10TH AVL HIGH POWER SYSTEMS CONFERENCE 2024

Decarbonization and Sustainability:
A Paradigm Shift

PROGRAM

APRIL 17–18, 2024
Helmut List Halle
Graz, Austria

HIGH EFFICIENCY SYSTEMS AND POWERTRAINS

ENERGY LIFECYCLE MANAGEMENT

POWER-TO-X TECHNOLOGIES

ALTERNATIVE FUELS FOR NET-ZERO CO_2

Foreword

At this event, we're not just discussing the future – we're shaping it!

PROF.
HELMUT LIST
Chairman and CEO
AVL

PROF.
KANGKI LEE
Senior Vice President High Power Systems
AVL

Our expert-led discussions will explore high efficiency systems and powertrains, energy lifecycle management, harnessing Power-to-X technologies, and embracing, alternative fuels towards net-zero CO_2 and zero carbon fuels.

Participate in a gathering of the brightest minds in the industry, including high power system developers, OEMs, suppliers, shipowners, regulators, and more. It's a dynamic forum where these industry experts converge to exchange ideas and chart the course for a decarbonized and sustainable future.

But that's not all! Our 2024 conference kicks off with keynote speakers from renowned institutions and OEMs, who will not only share their insights but also set the stage for a lively debate on the future of high power energy systems.

Our panel discussion promises to be a highlight, featuring R&D leaders from design, build, and user sectors. Plus, we're excited to welcome prominent industry leaders, adding a global perspective to our discussions.

Use the social evenings to network with all participants.

Facts

Conference Date:
April 17–18, 2024

Conference Venue:
Helmut List Halle, Waagner-Biro-Straße 98a, Graz, Austria

Event Contact:
AVL List GmbH, Hans-List-Platz 1, 8020 Graz.
Phone: +43 316 787-927, E-Mail: event@avl.com

Ticket Prices:
- General ticket: € 1,390.- (plus 20 % VAT)
- University members: € 650.- (plus 20 % VAT)
- Students: € 150.- (plus 20 % VAT)
- Free of charge for members of the press.

Ticket price includes lunch, snacks and beverages, evening events.

Registration:
In the Helmut List Halle on Wednesday, April 17, 2024, from 08:00.

Conference Language:
English

Additional Discounts:
Group Registration and CO_2 Compensation:
Please contact us before registering to the conference.

Evening Program:
Tuesday, April 16, 2024: Welcome Reception at „The Needle“ in the Kunsthaus,
Wednesday, April 17, 2024: Social Evening at Schlossberg Restaurant

Arrival:
By plane: Graz-Thalerhof
By train: Graz Main Station
By car: Free Parking

Hotel Recommendation:
AVL has blocked rooms at selected hotels and has made every effort to secure the best possible room rate for you at this event. For more information, please visit the conference website.

Core Topics of the Conference

High Efficiency Systems and Powertrains

The push for decarbonization has intensified, elevating the urgency to enhance propulsion and energy systems efficiency. Despite higher costs of alternative fuels compared to traditional options, economies of scale and production advancements may bring reductions, yet prices are likely to stay elevated. This underscores the demand for more efficient powertrains and systems. The industry is swiftly addressing these challenges with innovative materials, optimized components, hybrid solutions, and data-driven optimizations. Various approaches and initiatives aim to boost efficiency in existing assets through conversions and novel solutions for future generations.

Energy Lifecycle Management

Within the context of well-to-wake optimization, green corridor energy lifecycle management focuses on leveraging the use of alternative fuels — specifically hydrogen, ammonia, and methanol (currently prominent as transitional fuels). The systems technology integrates internal combustion engines that use power-to-liquid solutions, alongside fuel cells. This approach ensures a comprehensive and sustainable energy lifecycle, promoting efficient power generation and distribution across diverse sectors like shipping, power generation, rail, and mining. The goal is to enhance environmental performance while meeting the high power demands of these industries.

Power-to-X Technologies

Power-to-X (PtX) technologies revolutionize the energy landscape by converting renewable electricity into diverse energy forms, supporting multi-sector decarbonization. PtX enhances the integration of electricity, heat, and transportation for a more interconnected energy system. Challenges persist, focusing on efficiency, cost, and scalability. Progress, particularly in high-temperature electrolyzers (SOEC) and PtX plants, marks breakthroughs addressing these challenges and expanding the potential of PtX technologies. Continued advancements in electrolyzer technology and infrastructure are crucial for optimizing PtX processes and ensuring economic viability at a larger scale.

Alternative Fuels Towards Net-Zero CO_2 and Zero Carbon Fuels

In the pursuit of sustainability, alternative fuels — hydrogen, ammonia, methanol, and synthetic methane — emerge as key players in the high-power system industry's journey towards a net-zero carbon footprint. Hydrogen, a lightweight true zero-emission carrier, is pivotal for short-term applications with minimal environmental impact. Ammonia, boasting good energy density, is a promising zero carbon fuel. Methanol's ease of handling makes it an effective energy carrier in the quest for net-zero carbon emissions. Synthetic methane, an innovative product, holds potential as an ideal fuel during the transition to a decarbonized energy landscape. These alternatives drive the industry closer to a zero carbon future, blending innovation and responsibility for a sustainable tomorrow.

Speakers

DR.
SUNG CHAN AN
Head of Engine Research Institute
HD Hyundai Heavy Industries

DR.
DIRK BERGMANN
CTO at Acceleron and Chairman of
CIMAC's GHG Strategy Group

STAVROS CHATZIGRIGORIS
Director
Advanced Engineering Services

MARCO COPPO
CTO
OMT – Officine Meccaniche
Torino SpA

DR.
MILINKO GODJEVAC
Engineering Manager
Future Proof Shipping

KEYNOTE SPEAKER
CLAUS GRAUGAARD
Chief Technology Officer –
Onboard Vessel Solutions
Mærsk Mc-Kinney Møller Center
for Zero Carbon Shipping

THOMAS S. HANSEN
Director, Head of Sales &
Promotion, Two-Stroke Marine
MAN Energy Solutions

DR.
ENG KIONG KOH
Director, Research & Projects
Global Centre for
Maritime Decarbonisation

ANDREAS KUNZ
CTO
INNIO Jenbacher GmbH & Co OG

TOMOO KUZU
Senior Executive Vice President
Mitsubishi Heavy Industries Marine
Machinery & Equipment Co. Ltd.

KENO LEITES
Head of Fuel Cell
Competence Center
Zeppelin Power Systems GmbH

DR.
ANDREAS LIPPERT
Vice President & GM – Electrolyzers
Accelera by Cummins

Speakers

DR.
LIU MING

Research Lead
Maritime Energy and Sustainable Development Centre of Excellence (MESD CoE)

DIPAK MISTRY

Strategic Business Development Director
Ceres Power Limited

VIP PANELIST
TORSTEN PHILIPP

Managing Director
Geislinger GmbH

JÜRGEN RECHBERGER

Vice President Hydrogen & Fuel Cell
AVL List GmbH

PAOLO SCIALLA

Principal Specialist,
Marine and Offshore
Lloyd's Register

MARIA SEGURA

Product Manager
AVL List GmbH

JENS OLAF STEIN

Head of Engineering
Robert Bosch AG

ERICH VOGT

CEO
DUAP AG

DR.
MICHAEL WILLMANN

Director Engineering
Woodward L'Orange Stuttgart

ANDREAS WIMMER

CEO of LEC GmbH, Professor at Graz University of Technology

DR.
KEVIN KOOSUP YUM

Senior Vice President
HD Hyundai Europe Research & Development Center GmbH

Conference Program*

*Subject to change

TUESDAY, APRIL 16, 2024

19:00	Welcome Reception at "The Needle" of the Kunsthaus

Day I WEDNESDAY, APRIL 17, 2024

08:00	Coffee and Registration
08:30 – 08:45	Chairman's Welcome and Opening of the Conference Prof. KangKi Lee, Senior Vice President High Power Systems, AVL List GmbH
08:45 – 09:00	Welcome Address, Representative of the Styrian Government
09:00 – 09:20	KEYNOTE: Decarbonization of the Shipping Sector: Eco-system Innovation Claus Graugaard, Chief Technology Officer – Onboard Vessel Solutions, Maersk Mc-Kinney Møller Center for Zero Carbon Shipping
Session 1: Decarbonization and Sustainability	
09:20 – 09:40	Decarbonisation by Energy Storage Systems: A Roadmap to the Management of Risks by New Regulatory Frameworks Paolo Scialla, Principal Specialist, Marine & Offshore, Lloyd´s Register
09:40 – 10:00	Perspective of Maritime Decarbonization by MESD, a Singapore-Based Research Institution Dr. Liu Ming, Research Lead, Maritime Energy and Sustainable Development Centre of Excellence (MESD CoE)
10:00 – 10:20	Pursuing the Most Promising Pathways: The Exciting Challenge of Scaling Zero-Emissions Technologies Dr. Andreas Lippert, Vice President & GM – Electrolyzers, Accelera by Cummins
10:20 – 10:40	Live Q & A – Session 1
10:40 – 11:10	**Break**

Day I **WEDNESDAY, APRIL 17, 2024**

Session 2: Technology Trends	
11:10 – 11:30	Decarbonizing Propulsion of Large Merchant Ships Thomas Storgaard Hansen, Director, Head of Sales & Promotion, Two-Stroke Marine, MAN Energy Solutions
11:30 – 11:50	World's Leading Carbon-Neutral HiMSEN Engine Development Dr. Sung Chan An, Head of Engine Research Institute, HD Hyundai Heavy Industries
11:50 – 12:10	Power Generation in a Decarbonized World – Challenges & Opportunities Andreas Kunz, CTO, INNIO Jenbacher GmbH & Co OG
12:10 – 12:30	Live Q & A – Session 2
12:30 – 14:00	**Lunch Break**

Session 3: Power-to-X and Fuel Cell	
14:00 – 14:20	Hydrogen – Dream or Reality? Jürgen Rechberger, Vice President Hydrogen & Fuel Cell, AVL List GmbH
14:20 – 14:40	The Role of Low-Temperature SOEC in the Power-to-X Market, and the Associated Business Case Dipak Mistry, Strategic Business Development Director, Ceres Power Limited
14:40 – 15:00	ERC and Fuel Cell Development Dr. Kevin Koosup Yum, Senior Vice President, HD Hyundai Europe Research & Development Center GmbH
15:00 – 15:20	Live Q & A – Session 3
15:20 – 16:00	**Break**

Session 4: Operational Experience with New Technologies	
16:00 – 16:20	IMO GHG Reduction Trajectory and Maritime Industry Readiness for Alternative Fuels Tomoo Kuzu, Senior Executive Vice President, Mitsubishi Heavy Industries Marine Machinery & Equipment Co. Ltd.

Day I WEDNESDAY, APRIL 17, 2024

16:20 – 16:40	Status of FuelEUmaritime Legislation for Port Operation and the Consequences for Advanced Energy Systems Using PtX Fuels Keno Leites, Head of Fuel Cell Competence Center, Zepplin Power System GmbH
16:40 – 17:00	Onboard Carbon Capture – A Prerequisite for the Transition to Climate-Neutral Shipping Dr. Andreas Wimmer, CEO of LEC GmbH, Professor at Graz University of Technology
17:00 – 17:20	Live Q & A – Session 4
17:20 – 17:30	Conference Information
17:30	End of Conference Day 1
19:00	Social Evening at Schlossberg Restaurant

Day II THURSDAY, APRIL 18, 2024

08:30 – 08:40	Welcome to Day 2 Prof. KangKi Lee, Senior Vice President High Power Systems, AVL List GmbH
Session 5: Fuel Injection Systems for Alternative Fuels	
08:40 – 09:00	PTX Injection Systems for Large Engine Applications Dr. Michael Willmann, Director Engineering, Woodward L'Orange Stuttgart
09:00 - 09:20	DI Gas- & Hydrogen Injector – Modular Design for High-speed Car, Truck and Large Bore Engines Erich Vogt, CEO, DUAP AG
09:20 - 09:40	Solutions and Challenges for the Decarbonization of Large Engines Jens Olaf Stein, Head Engineering, Robert Bosch AG
09:40 - 10:00	Experiences of Direct Injection and Combustion of Ammonia Marco Coppo, CTO, OMT – Officine Meccaniche Torino SpA
10:00 – 10:20	Live Q & A – Session 5
10:20 – 11:00	**Break**

Day II THURSDAY, APRIL 18, 2024

Session 6: Lifecycle Assessment - Sustainability	
11:00 – 11:20	Future Solutions of ICE With Alternative Fuels Maria Segura, Product Manager, AVL List GmbH
11:20 – 11:40	Design and Operation of MW Zero Emission Ship Installations Dr. Milinko Godjevac, Engineering Manager, Future Proof Shipping
11:40 – 12:00	Live Q & A – Session 6
12:00 – 13:30	**Lunch Break**

Session 7: Green Corridor and Live Panel Discussion	
13:30 – 13:50	De-fossilization of Ocean-Going Vessels Dr. Dirk Bergmann, CTO at Acceleron and Chairman of CIMAC's GHG Strategy Group
13:50 – 14:10	Energy-Efficient Ship Design Stavros Chatzigrigoris, Director, Advanced Engineering Services
14:10 – 14:30	Catalysing the Transition to Net-Zero Carbon Shipping Dr. Eng Kiong Koh, Director, Research & Projects, Global Center for Maritime Decarbonization
14:30 – 15:30	**VIP Panel** Panelists: Dr. Dirk Bergmann, Stavros Chatzigrigoris, Dr. Eng Kiong Koh, Prof. KangKi Lee, Torsten Philipp Moderator: Ulrich Walter
15:30 – 15:45	**Closing Remarks** Prof. KangKi Lee, Senior Vice President High Power Systems, AVL List GmbH

AVL High Power Systems

Over the last 75 years, AVL has engineered and redesigned around 150 large engines for major applications, such as ships, power plants, oil field services, locomotives, and off-road machinery.

AVL has the most experienced independent engineering team with a wide range of development expertise. This enables AVL to completely design new large engines, hybridized propulsion system and fuel cell applications, from a first draft to the finished product. Advanced simulation tools, efficient engineering methods and innovative technologies pave the way to higher system efficiency and product quality.

AVL's engineering expertise in the field of powertrain integration results in efficient and comprehensive solutions for optimizing the entire performance, taking into consideration all potential challenges. Based on extensive R&D, AVL is at the forefront of combustion engine technology and power systems design.

AVL's strive towards decarbonization technologies includes engineering solutions for maximum fuel flexibility as well as fuel cell development for different applications. Nevertheless, the marine industry consistently moves towards digitalization.

This is why AVL provides tools and engineering solutions to enable fast-forward transition towards digitalization.

Media Partners:

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FURTHER INFORMATION AND REGISTRATION:

www.avl.com/high-power-systems-conference

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