



Science for a
moving society

PROGRAMME · SPRING 2023

The FVV
Transfer + Networking
Event

29–31 March 2023

WÜRZBURG · GERMANY

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.
- + FVW 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 FVW 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 FVW Transfer + Networking Events you will find both.

Information Sessions

30 March 2023

Session 1
MATERIALS, HYBRIDS
 09:00 – 12:45

4–5

Session 2
EMISSIONS, DEVELOPMENT TOOLS, FUELS, EFFICIENCY
 14:15 – 18:00

6–7

Session 3
TURBOMACHINERY
 09:00 – 18:00

8–11

10:30 – 11:15 Coffee Break · 12:45 – 14:15 Lunch Break · 15:45 – 16:30 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

29 + 31 March 2023

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.

29 March 2023	12:00 – 15:00	Expert Group Electric Motors
31 March 2023	09:30 – 16:00	Expert Groups Sustainable Powertrain Systems, Engines, Fuel Cells, Turbo Machines, Zero-impact Emissions, Materials Science and Recycling
	16:00 – 18:00	Research Committee

MAKE IT NEW: MAKING PROJECTS WORK

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REGISTRATION & CONTACT

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09:00 Tribomaps Friction Enhancing Laser Structures

Development of tribomaps for friction enhancing laser structures

PROJECT	1379 · Materials · EG Materials Science & Recycling · Final report
PRESENTER	Prof. Dr. Alexander Hasse (IKAT, TU Chemnitz)
RTDs	Prof. Dr. Alexander Hasse (IKAT, TU Chemnitz) Prof. Dr.-Ing. Udo Löschner (HS Mittweida)
COORDINATION	Dr.-Ing. Anton Stich (AUDI AG)
SPONSOR	BMWK/AiF

09:30 Fatigue Influence Braze Quality

Development of design concepts for the assessment of the fatigue strength of brazed joints under consideration of process-related brazed joint conditions

PROJECT	1350 · Materials · EG Materials Science & Recycling · Final report
PRESENTER	Andre Jöckel (Fraunhofer LBF)
RTDs	Prof. Dr.-Ing. Dipl.-Wirt.Ing. Wolfgang Tillmann (LWT, TU Dortmund) Prof. Dr.-Ing. Kirsten Bobzin (IOT, RWTH Aachen) Prof. Dr.-Ing. Tobias Melz (Fraunhofer LBF)
COORDINATION	Prof. Dr. Matthias Türpe (MAHLE International GmbH)
SPONSOR	BMWK/AiF

10:00 Working Cycle Dissolved Turbine Efficiency in Turbochargers

Transient efficiency, modeling for engine process simulation, one- and double-flow turbine housing

PROJECT	1321 · Materials · EG Sustainable Powertrain Systems · Final report
PRESENTER	Prof. Dr.-Ing. Oliver Nett (FZA, TU Berlin)
RTD	Prof. Dr.-Ing. Bernd Wiedemann (FZA, TU Berlin)
COORDINATION	Dr.-Ing. Mathias Vogt (IAV GmbH)
SPONSOR	DFG, FVV own funds

10:30 *Coffee Break*

11:15 ICE2030

Limits of SI engine efficiency in hybridised powertrains

PROJECT	1434 · Hybrids · EG Engines · Final report
PRESENTER	Prof. Dr.-Ing. André Casal Kulzer (IFS, Uni Stuttgart)
RTDs	Prof. Dr.-Ing. Stefan Pischinger (tme, RWTH Aachen) Prof. Dr.-Ing. Peter Eilts (ivb, TU Braunschweig) Prof. Dr. Christian Beidl (vkm, TU Darmstadt) Prof. Dr.-Ing. Michael Bargende & Prof. Dr.-Ing. André Casal Kulzer (IFS, Uni Stuttgart)
COORDINATION	Dipl.-Ing. Arndt Döhler (Stellantis Opel Automobile GmbH)
SPONSOR	FVV own funds

11:45 **Modular Hybrid Powertrain**

Modular object-oriented architectures for scalable hybrid powertrains

PROJECT	1428 · Hybrids · EG Sustainable Powertrain Systems · Final report
PRESENTER	Prof. Dr. Christian Beidl (vkm, TU Darmstadt)
RTD	Prof. Dr. Christian Beidl (vkm, TU Darmstadt)
COORDINATION	Dr. Veit Held (form. Stellantis Opel Automobile GmbH) Dr.-Ing. Thomas Opitz (Stellantis Opel Automobile GmbH)
SPONSOR	FVV own funds

12:15 **HyFlex ICE**

Highly-flexible internal combustion engines for hybrid vehicles

PROJECT	1433 · Hybrids · EG Sustainable Powertrain Systems · Final report
PRESENTERS	Jannik Kexel & Jonas Müller (tme, RWTH Aachen)
RTD	Prof. Dr.-Ing. Stefan Pischinger (tme, RWTH Aachen)
COORDINATION	Dipl.-Ing. Marc Sens (IAV GmbH)
SPONSOR	FVV own funds

12:45 **Lunch**

14:15 Zero Impact Tailpipe Emission Powertrains

Identify technical solutions to achieve powertrains with Zero Impact Tailpipe Emissions under consideration of a 2030+ legislative vehicle and air pollutant scenario

PROJECT	1412 · Emissions · EG Zero-impact Emissions · Final report
PRESENTERS	Robert Maurer & Theodoros Kossioris (tme, RWTH Aachen)
RTD	Prof. Dr.-Ing. Stefan Pischinger (tme, RWTH Aachen)
COORDINATION	Dr.-Ing. Frank Bunar (IAV GmbH) Dr.-Ing. Uwe Zink (form. BASF Catalysts Germany GmbH)
SPONSOR	FVV own funds

14:45 Deposits from AdBlue II

Investigation and modelling of deposit formation during exhaust gas aftertreatment by injection of AdBlue into the SCR catalytic converter

PROJECT	1400 · Emissions · EG Zero-impact Emissions · Final report
PRESENTERS	Prof. Dr. Olaf Deutschmann (ITCP, KIT Karlsruhe) Prof. Dipl.-Ing. Dr. Thomas Lauer (IFA, TU Wien)
RTDs	Prof. Dr. Olaf Deutschmann (ITCP, KIT Karlsruhe) Prof. Dr. Dipl.-Ing. Bernhard Geringer (IFA, TU Wien)
COORDINATION	Raimund Vedder (form. Atlanting GmbH)
SPONSOR	CORNET/BMWK/AiF, FVV own funds

15:15 Fuel Influence on Particulate Characteristics

Influence of oil and fuel components on soot formation in gasoline engines

PROJECT	1374 · Emissions · EG Engines · Final report
PRESENTER	Prof. Dr. Thomas Koch (IFKM, KIT Karlsruhe)
RTD	Prof. Dr. Thomas Koch (IFKM, KIT Karlsruhe)
COORDINATION	Dr.-Ing. Wolfgang Samenfink (Robert Bosch GmbH)
SPONSOR	BMWK/AiF

15:45 Coffee Break

16:30 FC Cold Start

PEM-FC Cold Start Simulation

PROJECT	1411 · Development tools · EG Fuel Cells · Final report
PRESENTERS	Matthias Bahr (ZBT GmbH) Maximilian Schmitz (tme, RWTH Aachen)
RTDs	Prof. Dr.-Ing. Stefan Pischinger (tme, RWTH Aachen) Dr.-Ing. Peter Beckhaus (ZBT GmbH)
COORDINATION	Dr.-Ing. Stefan Kaimer (Ford-Werke GmbH)
SPONSOR	FVV own funds

17:00 eSpray

Injection, mixing and autoignition of e-fuels for CI engines

PROJECT	1403 · Fuels · EG Engines · Final report
PRESENTER	Prof. Dr.-Ing. Michael Wensing (LTT, Uni Erlangen-Nürnberg)
RTDs	Prof. Dr.-Ing. Sebastian Kaiser (IVG, Uni Duisburg-Essen) Prof. Dr.-Ing. Michael Wensing (LTT, Uni Erlangen-Nürnberg) Prof. Dr. Dipl.-Ing. Bernhard Geringer (IFA, TU Wien) Prof. Dong Han (Shanghai Jiao Tong University) Lyle Pickett (Sandia National Laboratories)
COORDINATION	Dr.-Ing. Uwe Leuteritz (Liebherr-Components Deggendorf GmbH)
SPONSOR	CORNET/BMWK/AiF, FVV own funds

17:30 Air Insulation Diesel Engine

Efficiency increase by means of air insulation through targeted spray and combustion chamber design and reduction of combustion time in diesel engines

PROJECT	1318 · Efficiency · EG Engines · Final report
PRESENTER	Prof. Dr. Thomas Koch (IFKM, KIT Karlsruhe) Prof. Jesus Benajes (Universitat Valencia)
RTDs	Prof. Dr. Thomas Koch (IFKM, KIT Karlsruhe) Prof. Jesus Benajes (Universitat Valencia)
COORDINATION	Dr. Patrick Gastaldi (Aramco Fuel Research Center)
SPONSOR	FVV own funds

18:00 End

09:00 Acoustic Emission into Discharge Pipes II

Development and validation of a measurement method for determining the sound power radiated into the discharge line by a centrifugal compressor

PROJECT	1383 · Development Tools · EG Turbo Machines · Final report
PRESENTERS	Dipl.-Ing. Jakob Hurst (ISTA, TU Berlin) Marius Geilich (IST, RWTH Aachen)
RTDs	Prof. Dr. Lars Enghardt (ISTA, TU Berlin) Prof. Dr.-Ing. Peter Jeschke (IST, RWTH Aachen)
COORDINATION	Vera Kress (MAN Energy Solutions SE)
SPONSOR	DFG, FVV own funds

09:30 Industrial Radial Compressor with Wide Operating Range

Experimental investigation of the flow instabilities in the part-load range of an industrial radial compressor controlled by inlet swirl with a high map width

PROJECT	1354 · Development Tools · EG Turbo Machines · Final report
PRESENTER	Dr.-Ing. Philipp Schwarz (IST, RWTH Aachen)
RTD	Prof. Dr.-Ing. Peter Jeschke (IST, RWTH Aachen)
COORDINATION	Dr. Matthias Schleer (Howden Turbo GmbH)
SPONSOR	BMWK/AiF

10:00 Prediction of Gas Turbine Emissions

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

PROJECT	1397 · Development Tools · EG Turbo Machines · Final report
PRESENTER	Kai Niemietz & Gandolfo Scialabba (ITV, RWTH Aachen)
RTD	Prof. Dr.-Ing. Heinz Pitsch (ITV, RWTH Aachen)
COORDINATION	Dr. Ruud L.G.M. Eggels (Rolls-Royce Germany Ltd & Co KG)
SPONSOR	DFG, FVV own funds

10:30 Coffee Break

11:15 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

PROJECT	1451 · Development Tools · EG Turbo Machines · Interim report
PRESENTER	Dipl.-Ing. Julian Gambel (ILR, TU Berlin)
RTDs	Prof. Dr.-Ing. Dieter Peitsch (ILR, TU Berlin) Harry Hill (Imperial College London)
COORDINATION	Dr. Sabine Schneider (Rolls-Royce Germany Ltd & Co KG)
SPONSOR	CORNET/BMWK/AiF

11:45 Combined Dynamical Analyses: Analytics

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

PROJECT	1423 · Development Tools · EG Turbo Machines · Interim report
PRESENTER	Prof. Dr.-Ing. Jörg Wallaschek (IDS, Leibniz Uni Hannover)
RTD	Prof. Dr.-Ing. Jörg Wallaschek (IDS, Leibniz Uni Hannover)
COORDINATION	Dr. Andreas Hartung (MTU Aero Engines AG)
SPONSOR	BMWK/AiF

12:15 Modelling of Metal-graphite Composites

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

PROJECT	1444 · Materials · EG Turbo Machines · Interim report
PRESENTER	Dipl.-Ing. René Füzfel (ILK, TU Dresden)
RTDs	Prof. Dr.-Ing. habil. Maik Gude + Prof. Dr.-Ing. Niels Modler (ILK, TU Dresden) Prof. Dr. Bernd Mayer & Prof. Dr.-Ing. Matthias Busse (Fraunhofer-IFAM)
COORDINATION	Dr. Susanne Schrüfer (Rolls-Royce Germany Ltd & Co KG)
SPONSOR	BMWK/AiF

12:45 Lunch

14:15 TMF Crack Path Calculation for Turbocharger Hot Parts

Numerical simulation and evaluation of crack propagation in time and space of exhaust turbocharger hot parts under thermomechanical fatigue loading with finite element programs

PROJECT	1351 · Materials · EG Turbo Machines · Final report
PRESENTER	Prof. Dipl.-Ing. Björn Kiefer (imfd, TU Bergakademie Freiberg)
RTDs	Prof. Dr.-Ing. Birgit Skrotzki (BAM, Berlin) Prof. Dipl.-Ing. Björn Kiefer (imfd, TU Bergakademie Freiberg)
COORDINATION	Dr.-Ing. Andreas Koch (Rolls-Royce Solutions GmbH)
SPONSOR	BMWK/AiF

14:45 Turbo High Temperature Steel

Increase of power density in turbo applications by new material concepts for high temperature conditions and functional integration in planetary gear stages

PROJECT	1386 · Materials · EG Turbo Machines · Interim report
PRESENTER	Gerrit Hellenbrand (WZL, RWTH Aachen)
RTDs	Prof. Dr.-Ing. Christian Brecher (WZL, RWTH Aachen) Prof.-Dr.-Ing. Rainer Fechte-Heinen (Leibniz-IWT)
COORDINATION	Dr. Markus Dinkel (Schaeffler Technologies AG & Co. KG)
SPONSOR	BMWK/AiF

15:15 Material Applications FeAl (WAFEAL)

Material applications for iron aluminide (FeAl), (WAFEAL)

PROJECT	1392 · Materials · EG Turbo Machines · Final report
PRESENTERS	Andreas Abel (BAM, Berlin) Pawel Zapala (Access e.V.)
RTDs	Prof. Dr.-Ing. Birgit Skrotzki (BAM, Berlin) Dipl.-Ing. Heiner Michels (Access e.V.)
COORDINATION	Susanne Mosler & Dr. Dan Roth-Fagaraseanu (Rolls-Royce Germany Ltd & Co KG)
SPONSOR	BMWK/AiF

15:45 *Coffee Break*

16:30 Robust Fracture Deformation Parameters

Robust evaluation of fracture deformation parameters to use the creep ductility within advanced lifetime assessment concepts

PROJECT	1371 · Materials · EG Turbo Machines · Final report
PRESENTER	Dr.-Ing. Christian Kontermann (MPA-IfW, TU Darmstadt) Volker Knauth (GRIS, TU Darmstadt)
RTDs	Prof. Dr.-Ing. Matthias Oechsner (MPA-IfW, TU Darmstadt) Prof. Dr. Arjan Kuijper, (GRIS, TU Darmstadt) Prof. Dr.-Ing. Stefan Weihe (IMWF, Uni Stuttgart)
COORDINATION	Dr. Torsten-Ulf Kern (Siemens Energy Global GmbH & Co. KG)
SPONSOR	AVIF, FVV own funds

17:00 Constraint Effect in Component Design

Allowance for the crack-tip constraint in the design against ductile failure

PROJECT	1440 · Components · EG Turbo Machines · Interim report
PRESENTER	Dr. Igor Varfolomeev (Fraunhofer-IWM)
RTDs	Prof. Dr. Peter Gumbsch (Fraunhofer-IWM) Prof. Dipl.-Ing. Björn Kiefer (imfd, TU Bergakademie Freiberg)
COORDINATION	Dr. Christian Amann (Siemens Energy Global GmbH & Co. KG)
SPONSOR	BMWK/AiF

17:30 Extended Operation Range of YSZ

Extension of the YSZ thermal barrier coating loading temperature by alternative spraying technology and modification of the chemical composition

PROJECT	1422 · Materials · EG Turbo Machines · Interim report
PRESENTER	Dr.-Ing. Simon Schöler (Forschungszentrum Jülich GmbH)
RTDs	Prof. Dr.-Ing. Robert Vaßen (Forschungszentrum Jülich GmbH) Dr.-Ing. Mathias Galetz (DECHEMA Research Institute) Prof. Dr.-Ing. Matthias Oechsner (MPA-IfW, TU Darmstadt)
COORDINATION	Dr. Arturo Flores Renteria (Siemens Energy AG)
SPONSOR	DFG, FVV own funds

18:00 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

Dr. Volker Formanski · BMW Group

→ Turbo Machines

Dr. Dirk Hilberg · Rolls-Royce Germany

→ Zero-impact Emissions

Dr. Volker Schmeißer · Daimler Truck

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

29–31 March 2023 Würzburg · Germany

DATE AND VENUE

29–31 March 2023

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 30 March 2023.

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 17 March 2023**.

Participation can be cancelled free of charge until **Friday 24 March 2023**. 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 29–31 March 2023 at a preferential rate of 132 € (Classic incl breakfast), 142 € (Comfort incl breakfast).

The closing date is **Thursday 9 February 2023**. The reservation code is ›FVV‹. Early booking is recommended.

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reservierung.wur@maritim.de

ORGANISERS

The event is organised by
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