
Co-Chair **Yuji Mihara**

Study on Combustion Detection of a Spark-Ignition Engine with Fuel Variation Using Various Sensors
PAPER N° 2025-32-0052 / 20259252
Presenter Kohei Hayashi
Authors Kohei Hayashi, Jihoon Kim, Yudai Yamasaki, The University of Tokyo

Analysis of Combustion Process in HVO-Hydrogen Dual-Fuel Operation Using Simultaneous Imaging of OH* and CH* Chemiluminescence
PAPER N° 2025-32-0053 / 20259253
Presenter Takumi Yukitani
Authors Takumi Yukitani, Naoto Une, Ghazian Mukhtar, Naoto Horibe, Hiroshi Kawanabe, Kyoto University; Kazuyuki Koda, Kenji Hiraoka, Yanmar Holdings Co., Ltd.

Experimental and Numerical Study on Diesel Engine Retrofitting for Hydrogen Operation with Direct Injection
PAPER N° 25SETC-0185
Presenter Fabio Mallamo
Authors Fabio Mallamo, Rosario Loiodice, FEV Italia; Massimiliano Bonanni, Wladimir Lodi, Rehlko Engines; Andrea Scalambro, Adrea Piano, Politecnico di Torino

TUESDAY, November 11

PROGRAM

16:30 - 18:00

SESSION Diesel Engine

ROOM Hall 2B

Chair **Luigi Arnone**
Co-Chair **Yusuke Suzuki**

Impact of Water Injection on Emission Formation in an HVO-fuelled NRMM Engine

PAPER N° 2025-32-0067 / 20259267
Presenter Jonas Fuhrmeister
Authors Jonas Fuhrmeister, Sebastian Mayer, Michael Günthner, University of Kaiserslautern-Landau

Impacts of Lightening and Isomerization of Liquid Synthetic Fuels on Combustion Characteristics of Diesel Engine

PAPER N° 25SETC-0056
Presenter Gen Shibata
Authors Gen Shibata, Hiroya Yamamoto, Shusuke Tanaka, Hideyuki Ogawa, Haoyu Yuan, Hokkaido University

Development of 2-cylinder Diesel Engine for European quadricycles to achieve EURO 5+ standard

PAPER N° 2025-32-0068 / 20259268
Presenter Masanari Tennomi
Authors Naotaro Nagai, Masanari Tennomi, Akira Tamura, Hiroaki Mochizuki, Yasushi Kobayashi, Takashi Onishi, Kubota Corp.

WEDNESDAY, November 12

PROGRAM

10:30 - 12:30

SESSION New Product Technology (3 of 5)

ROOM Modulo 1

Chair **Kai Beck**
Co-Chair **Keisuke Namekawa**

Development of "YECVT" for the New-"NMAX"

PAPER N° 25SETC-0034
Presenter Yuki Katsuyama
Authors Yuki Katsuyama, Kimihiko Sato, Yamaha Motor Co., Ltd.

Low Speed Riding Regularity Analysis of Motorcycles Equipped with V4 IC Engine: Effects of Uneven Firing Intervals and Cylinder Deactivation

PAPER N° 25SETC-0168
Presenter Leonardo Bagnoli
Authors Leonardo Bagnoli, Ducati Motor Holding S.p.A.

Development of a Hydrogen-Fueled Two-Stroke Engine with Overhead Valves

PAPER N° 25SETC-0170
Authors Alberto Lorenzo Vassallo, Francesco Pesce, Dumarey Automotive Italia; Stefano Caprioli, Francesco Scrignoli, Enrico Mattarelli, Carlo Rinaldini, Università di Modena e Reggio Emilia

Optimizing Power and Drivability in a 125cc New Stylish Motorcycle Development for Young Indian Riders: A Simulation-Based Approach

PAPER N° 25SETC-0053
Presenter Manish Bansal
Authors Manish Bansal, Rajat Siroiya, Honda R&D India Pvt Ltd.

WEDNESDAY, November 12

PROGRAM

10:30 - 12:30

SESSION Engine Components

ROOM Modulo 2.1

Chair **Adrian Irimescu**
Co-Chair **Michihisa Nakagawa**

Fatigue in Plastic Field of AISI 304L on an Engine Component: An Interesting Case on a Pulley for Automotive Application

PAPER N° 2025-32-0080 / 20259280
Presenter Alessandro Franceschini
Authors Alessandro Franceschini, Raffaele Squarcini, Pierburg Pump Technology Italy S.p.A.; Gilles Rybicki, Pierburg Pump Technology France S.à.r.l

Knock Sensors for Two Wheelers Applications

PAPER N° 2025-32-0079 / 20259279
Presenter Jeroen Van Est
Authors Jeroen van Est, Corentin Prieu, VITESCO Technologies France SAS

Advanced Multi-Fidelity Simulation of Piston Oil Jet Cooling in High-Performance Engines

PAPER N° 2025-32-0081 / 20259281
Presenter Francesco Balduzzi
Authors Andrea Sassoli, Luca Romani, Giovanni Ferrara, Università degli Studi di Firenze; Giovanni Paolicelli, Asso Werke S.p.A.; Francesco Balduzzi, Università degli Studi di Firenze

Model based design and numerical analysis of a downsized centrifugal pump for engine cooling applications

PAPER N° 2025-32-0078 / 20259278
Presenter Ali Deriszadeh
Authors Davide Di Battista, Ali Deriszadeh, Federico Di Prospero, Giammarco Di Giovine, Marco Di Bartolomeo, Fabio Fatigati, Roberto Cipollone, University of L'Aquila

10:30 - 12:30

SESSION Vehicle Dynamics and Safety (1 of 2)

ROOM Modulo 2.2

Chair **Alexander Winkler**
Co-Chair **Shingo Ueda**

Obstacle Avoidance Capability of a Personal Mobility Vehicle (PMV) with an Inward Tilting Mechanism under Braking Conditions
PAPER N° 2025-32-0033 / 20259233
Presenter Tetsunori Haraguchi
Authors Tetsunori Haraguchi, Nagoya University; Tetsuya Kaneko, Osaka Sangyo University

Influence of road friction characteristics on the motorcycle dynamics
PAPER N° 2025-32-0036 / 20259236
Presenter Ichiro Kageyama
Authors Ichiro Kageyama, Nihon University

Development of the Anti-SideSlip Control for Motorcycles Using IMU
PAPER N° 2025-32-0037 / 20259237
Presenter Kyosuke Nakano
Authors Kyosuke Nakano, Kazunori Kawai, Michinori Takeuchi, Suzuki Motor Corp

WEDNESDAY, November 12

PROGRAM

10:30 - 12:30

SESSION Measurement and Simulations (2 of 3)

ROOM Hall 2A

Chair **Stephan Schmidt**
Co-Chair **Keisuke Ito**

Measurement of the liquid fuel film on the combustion chamber wall of a gasoline engine using a novel capacitance sensor

PAPER N° 2025-32-0018 / 20259218

Presenter Tatsuya Kuboyama

Authors Tatsuya Kuboyama, Takeru Nakajima, Yasuo Moriyoshi, Chiba University; Satoshi Takayama, Suzuki Motor Corp; Osamu Nakabeppu, Meiji University

Overcoming Challenges in Motorcycle Exhaust Flow Measurement: A Study on Measurement Accuracy and Systematic Effects of an Annubar-Based Approach

PAPER N° 2025-32-0016 / 20259216

Presenter Sebastian Schurl

Authors Sebastian Schurl, Graz University of Technology; Christian Hafenmayer, Mathias Lankau, AIP GmbH & Co. KG; Günter Brenn, Stephan Schmidt, Roland Kirchberger, Graz University of Technology

Ultralightweight Emission Measurement Systems for Motorcycles: Accuracy and Practicality in RDE Testing

PAPER N° 2025-32-0011 / 20259211

Presenter Stephan Schmidt

Authors Sebastian Schurl, Graz University of Technology; Peter Lienerth, Leonid Japs, Matthias Schroeder, HORIBA Europe GmbH; Stephan Schmidt, Roland Kirchberger, Graz University of Technology

Predicting Transient Soot Emissions in Diesel Engines Using Physical and Machine Learning Models

PAPER N° 2025-32-0017 / 20259217

Presenter Takahiro Kitamura

Authors Takahiro Kitamura, Ayano Matsuoka, Kosuke Suematsu, Hiroaki Okano, Kubota Corp.

13:30 - 15:30

SESSION New Product Technology (4 of 5)

ROOM Modulo 1

Chair **Giovanni Paolicelli**
Co-Chair **Satoshi Takayama**

Crank-Angle-Resolved piston crown temperature measurement in a hydrogen engine

PAPER N° 25SETC-0173
Presenters Claretta Tempesti
Authors Marco Tarchiani, Claretta Tempesti, Francesco Padovani, Luca Romani, Università degli Studi di Firenze; Giovanni Paolicelli, Asso Werke S P A; Giovanni Ferrara, Università degli Studi di Firenze

The Development of the EV scooter "e-ACCESS"

PAPER N° 25SETC-0175
Presenters Sadayuki Tsujimura
Authors Daisuke Shimasaki, Sadayuki Tsujimura, Suzuki Motor Corporation

Infotainment system for motorcycles

PAPER N° 25SETC-0029
Presenters Ryohei Koyama
Authors Ryohei Koyama, Honda Motor Co., Ltd.

Introducing the 3DATX FLEX and FLEX-PNC iPEMS for small engine pollutant and carbon emissions measurement

PAPER N° 25SETC-0180
Presenters Daisy Thomas
Authors Daisy Thomas, Matthew Berry, 3DATX Corporation

WEDNESDAY, November 12

PROGRAM

13:30 - 15:30

SESSION Powertrain Controls (1 of 2)

ROOM Modulo 2.1

Chair **Maurice Kettner**
Co-Chair **Shigeho Sakoda**

Firing TDC identification through wasted spark duration measurements during cranking of small engines
PAPER N° 2025-32-0085 / 20259285
Presenters Adrian Irimescu
Authors Adrian Irimescu, Simona Merola, CNR-STEMS

Torque Transfer Response Enhancement on the DCT with Estimated Hydraulic Pressure in the Clutch Piston Chamber
PAPER N° 2025-32-0083 / 20259283
Presenters Kosaku Takahashi
Authors Kosaku Takahashi, Honda Motor Co., Ltd.

Development of Automatic Calibration System for PFI Engines
PAPER N° 2025-32-0084 / 20259284
Presenters Kazuki Haraguchi
Authors Kazuki Haraguchi, Suzuki Motor Corp.

Development of an Artificial Calibrator for ShiftProgram Optimization to Enhance Fuel Efficiency
PAPER N° 2025-32-0082 / 20259282
Presenters Thierry Junior Kengne Dzegou
Authors Thierry Junior Kengne Dzegou, Florian Schober, Volkswagen AG; Ron Rebesberger, Roman Henze, IFF, TU Branschweig

WEDNESDAY, November 12

PROGRAM

13:30 - 15:30

SESSION Two Stroke Engines (2 of 2)

ROOM Modulo 2.2

Chair **Enrico Mattarelli**
Co-Chair **Akira Iijima**

Development of Supercharged Direct-injection Two Stroke Engine with Intake and Exhaust Valve for Series Hybrid (2nd Report) - To Realize Lean Burn -

PAPER N° 2025-32-0023 / 20259223
Presenters Yota Sakurai
Authors Yota Sakurai, Atsushi Hisano, Masahito Saitou, Kawasaki Heavy Industries, Ltd.; Satoaki Ichi, Kawasaki Motors, Ltd.

Preliminary Development of a Novel 2-Stroke Petrol Engine for a Hybrid Sport-Tourer Motorcycle

PAPER N° 2025-32-0025 / 20259225
Presenters Carlo Alberto Rinaldini
Authors Carlo Alberto Rinaldini, Francesco Scrignoli, Antonello Volza, Enrico Mattarelli, Università di Modena e Reggio Emilia; Luca Montanari, Gianluca Magnani, HyperTec Solution srl

Application of MAN Loop Scavenging in a 125 cm^3 Two-Stroke Racing Engine

PAPER N° 2025-32-0029 / 20259229
Presenters Peter Eilts
Authors Peter Eilts, Technische Universität Braunschweig

Computational investigation on a boosted uniflow scavenged direct-injection combustion engine (BUSDICE) with alcohol fuel

PAPER N° 2025-32-0027 / 20259227
Presenters Yizhuo Feng
Authors Yizhuo Feng, Enshen Lu, Shuo Dong, Hossein Keshtkar, Xinyan Wang, Hua Zhao, Brunel University of London

WEDNESDAY, November 12

PROGRAM

13:30 - 15:30

SESSION Renewable Energy and Alternative Fuels (4 of 7)

ROOM Hall 2A

Chair **Giovanni Vichi**
Co-Chair **Kensuke Suzuki**

Validation of an integrated ignition-combustion model for premixed hydrogen-air flames under lean conditions

PAPER N° 2025-32-0056 / 20259256
Presenters Marco Pretto
Authors Marco Pretto, Pietro Giannattasio, University of Udine; Fabio Bozza, Vincenzo De Bellis, Emanuele Ugliano, University of Naples "Federico II"

Transient Helium Jet Evolution Using High Speed Schlieren Imaging

PAPER N° 2025-32-0057 / 20259257
Presenters Shuo Dong
Authors Shuo Dong, Hao Shi, Brunel University of London; Gengxin Zhang, University of Sheffield; Yizhuo Feng, Enshen Lu, Xinyan Wang, Hua Zhao, Brunel University of London

Performance Analysis of a Hydrogen-blended Naturally Aspirated Gas Engine with a Dedicated Exhaust Gas Recirculation System

PAPER N° 2025-32-0046 / 20259246
Presenters Naqib Salim
Authors Naqib Salim, Youssef Beltaifa, Maurice Kettner, Karlsruhe University of Applied Sciences

Visualization Study on the Combustion Characteristics of Diesel-Ignited Ammonia/Methane Mixtures

PAPER N° 2025-32-0054 / 20259254
Presenters Keiya Nishida
Authors Shuo Yin, Zhizhuo Dai, Qingxing Zhou, Zechuan Cui, Xiaolei Zhang, Mingyuan Ye, Yifang Ren, Zhanpeng Wang, Keiya Nishida, Dalian University of Technology

15:30 - 16:00

SESSION Poster Session (2 of 2)

ROOM Modulo 0

Chairs **Francesco Balduzzi & Luca Romani**
Co-Chair **Akira Iijima**

Numerical Study on the Optimal Design of a Constant-Volume Combustion Chamber (CVVC) for Passive Turbulent Jet Ignition (PTJI) in an Ammonia-Fueled Engine
PAPER N° 25SETC-0073
Presenter Jeong Hyeon Kim
Authors Jeong Hyeon Kim, Kangmin Ju, Hyunung Kang, Chosun University

Dynamic Contact Angle Modeling for Water Removal in PEM Fuel Cell Channels
PAPER N° 25SETC-0169
Authors Christian Antetomaso, CNR-STEMS

Effect of Hydrogen Injection Pressure on Engine Performance and Hydrogen Concentration in Blow-by Gas in Direct Injection Hydrogen Engines
PAPER N° 25SETC-0176
Presenter Seiya Yamada
Authors Seiya Yamada, Tokyo City University

Numerical investigations on the influence of the hot surface-assisted spark ignition (HSASI) on the flame regime within the pre-chamber using 3D-CFD simulations
PAPER N° 25SETC-0181
Presenter Sascha Holzberger
Authors Sascha Holzberger, University of Applied Sciences Karlsruhe

16:30 - 18:00

SESSION New Product Technology (5 of 5)

ROOM Modulo 1

Chair **Rita Di Gioia**
Co-Chair **Teruyoshi Morita**

Enhancing Spark Ignition Engine Efficiency with Passive Pre-Chamber Technology
PAPER N° 25SETC-0182
Presenter Metin Korkmaz
Authors Metin Korkmaz, Tobias Czerny, Björn Schürmann, Sandro Pino, Tenneco Inc.

H2 ICE Combustion Analysis Development with Smart Ignition Coil Diagnostic
PAPER N° 25SETC-0183
Presenter Stefano Papi
Authors Stefano Papi, Federico Ricci, Massimo dal Re, Massimiliano Avana, Tenneco Inc.

Plugin Solution for Motorcycle Emission Testing: Preparing for Particle Number Regulation
PAPER N° 25SETC-0184
Authors Christian Hafenmayer, Sebastian Schurl, Mathias Lankau, Franz Hiepp, AIP Automotive GmbH & Co. KG

WEDNESDAY, November 12

PROGRAM

16:30 - 18:00

SESSION Hybrid and Electric Drives (2 of 3)

ROOM Modulo 2.1

Chair **Lorenzo Berzi**
Co-Chair **Masaki Segawa**

Traction voltage level in two-wheeler: considerations on e-motor performance
PAPER N° 2025-32-0093 / 20259293
Presenter Laurent Albert
Authors Laurent Albert, Schaeffler Vitesco Technologies

Design and development of a novel automatic powershift transmission for battery-electric vehicles
PAPER N° 2025-32-0096 / 20259296
Presenter Juergen Tromayer
Authors Juergen Tromayer, David Stückler, Roland Kirchberger, Graz University of Technology

Development of Electronic Control in Strong Hybrid Motorcycle
PAPER N° 2025-32-0091 / 20259291
Presenter Kosuke Obayashi
Authors Kosuke Obayashi, Shohei Terai, Kawasaki Heavy Industries, Ltd.; Kenichi Jino, Kawasaki Motors, Ltd.; Daisuke Kawai, Kawasaki Heavy Industries, Ltd.

16:30 - 18:00

SESSION Emissions and Environmental Impacts (2 of 3)

ROOM Modulo 2.2

Chair **Massimo Delogu**
Co-Chair **Hiromi Deguchi**

Real Driving Emission (RDE) Assessment for Motorcycles Using a Random Cycle Generator (RCG)
PAPER N° 2025-32-0071 / 20259271
Presenter Masahiro Matsuoka
Authors Masahiro Matsuoka, Hiroshi Hirai, Takayuki Ito, Japan Automobile Research Institute

RDE testing of small Motorcycle in Indian Road Conditions and study the impact of instrumentation on emission and fuel economy
PAPER N° 2025-32-0075
20259275
Presenter Rahul Agrawal
Authors Rahul Agrawal, Rahul Jaswal, Sachin Yadav, AVL India Technical Centre Pvt., Ltd.

16:30 - 18:00

SESSION Renewable Energy and Alternative Fuels (5 of 7)

ROOM Hall 2A

Chair **Stanislaw Szwaja**
Co-Chair **Naoto Horibe**

Cold-Start Demonstration of an Ammonia Mono-Fueled Engine System Using Onboard Reformer with a Start up Burner

PAPER N° 25SETC-0115
Presenter Norinosuke Nakatani
Authors Norinosuke Nakatani, Tadashi Takeuchi, Toyota Industries Corporation; Hiroshi Miyagawa, Tetsunori Suzuoki, Toyota Central R&D Labs Inc

Experimental Study on Hydrogen-Methane Co-Combustion in Small Gas Engines

PAPER N° 2025-32-0055 / 20259255
Presenter Kenta Tanaka
Authors Kenta Tanaka, Toshihiro Tani, Toyota Industries Corporation; Takahiro Sako, Osaka Gas Co., Ltd

Effect of hydrogen injection timing in a compression ignition engine operating in hydrogen diesel dual fuel mode

PAPER N° 2025-32-0051 / 20259251
Presenter Salvatore Rossetti
Authors Salvatore Rossetti, Ezio Mancaruso, CNR-STEMS

8:30 - 10:00

SESSION Renewable Energy and Alternative Fuels (6 of 7)

ROOM Modulo 1

Chair **Giovanni Cecere**
Co-Chair **Yuji Araki**

Impacts of enhanced physics-based estimation modeling for trapped air and EGRestimation in real-time control of hydrogen injection in a PFI internal combustion engine

PAPER N° 2025-32-0047 / 20259247
Presenter Claudio Galli
Authors Claudio Galli, Giovanni Ferrara, Niccolò Grilli, Francesco Balduzzi, Luca Romani, Università degli Studi di Firenze; Giovanni Vichi, Yanmar R&D Europe

A Study of Knocking Characteristics in a Hydrogen SI Engine under High Compression Ratio

PAPER N° 2025-32-0063 / 20259263
Presenter Hiromasa Ishihara
Authors Hiromasa Ishihara, Shunsuke Kishibata, Shota Miyake, Tomoya Iida, Kenta Kuwabara, Nihon University; Shintaro Yoshihara, Sekai Miyamoto, Kawasaki Heavy Industries, Ltd.; Akira Iijima, Nihon University

Development of the Hydrogen Fueled Internal Combustion Engine for Off-road Applications

PAPER N° 2025-32-0066 / 20259266
Presenter Kentaro Shiraishi
Authors Kentaro Shiraishi, Shinji Kishi, Daichi Kato, Kenta Mitamura, Kei Murakami, Yusuke Mikuni, Kubota Corp.

THURSDAY, November 13

PROGRAM

8:30 - 10:00

SESSION Vehicle Dynamics and Safety (2 of 2)

ROOM Modulo 2.1

Chair **Alexander Winkler**
Co-Chair **Shingo Ueda**

Investigation of Driving Characteristics for Road Alignments with High Traffic Accident Rates on Hilly and Mountainous Roads Using a Motorcycle Simulator

PAPER N° 2025-32-0035 / 20259235
Presenter Hiroshi Kuniyuki
Authors Hiroshi Kuniyuki, Yuta Katayama, Taisei Kitagawa, Yusuke Numao, Suwa University of Science

Road Simulation Techniques for Reproducing Off-Road Vehicle Behavior

PAPER N° 2025-32-0031 / 20259231
Presenter Takahiro Miyasaka
Authors Takahiro Miyasaka, Ryota Shimizu, Kubota Corp.

A Study of the Relationship between the "Leaning" Characteristics of Motorcycles and Vehicle Specifications, Report 1.

PAPER N° 2025-32-0034 / 20259234
Presenter Hideki Sakai
Authors Hideki Sakai, Kindai University; Yoshihiro Nakagawa, Yoshitaka Tezuka, Hiroki Yamashita, Shunichi Miyagishi, Honda Motor Co., Ltd

THURSDAY, November 13

PROGRAM

8:30 - 10:00

SESSION Emissions and Environmental Impacts (3 of 3)

ROOM Modulo 2.2

Chair **Luigi Arnone**
Co-Chair **Yusuke Suzuki**

Emission Performance of Motorcycles: Regulated and Non-Regulated Pollutants under Harmonized and Extended Testing Conditions

PAPER N° 2025-32-0069 / 20259269
Presenter Stephan Schmidt
Authors Sebastian Schurl, Stephan Schmidt, Niko Bretterklieber, Martin Kupper, Roland Kirchberger, Graz University of Technology

Study on CO2 Absorption via Atomization Utilizing Surface Texturing and Surface Energy for Small Engine Applications

PAPER N° 2025-32-0076 / 20259276
Presenter Tetsuo Nohara
Authors Tetsuo Nohara, Shotaro Nara, Yuki Kawamoto, Naoya Fukushima, Masayuki Ochiai, Tokai University

Forward-Looking SiL-Based Fuel Consumption Simulation for Dual-Clutch Transmission Software Evaluation

PAPER N° 2025-32-0070 / 20259270
Authors Thierry Junior Kengne Dzegou, Florian Schober, Volkswagen AG; Ron Rebesberger, Roman Henze, IFF, TU Braunschweig

THURSDAY, November 13

PROGRAM

8:30 - 10:00

SESSION Data-driven Digitalization & Powertrain Controls (2 of 2)

ROOM Hall 2A

Chair **Lerina Aversano**
Co-Chair **Shigeho Sakoda**

Diesel Combustion Parameter Estimation via MachineLearning – A Comparative Study

PAPER N° 2025-32-0041 / 20259241

Presenter Andreas Benjamin Ofner

Authors Andreas Benjamin Ofner, Know Center Research GmbH; Bernhard Geiger, Graz University of Technology; Jonas Sjoblom, Morteza Haghir Chehreghani, Chalmers University of Technology

An SVM-based approach to develop a new control module for H2-powered engine using driver behaviour classification

PAPER N° 2025-32-0042 / 20259242

Presenter Marco De Santis

Authors Michele Mastroianni, University of Foggia; Simona Merola, Adrian Irimescu, CNR-STEMS; Marco De Santis, Christian Esposito, University ff Salerno; Lerina Aversano, University of Foggia

On Board Monitoring of Water Injection Inducement System and Particulate Filter for 3-Wheeler BS VI OBD II B Diesel Vehicle Norms.

PAPER N° 2025-32-0086 / 20259286

Presenter Pranjal Jagtap

Authors Pranjal Jagtap, Kaleemuddin Syed, Sandip Chaudhari, Girish Khairnar, Vikram Bhoite, Kameswar Reddy, Greaves Cotton, Ltd.

THURSDAY, November 13

PROGRAM

10:30 - 12:30

SESSION Renewable Energy and Alternative Fuels (7 of 7)

ROOM Modulo 1

Chair
Co-Chair **Keiya Nishida**

Clarification of the Mechanism of Abnormal Combustion in Hydrogen Engines -Investigation of Abnormal Combustion Location by Visualization Measurement-

PAPER N° 2025-32-0064 / 20259264
Presenter Keiji Muramatsu
Authors Keiji Muramatsu, Satoshi Tokuhara, Pravin Kadu, Kei Yoshimura, Kenjiro Nakama, Suzuki Motor Corp.

Hydrogen-Assisted Renewable Fuels RME and HVO in the Compression-Ignition Engine

PAPER N° 2025-32-0048 / 20259248
Presenter Stanislaw Szwaja
Authors Stanislaw Szwaja, Czestochowa University of Technology; Romualdas Juknelevicius, Saugirdas Pukalskas, Alfredas Rimkus, Vilnius Gediminas Technical University; Arkadiusz Szymanek, Czestochowa University of Technology

In-depth experimental investigation of the operating range of a hydrogen-fueled 4-stroke PFI engine to support the development of a 1D predictive combustion model

PAPER N° 25SETC-0156
Presenter Gerardo Stanzione
Authors Gerardo Stanzione, Federico Millo, Andrea Piano, Politecnico di Torino; Giovanni Vichi, Niccolo Fiorini, Yanmar R&D Europe; Luca Romani, Giovanni Ferrara, Università degli Studi di Firenze

Experimental and kinetic study of methane blending on the laminar combustion and emission characteristics of ammonia under various oxygen contents at high temperature and pressure

PAPER N° 2025-32-0060 / 20259260
Presenter Keiya Nishida
Authors Yuantao YU, Zhizhuo Dai, Chunlei Hou, Mingyuan Ye, Xiaolei Zhang, Zechuan Cui, Shuo Yin, Keiya Nishida, Dalian University of Technology

10:30 - 12:30

SESSION Measurement and Simulations (3 of 3)

ROOM Modulo 2.1

Chair **Roland Kirchberger**
Co-Chair **Kensuke Suzuki**

Development of CAE Technology for the Design Support of Piston Pin Circlip
PAPER N° 2025-32-0015 / 20259215
Presenter Atsushi Ishizuka
Authors Atsushi Ishizuka, Naoto Watanabe, Suzuki Motor Corporation

Design of an innovative geared automatic constantly variable e-bike transmission by means of Longitudinal Dynamics Simulation
PAPER N° 25SETC-0141
Presenter Hans-Juergen Schacht
Authors Hans-Juergen Schacht, Juergen Tromayer, Graz University of Technology

Advanced 3D Simulations of a Four-Stroke High-Performance Engine Valvetrain for the Analysis of the Mechanical Stresses and Energy Losses
PAPER N° 2025-32-0010 / 20259210
Presenter Marco Tarchiani
Authors Marco Tarchiani, Alessio Pizzicori, Sandro Raspanti, Luca Romani, Enrico Meli, Giovanni Ferrara, Università degli Studi di Firenze; Paolo Trassi, Betamotor SpA

Safety Critical Series Arc Detection and Measurement in Medium and High Voltage DC Grids
PAPER N° 2025-32-0012 / 20259212
Presenter Alexander Winkler
Authors Alexander Winkler, Stefan Mayr, Gernot Grabmair, University of Applied Sciences Upper Austria

10:30 - 12:30

SESSION Materials and Manufacturing (2 of 2)

ROOM Modulo 2.2

Chair **Silvio Defanti**
Co-Chair **Tadao Okazaki**

Evaluation of hydrogen sensitivity of metallic materials by Slow Strain Rate tests
PAPER N° 25SETC-0122
Presenter Arianna Scatena
Authors Arianna Scatena, Alexej Gamanets, Pontlab Srl

Establishing the method for simulation of electric potential in cooling water passages of outboard motors
PAPER N° 2025-32-0008 / 20259208
Presenter Ryota Shibuya
Authors Ryota Shibuya, Hiroki Suzuki, Honda Motor Co., Ltd.

Higher-strength, higher-toughness die cast wheel material using recycled aluminum
PAPER N° 2025-32-0007 / 20259207
Presenter Noritaka Suzuki
Authors Noritaka Suzuki, Honda Motor Co., Ltd.

THURSDAY, November 13

PROGRAM

10:30 - 12:30

SESSION Hybrid and Electric Drives (3 of 3)

ROOM Hall 2A

Chair **Lorenzo Berzi**
Co-Chair **Stephen Teng**

Development of high-efficiency, fully recyclable eMotors for light mobility applications produced in the EU

PAPER N° 2025-32-0098 / 20259298

Presenter Thomas Valin

Authors Koua Malick Cisse, Misa Milosavljevic, IFP Energies Nouvelles, Institut Carnot; Vincent Mallard, Mov'NTec; Thomas Valin, Gaetano De Paola, IFP Energies Nouvelles, Institut Carnot

Electrification potential of Small ICE Powertrain Applications

PAPER N° 2025-32-0094 / 20259294

Authors Stephan Schmidt, Hans-Juergen Schacht, Graz University of Technology; Konstantin Weller, Johann Friedrich Absenger, FVT mbH

Machine Learning-Enhanced Electrical Circuit Model Parametrization for Battery Cells: Reducing Experimental Workload Through GITT Testing with Altair RapidMiner®

PAPER N° 2025-32-0097 / 20259297

Presenter Nicholas Canella

Authors Luca Giuliano, Lorenzo Peretto, Nicholas Canella, Damir Nefat, Beond Srl

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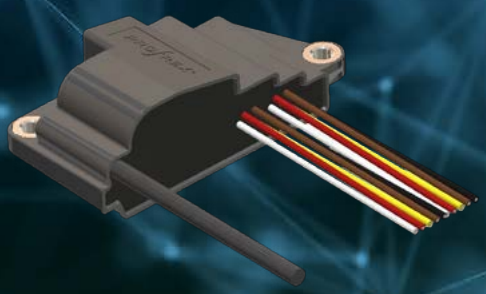

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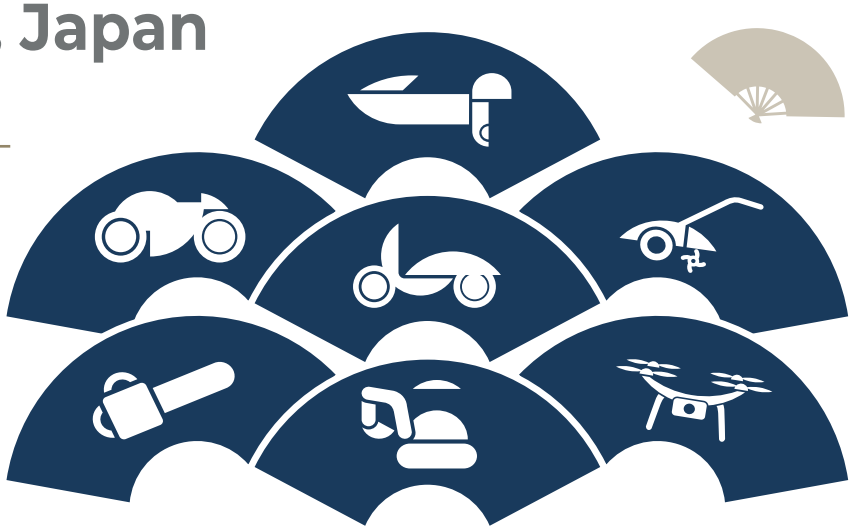
The 30th SETC 2026 KYOTO

October 26*-29, 2026
Kyoto, Japan

Venue : MIYAKO MESSE
(*) October 26 : Technical Visit

CALL FOR PAPERS



SMALL POWERTRAINS AND
ENERGY SYSTEMS
TECHNOLOGY
CONFERENCE

DUE DATES

Abstracts	: January 31, 2026
Draft manuscripts	: April 30, 2026
Final manuscripts	: July 31, 2026

FOREWORD

Society of Automotive Engineers of Japan (JSAE) is pleased to announce that the 30th Small powertrains and Energy systems Technology Conference (SETC2026) will be held at MIYAKO MESSE in Kyoto, Japan.
The conference is jointly sponsored by JSAE and SAE International with the support of Japan Land Engine Manufacturers Association (LEMA).

JSAE is asking you to share your experience and knowledge on small powertrain applications by submitting an abstract for the SETC2026.
Attendees are also encouraged to meet experts of OEMs, suppliers and academia from around the world, and discuss the challenges and developments in small powertrains and energy systems technology with them. This is the reason why the authors of papers are required to attend the conference for their presentations.

For more information about SETC, please visit the following website.
https://www.setc-jsae.com/

MAIN SUBJECT AREAS

SETC Applications

- **Vehicles with Motor** such as ATVs, Motorcycles, Scooters, Personal mobility vehicles, Marine products, Snowmobiles, Recreational vehicles, Utility vehicles, Power assist devices, Assisted bicycles and Unmanned vehicles.
- **Machinery with Motor** such as Snowplows and blowers, Portable power generators, Agricultural machinery, Gardening equipment, Hand tools, Small and micro-combined heat and power systems.

Note: Automobiles, Large vessels, Large aircraft, Locomotives, and Spaceships are out of the subject.

SETC Technology Papers' Scope

- **Combustion Engines** such as 2- and 4-stroke, Spark ignition, Diesel, HCCI, Unconventional and Competition.
- **New Energy Sources** such as Hybrid, Electric drive, Fuel cells, Thermoelectric generator and Organic Rankine cycle.
- **Components** such as Chassis, Suspensions, Brakes, Transmissions, Drivetrains, Electrical systems, Electronics, Fuel supply systems and Wheels & tires.
- **Development Technologies** such as Numerical simulations, Measurements and Production technologies.
- **Fuels, Lubricants, and Tribology** such as Alternative fuels, Fuel reformations, Additives, Friction losses and Wear.
- **Vehicle Technologies** such as Dynamics, Drivability, Safety and Human factors & ergonomics.
- **Environmental Impacts** such as Noise, Vibration, Emissions, Fuel efficiencies, After treatment, Life cycle management and Recyclability.
- **Materials** such as Composites, Metal alloys, Ceramics, Resins, New materials and Material processing.
- **Manufacturing Technologies** such as Heat and surface treatments, Forging, Casting, Machining, 3D printing, Assembling and Rigging.
- **Data Driven Digitalization** such as agile development, which serves as a link between hardware and software development.

SETC New Product Technology Session's Scope

- **New Products**, services, manufacturing devices, development tools including software and other new items from technical perspective. NPT summarized papers will not be registered as technical papers and can include advertising elements in providing technical information.

SETC 2026 The 30th

JSAE

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Paper Entry System will be opened on December 1, 2025.

https://tech.jsae.or.jp/setc2026/

PAPER INSTRUCTION

❶ LANGUAGE : English

No simultaneous interpretation will be provided.

❷ Submission of Abstract (Online submission)

Abstracts must be submitted online via SETC website with 300 to 500 words. Upon submission, you will receive an automatic reply with your paper offer number. If you do not receive a paper offer number at that point, please retry online submission or contact the secretariat shown on the bottom of this page.

The following information will be required during online submission process:

- A summary that states the objective of the paper/presentation
- Paper title
- Name of the author and co-authors and all contact information
- Selection of the most appropriate technical session

The abstract should clearly state:

- The main issues and conclusions
- The process by which the conclusions were reached
- The significance of the work to progress of the relevant engineering area

❸ Papers / Presentations

The papers should be written and presented at the conference, which should be applications oriented.
No paper will be accepted without a presentation.

- The papers should be prepared in hard metric (SI) units.
- Material of a purely descriptive nature or containing commercialism should be omitted except new product technology session.
- Final manuscripts should make a contribution to the state-of-the-art technology or present a comprehensive review, be of high technical quality with conclusions supported by technical data.
- A presenting author, when his/her final manuscript is accepted, is asked to make online advanced registration via SETC website linked to the registration system and also to bring his/her own PC for presentation to the venue.
- Excellent papers and presentations will be awarded prizes.
- Your technical paper could be selected for SAE journal.

CONFERENCE INFORMATION

Information for Exhibition

OEMs, suppliers and academia will be given an opportunity to exhibit products and technical information during the conference at the venue.

Information for Poster Session

Poster session in conjunction with technical session will be also provided to graduate & undergraduate university students, and their researchers.

Information for Advertisements and Sponsorship

The opportunity to post advertisement banner and/or advertisement on the preliminary & final programs will be offered. Furthermore, conference sponsorship program for some digital materials will be planned.
Information will be available at the SETC website soon. For further information, please contact the SECRETARIAT.

Other Information

Other information such as access to venue, travel information, VISA and etc. will be available at SETC website.

Information on the Web

For more information about SETC, please visit the following website.
https://www.setc-jsae.com/

LOCAL INFORMATION

Information About Kyoto

Kyoto City is located in the Kansai region of Japan and is known for its long history and rich culture. Surrounded by beautiful mountains, the city is further enhanced by the scenic Kamo River flowing through it. As Japan's ancient capital, Kyoto has developed into a center of tourism and culture, where tradition and modernity seamlessly blend.
Kyoto is especially famous for its magnificent historical sites, including Kiyomizu-dera Temple, Kinkaku-ji Temple, and Fushimi Inari Taisha Shrine. Many of its temples and shrines are also designated as UNESCO World Heritage sites.

SETC2026 SECRETARIAT
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