



Science for a  
moving society

PROGRAMME · AUTUMN 2024

The FVV  
Transfer + Networking  
Event

18–20 September 2024

WÜRZBURG · GERMANY



Collective intelligence –  
FVV members



Empowering a moving  
society – Participating  
research and technology  
(RTD) performers



Science for a  
moving society

### Transfer + Networking

- + Industrial Collective Research (IGF) has a particular commitment to the transfer of knowledge. It empowers companies to meet the requirements of social responsibility and sustainable development and to address the associated technological change by solving common R&D issues on a pre-competitive, science-based approach. This unique collaboration bridges the gap between basic research and industrial application. The results are available to all interested parties and form the basis for individual adaptations and further development in the companies.
- + FVV organises open-topic research along the value chains, bringing together companies with the same interests regardless of size and economic power. We network bright minds and benefit from their knowledge and experience. At FVV manufacturers and suppliers, developers and scientists, leading industrial engineers, renowned academic researchers and excellent young talents meet on a regular basis, thus creating mutual understanding. This is very important to us: ideas sometimes need time and a prolific place to grow.

**At FVV Transfer + Networking Events you will find both.**

# Information Sessions

## 19 September 2024

Session 1  
**SYSTEMS, COMPONENTS**  
 09:00 – 18:00

4–7

Session 2  
**TURBOMACHINERY**  
 09:00 – 16:15

8–10

11:00 – 11:30 / 11:15 – 11:45 Coffee Break · 13:00 – 14:30 Lunch Break · 16:30 – 17:00 Coffee Break

### EVENING RECEPTION

**Start 19:00** · Evening reception for all conference participants  
 Venue: Maritim Hotel Würzburg, Pleichertorstr. 5, 97070 Würzburg, Germany

# FVV Committee Meetings

## 18 + 20 September 2024

The committee meetings are for members of the FVV only.  
 FVV members will receive the related agendas and documents fifteen days prior to the meeting.

18 September	<b>12:00 – 15:00</b>	Expert Groups Energy Infrastructure and Storage, Electric Motors, Steering Committee Dynamics and Acoustics
	<b>16:00 – 18:00</b>	Research Committee
20 September	<b>09:00 – 10:00</b>	Annual Meeting of Members
	<b>10:00 – 11:00</b>	Scientific Advisory Committee Meeting
	<b>11:00 – 16:00</b>	Expert Groups Sustainable Powertrain Systems, Engines, Fuel Cells, Turbo Machines, Zero-impact Emissions, Materials Science and Recycling
	<b>16:00 – 18:00</b>	Research Committee

**MAKE IT NEW: MAKING PROJECTS WORK**

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**REGISTRATION & CONTACT**

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### 09:00 Welcome Session & Keynote

Welcome Session: Welcome to the FVV Transfer + Networking Event

**SPEAKERS** Dr. Andreas Kufferath (Robert Bosch GmbH)  
Martin Nitsche (FVV)

Keynote: Exploring the complementarity of hydrogen and battery-electric mobility with a view to economic and technical implementation issues

**SPEAKER** Prof. Dr. Hans Ulrich Buhl  
(FIM Research Institute for Information Management, Information Systems Dept. / Fraunhofer Institute for Applied Information Technology FIT)

### 10:00 Flow Erosion II

Thermal flow induced material degradation and corrosion protection in complex cooling channels of integrated thermal management systems

**PROJECT** 1445 · Materials · EG Materials Science & Recycling · Final report

**PRESENTER** Prof. Dr. Suad Jakirlic (SLA, TU Darmstadt)

**RTDs** Prof. Dr. Matthias Oechsner (MPA-IfW, TU Darmstadt)  
Prof. Dr. Jeanette Hussong (SLA, TU Darmstadt)

**COORDINATION** Jens Strassmann (VOLKSWAGEN AG)

**SPONSOR** BMWK/IGF

### 10:30 Cooling Fuel Cells II

Evaluation of material compatibility and media ageing in fuel cell cooling systems

**PROJECT** 1471 · Materials · EG Fuel Cells · Final report

**PRESENTER** Tizian Zeckey (MPA-IfW, TU Darmstadt)

**RTDs** Prof. Dr. Matthias Oechsner (MPA-IfW, TU Darmstadt)  
Prof. Dr. Jeanette Hussong (SLA, TU Darmstadt)

**COORDINATION** Dr. Markus Kaiser (nexiss GmbH)

**SPONSOR** BMWK/IGF

### 11:00 Coffee Break

**11:30 Prediction of Inhomogeneous H<sub>2</sub>-SI Combustion**

Development of a predictive mixture formation and combustion model to account for the influence of an inhomogeneous mixture on combustion characteristics, efficiency and emission in H<sub>2</sub>-SI ICEs

<b>PROJECT</b>	1454 · Development tools · EG Engines · Final report
<b>PRESENTER</b>	Prof. Dr. André Casal Kulzer (IFS, Uni Stuttgart)
<b>RTD</b>	Prof. Dr. André Casal Kulzer (IFS, Uni Stuttgart)
<b>COORDINATION</b>	Michael Rieß (IAV GmbH)
<b>SPONSOR</b>	FVV

**12:00 GIHPCO Gas Injection High-pressure Combustion**

Ignition methods for non-premixed combustion of high-pressure direct injected gas in heavy-duty engines

<b>PROJECT</b>	1459 · Efficiency · EG Engines · Final report
<b>PRESENTERS</b>	Theodor Lanzer (IFKM, KIT Karlsruhe) Dr. Walter Vera-Tudela (ITFE, FH Nordwestschweiz) Dr. Yuri Martin Wright (EMPA Swiss Federal Laboratories)
<b>RTDs</b>	Prof. Dr. Thomas Koch (IFKM, KIT Karlsruhe) Prof. Dr. Kai Herrmann (ITFE, FH Nordwestschweiz) Dr. Yuri Martin Wright (EMPA Swiss Federal Laboratories)
<b>COORDINATION</b>	Vladyslav Sazonov (Woodward L'Orange GmbH)
<b>SPONSOR</b>	FVV, CORNET / BMWK / IGF

**12:30 EmiRed Innovative RDE Engine-out Emission Reduction**

Innovative RDE engine-out emissions reduction in the exhaust system

<b>PROJECT</b>	1456 · Emissions · EG Engines · Final report
<b>PRESENTER</b>	Mario Pipolo (IFS, Uni Stuttgart)
<b>RTDs</b>	Prof. Dr. André Casal Kulzer (IFS, Uni Stuttgart) Prof. Dr. Yasuo Moriyoshi (Chiba University)*
<b>COORDINATION</b>	Dr. Jonas Villforth (Dr. Ing. h.c. F. Porsche AG)
<b>SPONSOR</b>	FVV

**13:00 Lunch Break**

**14:30 AICE Session**

AICE's Efforts to Realize CN in Vehicles with Internal Combustion Engines

**PRESENTER** Takaaki Kitamura (AICE)

**15:30 Ejector-bypass TC**

Assessment of TCs with ejector-bypass for different mobility applications

**PROJECT** 1450 · Efficiency · EG Sustainable Powertrain Systems · Final report

**PRESENTERS** Tobias Tietz (tme, RWTH Aachen)  
Anja L. Fink (FZA, TU Berlin)

**RTDs** Prof. Dr. Stefan Pischinger (tme, RWTH Aachen)  
Prof. Dr. Maximilian Brauer (FZA, TU Berlin)

**COORDINATION** Dr. Tom Steglich (IAV GmbH)

**SPONSOR** BMWK/IGF

**16:00 Formation of Particles with UWS Injection**

Particle Formation caused by injection of Urea Water Solution (UWS) in Selective Catalytic Reduction (SCR) systems

**PROJECT** 1464 · Emissions · EG Zero-impact Emissions · Final report

**PRESENTER** Georgi Trendafilov (tme, RWTH Aachen)

**RTDs** Prof. Dr. Stefan Pischinger (tme, RWTH Aachen)  
Prof. Dr. Thomas Kraus (Universitätsklinikum Aachen)

**COORDINATION** Manuel Werner (Purem GmbH)

**SPONSOR** FVW

**16:30 Coffee Break**

**17:00 N2O Exhaust Gas Treatment in Ammonia Engines**

Reduction of the greenhouse gas laughing gas (N<sub>2</sub>O) for ammonia (NH<sub>3</sub>) operated combustion engines by catalytic exhaust gas aftertreatment

<b>PROJECT</b>	1461 · Emissions · EG Zero-impact Emissions · Final report
<b>PRESENTER</b>	Daniel Cano Blanco (Paul Scherrer Institut)
<b>RTD</b>	Prof. Dr. Oliver Kröcher (Paul Scherrer Institut)
<b>COORDINATION</b>	Dr. Daniel Peitz (HUG Engineering AG)
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**17:30 Secondary Emissions**

FVV projects on secondary emissions

<b>PROJECT</b>	1516 · Emissions · EG Zero-impact Emissions · Final report
<b>PRESENTERS</b>	Prof. Dr. Thomas Lauer (IFA, TU Wien) Dr. Patrick Lott (ITCP, KIT Karlsruhe)
<b>RTDs</b>	Prof. Dr. Olaf Deutschmann (ITCP, KIT Karlsruhe) Prof. Dr. Thomas Lauer (IFA, TU Wien)
<b>COORDINATION</b>	Dr. Michael Fischer (Tenneco GmbH)
<b>SPONSOR</b>	FVV

**18:00 End**



### 09:00 Welcome Session & Keynote

(Together with Session 1 in **Hall Frankonia**)

Welcome Session: Welcome to the FVV Transfer + Networking Event

**SPEAKERS** Dr. Andreas Kufferath (FVV)  
Martin Nitsche (FVV)

Keynote: Exploring the complementarity of hydrogen and battery-electric mobility with a view to economic and technical implementation issues

**SPEAKER** Prof. Dr. Hans Ulrich Buhl  
(FIM Research Institute for Information Management, Information Systems Dept. / Fraunhofer Institute for Applied Information Technology FIT)

### 10:15 Prediction of Gas Turbine Emissions II

DNS-driven development of predictive LES models for gas turbine emissions

**PROJECT** 1504 · Development Tools · EG Turbo Machines · Interim report

**PRESENTERS** Kai Niemiets (ITV, RWTH Aachen)  
Gandolfo Scialabba (ITV, RWTH Aachen)

**RTD** Prof. Dr. Heinz Pitsch (ITV, RWTH Aachen)

**COORDINATION** Dr. Ruud L.G.M. Eggels (Rolls-Royce Deutschland Ltd & Co KG)

**SPONSOR** DFG, FVV

### 10:45 Hot Gas Ingestion into Wheel Cavities

Investigation of hot gas ingestion through turbine rim seal into wheel cavities of axial gas turbines

**PROJECT** 1467 · Aerodynamics · EG Turbo Machines · Interim report

**PRESENTER** Lukas Pehle (IKDG, RWTH Aachen)

**RTD** Prof. Dr. Manfred Wirsum (IKDG, RWTH Aachen)

**COORDINATION** Stephan Stotz (MTU Aero Engines AG)

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### 11:15 Coffee Break



### 11:45 Aeroelastic Cascade DELTA II

Experimental and numerical investigations on the influence of aerodynamic loading and stagger angle on aeroelastic stability of combined bending and torsion mode shapes of compressor blades

<b>PROJECT</b>	1451 · Development Tools · EG Turbo Machines · Final report
<b>PRESENTER</b>	Julian Gambel (ILR, TU Berlin)
<b>RTDs</b>	Prof. Dr. Dieter Peitsch (ILR, TU Berlin) Prof. David Nowell (Imperial College London)
<b>COORDINATION</b>	Dr. Sabine Schneider (Rolls-Royce Deutschland Ltd & Co KG)
<b>SPONSOR</b>	CORNET/BMWK/IGF

### 12:15 Combined Dynamical Analyses - Analytics

ComDynA - Non-linear blade vibration analysis with combined mistuning effects of geometry and excitation for stationary and transient operations

<b>PROJECT</b>	1423 · Development Tools · EG Turbo Machines · Final report
<b>PRESENTER</b>	Dr. Lars Panning-von Scheidt (IDS, Leibniz Uni Hannover)
<b>RTD</b>	Prof. Dr. Jörg Wallaschek (IDS, Leibniz Uni Hannover)
<b>COORDINATION</b>	Dr. Andreas Hartung (MTU Aero Engines AG)
<b>SPONSOR</b>	BMWK/IGF

### 12:45 Modelling of Metal-graphite Composites

Modelling for the design of metal-graphite composites under consideration of application-related operating conditions (MeGraVII)

<b>PROJECT</b>	1444 · Materials · EG Turbo Machines · Final report
<b>PRESENTER</b>	Dipl. René Füßel (ILK, TU Dresden)
<b>RTDs</b>	Prof. Dr. Matthias Busse (Fraunhofer IFAM) Prof. Dr. Bernd Mayer (Fraunhofer IFAM) Prof. Dr. Maik Gude (ILK, TU Dresden) Prof. Dr. Niels Modler (ILK, TU Dresden)
<b>COORDINATION</b>	Dr. Susanne Schrüfer (Rolls-Royce Deutschland Ltd & Co KG)
<b>SPONSOR</b>	BMWK/IGF

### 13:15 Lunch Break

**14:30 W10 50th Anniversary Session**

50 years of research of the high-temperature behaviour of heat resistant steels  
Anniversary contribution of the W10 working group

**PRESENTERS** Dr. Martin Reigl (GE Power)  
Henning Almstedt (Siemens Energy Global GmbH & Co. KG)  
Dr. Christian Kontermann (MPA-IfW, TU Darmstadt)

**15:15 Probabilistic Lifetime Model Comparison – Creep-Fatigue**

Application and comparison of lifetime models for analysing high-temperature components under creep-fatigue loading by utilising sophisticated probabilistic methods

**PROJECT** 1380 · Development Tools · EG Turbo Machines · Final report  
**PRESENTER** Dr. Felix Kölzow (MPA-IfW, TU Darmstadt)  
**RTDs** Prof. Dr. Barbara Rüdiger-Mastandrea (Stochastik, Bergische Uni Wuppertal)  
Prof. Dr. Matthias Oechsner (MPA-IfW, TU Darmstadt)  
**COORDINATION** Henning Almstedt (Siemens Energy Global GmbH & Co. KG)  
**SPONSOR** AVIF

**15:45 LPBF High-Temperature Lifetime**

Development of concepts for the determination of characteristic values for the evaluation of additively manufactured components for high-temperature use

**PROJECT** 1401 · Materials · EG Turbo Machines · Final report  
**PRESENTER** Sandra Megahed (MPA-IfW, TU Darmstadt)  
**RTDs** Prof. Dr. Matthias Oechsner (MPA-IfW, TU Darmstadt)  
Prof. Dr. Stefan Weihe (IMWF, Uni Stuttgart)  
**COORDINATION** Dr. Roland Herzog (MAN Energy Solutions SE)  
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**16:15 End**

**MAKE IT NEW: MAKING PROJECTS WORK**

**TOGETHER WE DEVELOP IDEAS FOR THE FUTURE**

The second day of the transfer + networking event belongs to the FVV committees and the planning of future research.

For this purpose, specialists from the member companies meet in expert groups to identify common research needs and to design projects accordingly.

**SYSTEM**

**Energy Infrastructure and Storage**

NN

**Sustainable Powertrain Systems**

Thorsten Oberpenning · Rolls-Royce Solutions

**SUBSYSTEMS**

**Energy Conversion Systems**

→ **Engines**

Dr. Christian Weiskirch · MAN Truck & Bus

→ **Electric Motors**

Carsten Weber · Ford-Werke

→ **Fuel Cells**

Dirk Weberskirch · MAN Truck & Bus

→ **Turbo Machines**

Heinz Knittel · MTU Aero Engines

→ **Zero-impact Emissions**

Dr. Frank Bunar · IAV

**COMPONENTS**

**Materials Science and Recycling**

Dr. Dieter Eppinger · SEG Automotive Germany

**KNOWLEDGE TRANSFER**



To learn how we make projects work, please note the information on our research priorities and work structure in the Terms of Reference (ToR) document: **MAKE IT NEW – Science for a moving society.**



FVV Transfer + Networking Event

## REGISTRATION & CONTACT

18 – 20 September 2024 Würzburg · Germany

## DATE AND VENUE

18 – 20 September 2024

Maritim Hotel Würzburg  
Pleichertorstrasse 5  
97070 Würzburg, Germany  
www.maritim.de

## PARTICIPANT FEE

**Conference registration fee**  
350 € (plus 19% VAT)

**Participants with FVV members discount**  
250 € (plus 19% VAT)

**Research institutions**  
can participate in the event free of charge with up to 5 persons (incl. lecturer). From the 6th person onwards, costs of 150 € (plus 19% VAT) will be incurred.

The registration fee includes participation in the technical information sessions including conference documents and proceedings, lunch, coffee and snacks during breaks and access to the evening reception on 19 September 2024.

**Conference languages**  
The conference language is German. All sessions are translated into English. Headsets are available for free.

## GENERAL TERMS AND CONDITIONS

You may register online through the → [registration tool](#). The closing date for registrations is **Friday, 6 September 2024**.

Participation can be cancelled free of charge until **Friday, 13 September 2024**. In case of cancellation after the deadline or unannounced non-participation the full participant fee will be charged.

Cancellations are to be made in writing (by e-mail, fax or standard mail). By registering you accept the general → [terms and conditions](#). All participants will receive an electronic confirmation after the registration deadline. The invoice will be issued after the event and sent by standard mail.

## HOTEL RESERVATIONS

We have arranged for a roomblock at ›Maritim Hotel Würzburg‹ from 18 – 20 September 2024 at a preferential rate of 154 € (Classic incl. breakfast), 169 € (Comfort incl. breakfast) and 194 € (Superior incl. breakfast).

The closing date is **Thursday, 1 August 2024**. The reservation code is ›FVV‹. Early booking is recommended.

**+49 931 3053 830**  
[reservierung.wur@maritim.de](mailto:reservierung.wur@maritim.de)

## ORGANISERS

The event is organised by  
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[www.maschinenbau-institut.de](http://www.maschinenbau-institut.de)

On behalf of  
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**We would like to thank all of our sponsors  
and research partners for their fantastic support!**

[www.fvv-net.de](http://www.fvv-net.de)