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6th International Conference on High Performance Plastic Gears 2025

Key topics discussed:

- **Advanced simulation and design optimization**
- **Lubrication and materials selection**
- **Testing methods**
- **Load-carrying capacity and fatigue prediction**
- **Wear behaviour**
- **NVH optimization**

Presidency:

Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

+ Parallel events

International Conference on Gears 2025

International Conference on Gear Production 2025

+ Exhibition

With experts from:

Delrin · Envalior · FLENDER · FZG · IMS GEAR · kuraray · Kyoto Institute of Technology · LeCAD · University of Ljubljana, Faculty of Mechanical Engineering · MAHLE Powertrain · MinebeaMitsumi · OECHSLER · Polyplastics DAICEL Group · RDMOTION · RPTU MEGT Research for Sustainability, Chair of Machine Elements, Gears and Tribology · SEW EURODRIVE · TEAM23 · Tint Tribology and interface nanotechnology · victrex · VK Weißer + Grießhaber · WZL RWTH Aachen University · zhaw

Event organized by VDI Wissensforum GmbH
www.vdiconference.com/02TA409025
Phone +49 211 6214-201 • Fax +49 211 6214-154
#vdi_gears

September 10 - 12, 2025, Garching/Munich, Germany

1st Conference day
Wednesday, September 10th, 2025

Every participant gets a voice – you will be involved via digital polls during the speeches

08:15 Registration

Plenary lectures

09:30 Joint welcome and opening of the conferences
- International Conference on Gears 2025
- International Conference on High Performance Plastic Gears 2025
- International Conference on Gear Production 2025

Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

Caroline Körber, Productmanagement, Duesseldorf, VDI Wissensforum GmbH, Germany

09:55 Welcome address by

Prof. Dr.-Ing. Prof. h. c. Christoph Gehlen, Dean, TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

10:00

Prof. Dr.-Ing. Burkhard Pinnekamp, former Head of Central Technology, RENK GmbH, Augsburg, Germany; President, Research Association for Drive Technology (FVA), Frankfurt, Germany; Hononary Professor, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

10:10

Matthew E. Croson, President, American Gear Manufacturers Association (AGMA), Alexandria, USA

10:15

Keynote session: AI and digitalization – Impact on the future of gears

Moderation: Prof. Dr.-Ing. Karsten Stahl, FZG, TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

With digital polls during the speeches

Welcome to the age of chaos: Tech-driven, AI-powered, customer-centric, different
- Tech-Driven: Digitization, automation, IoT increase efficiency and enable new business models
- AI-Powered: AI transforms development and maintenance, unlocking new potentials despite limitations
- Customer-Centric: AI enables tailored solutions and faster, more precise customer responses

Fabian Ziegler, Founder & Managing Director, TEAM23 GmbH, Augsburg, Germany

Powered by AI – Leading the future of drive technology
- The "Digital Engineer": AI-driven design and optimization of "Flender One" gearboxes
- Closed loop data utilization with AI: Continuous adaptation and right-sizing in gearbox development
- Digital end-to-end backbone for future AI value creation

Dr.-Ing. Jan Reimann, Project Director "Flender One", Dipl.-Ing. Julia Zundel, Head of Digital Business, Dr.-Ing. Tim Sadek, Head of Technology & Innovation Flender GmbH, Bocholt, Germany

Opportunities and challenges of AI applications in an industrial context
- The role of AI in production
- Requirements for the implementation of AI in production: Data, models, processing
- Potential of AI applications in production: Deep dive and application examples

Prof. Dr.-Ing. Christian Brecher, Full Professor, Chair of Machine Tools, Laboratory for Machine Tools and Production Engineering (WZL), Faculty for Mechanical Engineering, RWTH Aachen University, Germany

Efficient maintenance for safe operation through automated condition monitoring
- DriveRadar®: functional components, innovative forecasts, IT and data security, use-cases
- Contribution on sustainability and future developments
- Potential of smart maintenance: transparency, early detection of faults, reduced downtimes

Dipl.-Ing. (DH) René Maisenhelder, Manager, Service Field Solutions, Condition Monitoring & Analysis, SEW-EURODRIVE GmbH & Co KG, Bruchsal, Germany

+ discussion with plenary speakers

12:00 Time for working lunch – Meet & greet in the exhibition area, poster presentation area and GearArena

Opening of
6th International Conference on High Performance Plastic Gears 2025

Design methods

Moderation: Prof. Dr.-Ing. Karsten Stahl, FZG, TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

13:30 An improved method for the prediction of contact stress in polymer gears
- Development of geometry-based contact stress simulation using FEA tools
- Prediction of performance limits for PEEK polymer gears: Gear standards, low modulus gear materials, material selection criteria
- Validation of the FEA methodology: Linking gear material and manufacturing process data with component performance testing

Michael Weiss, BSME, Senior Design Engineer, Research and Development, Victrex USA Inc., Grantsburg, USA; Sarbjit Gill, B. Eng. Aerospace Engineering & M. Sc Advanced Materials, Technologist, Chris Cholmeley, B. Eng. Automotive Engineering, Technical Manager, Research and Development, Victrex Plc., Thornton-Cleveleys, UK

14:00 Relationships between design, process trimming and acoustic properties exemplified by a worm gear
- FEA tooth contact analysis with actual size model from CT-Scan
- Visualization and comparation of single error measurements with the W+G well-balanced-gears-solution
- Effect of improved gear quality on the harmonic orders in the sound pressure level

Gregor Mauerlechner, B. Sc., Project Manager, Development, Dipl.-Ing. (FH) Joseph Hackl, Head of process development, Weißer + Grießhaber GmbH, Mönchweiler, Germany

14:30 Novel methods for the prediction of tooth temperature and contact ratio under load
- Innovative method for contact ratio prediction: Analytical calculation, tooth deformation, geometric effect
- Tooth root stress calculation considering the actual contact ratio under load
- Accuracy improvement of the VDI 2736 temperature calculation due to heat transfer coefficient adjustment

Takuma Matsumura, M. Eng., Researcher, Research and Development Division, Technical Solution Center, Dr. Masahiro Kada, Gear engineer, Polyplastics Co., Ltd., Fuji, Japan; Dr.-Ing. Aljaž Pogačnik, Gear engineer, Bauhar s.p., Bled, Slovenia

15:00 Coffee break – Meet & greet in the exhibition area, poster presentation area and GearArena

Testing

Moderation: Dr.-Ing. Andreas Langheinrich, Berg, Germany

16:00 Different aspects of testing polymer gears and their influence on the load-carrying capacity
- Experimental determining the load-carrying capacity of polymer gears

- Notes on conducting experimental investigations
- Identification of influencing factors on the load-carrying capacity of polymer gears

Stefan Reitschuster, M. Sc., Research Associate and Team Leader "Polymer Gears", Dr-Ing. Thomas Tobie, Head of Department, Department Load-Capacity Cylindrical Gears, Prof. Dr-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

16:30 An investigation on the NVH performance of plastic gears

- Effect of material pairing, wear and grease on the NVH
- Material selection for optimized gearbox NVH: Plastics, reinforcing agents, operating conditions
- Effect of load and speed on the resulting NVH

Dr. Damijan Zorko, CEO, Rok Kalister, M.Sc., VP of Product R&D, Dr. Borut Černe, CEO, RD Motion, d. o. o., Ljubljana, Slovenia

17:00 Investigations on the thermal behavior of plastic crossed helical gears

- Design of a calculation method for flank and bulk temperature
- Development of a new test rig for plastic crossed helical gears
- Experimental investigations – method and exemplary results

Martin Weber, M. Sc., Research Assistant, Lorenz Constien, M. Sc., Team Leader, Michael Geitner, M. Sc., Head of Department, Department Worm and Bevel Gears, Fatigue Life Analysis, Institute of Machine Elements, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

17:30 End of the lectures – Switch to the plenary session (Lecture room A)

17:35 Awarding of the best paper by

Dr.-Ing. Franz Völkel, Sr. Vice President R&D, Business Division Automotive Bearings, Schaeffler Technologies AG & Co. KG, Herzogenaurach, Germany

Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

17:45 Dinner Speech

Innovation on fire: When human intelligence and artificial intelligence collaborate

'We stand on the threshold of an era of extreme productivity – a symbiosis of human developmental power and the computing strength of AI. It is our responsibility to seize this opportunity – while also embracing a commitment: To unlock the 'gold in our minds' and collaborate with AI at eye level. This requires a radical expansion of our neuro-knowledge to develop neuro-loyal modules, processes, and tools in a structured and pragmatic way – and to integrate them strategically into business processes.'

Dr. Karin Koert-Lehmann, MY InnoTrinsic/ Rethink & Move, Krefeld, Germany

18:30 Organized bus transfer to the evening reception

You are invited!

Get-together

19:30 Evening reception at the 'Löwenbräukeller' in Munich

Join us for a special evening at the 'Löwenbräukeller' – a chance to enjoy tradition, connect, and exchange ideas in a relaxed atmosphere.

Source: VDI Wissensforum GmbH

2nd Conference day
Thursday, September 11th, 2025

Digital Design

Moderation: Ingo Decker, M. Eng., Gear Development, Group Wide Components, Corporate Research & Development, ZF Friedrichshafen AG, Friedrichshafen, Germany

08:30 Low cost, high performance and improved sustainability using the example of a small planetary gearbox

- Planetary wheels with integrated bearing pins: Easy assembly, strength analysis, asymmetrical design
- Factors of influence to the carbon footprint of the gearbox: Sustainability, calculation method, alternative materials

Timo Braun, B. Sc., Senior Development Engineer, Gabriel Fuchs, B. Eng., Senior Development Engineer, Research & Development, IMS Gear SE & Co. KGaA, Donaueschingen, Germany

09:00 Design and fabrication of soft gears with a stereolithography 3D printer

- Proposal of a new torque limiter concept: Soft gear, finite element analysis, 3D printer
- Dynamic modelling using a finite element analysis
- Gear fabrication using a stereolithography 3D printer

Keisuke Osawa, Ph.D., Research Assistant Professor, Takeshi Kido, Master student, Department of Mechanical Engineering, Faculty of Engineering, Kyushu University, Fukuoka, Japan; Prof. Dr. Eng. Eiichiro Tanaka, Professor, Graduate School of Information, Production and Systems, Faculty of Science and Engineering, Waseda University, Kita-kyushu, Japan

09:30 Towards the use of ML/DL models for accelerated design of plastic gears and optimized material selection

- Overview of Machine and Deep learning models in gear design
- AI model trained on gear test and material property datasets
- Model used for gear design, material selection, and optimization

Dr. Borut Černe, CEO, Rok Kalister, M.Sc., VP of Product R&D, Dr. Damijan Zorko, CEO, RD Motion, d. o. o., Ljubljana, Slovenia

10:00 Coffee break – Meet & greet in the exhibition area, poster presentation area and GearArena

Material

Moderation: Dr.-Ing. Andreas Langheinrich, Berg, Germany

11:00 Bi-parametric damage model for the lifetime prediction of POM gears

- Experimental and numerical analysis of tooth root breakage
- Lifetime modelling of rotational speed dependence: Two damage mechanisms
- Derivation of appropriate damage parameters

Sven Düzel, M. Sc., Research Associate, Prof. Dr.-Ing. Robert Eberlein, Institute of Mechanical Systems (IMES), Dr.-Ing. Hans-Jörg Dennig, Senior lecturer, Institute of Product Development and Production Technologies (IPP), Zurich University of Applied Sciences (ZHAW), Winterthur, Switzerland

11:30 Consideration of strain rate dependency of plastics in gear design and materials testing

- Plastic materials show a distinct increase in stiffness and strength at higher loading velocities
- Neglecting the strain rate dependency in material and gear testing may yield to wrong assumptions
- Sophisticated testing methods are required to replicate near-application loading conditions

Prof. Dr.-Ing. Joachim Hausmann, Research Director Component Development, Manager Fatigue & Life Time Prediction, Stefan Schmidt, M. Eng., Scientific Assistant, Materials Characterisation and Modelling, Leibniz-Institut für Verbundwerkstoffe GmbH, Kaiserslautern, Germany; Wassiem Kassem, M. Sc., Development Engineer, SEW-Eurodrive GmbH & Co KG, Bruchsal, Germany

12:00 Advances in polyacetal materials for gears – Fatigue prediction with simulative approach

- Comprehensive gear fatigue data for Delrin® 51HSE high performance material
- Comparative data of gear testing variations e.g. gear size
- Simulation results comparison between gears and different testing approaches

Philipp Leuerer, M. Sc., Global Technical Program Leader – Gears, Delrin Deutschland GmbH, Eschborn, Germany; Ram Ratnagiri, Ph.D., Principal Investigator, DELRIN USA LLC, Wilmington, USA; Amlesh Lovekar, B.E., Technical Service Engineer, Pune, Delrin India Private Limited, India

12:30 Time for working lunch – Meet & greet in the exhibition area, poster presentation area and GearArena

Tribosystem

Moderation: Dr.-Ing. Marco Baccalaro, Senior Manager Gear Development, Engineering Mechanics and Hydraulics, Robert Bosch GmbH, Heilbronn, Germany

14:00 An experimental characterization of the load carrying capacity of oil lubricated gears made of Torlon PAI grade 4203

- Polymer on polymer gear durability testing: New testing methods; high strength polymers; oil lubricated
- Comparison to catalogue material data: Fatigue rating; material strength; fracture resistance
- High temperature polymer gear performance: Contact fatigue; bending fatigue; variable temperature

Isaac Hong, Ph.D., Research Assistant Professor, Gear and Power Transmission Research Laboratory, Matthew Kogler, Research Assistant, Mechanical and Aerospace Engineering, The Ohio State University, Columbus, USA

14:30 Influences and special features of the determination of characteristic values of plastic gears using grease according to VDI 2736

- Application oriented determination of characteristic values
- Grease lubrication and wear measurement influences
- Need for more precise determination of surfaces

Dr.-Ing. Lars Klimentew, Team leader, Dr.-Ing Winfried Schmidt, Principal, Development and Engineering, Oechsler AG, Ansbach, Germany

15:00 Wear resistant PFAS-free material with high heat-resistant polyamide PA9T

- Wear resistance of PA9T compounded with PFAS-free lubricant
- Wear behavior analysis of PFAS-free compounded material
- Performance of PFAS-free material reinforced with glass fiber

Mao Saikusa, M.App.Chem., Development Engineer, Genestar Division, Research & Development Department, Kuraray Co., Ltd., Tsukuba, Japan

15:30 Coffee break – Meet & greet in the exhibition area, poster presentation area and GearArena

Wear

Moderation: Ingo Decker, M. Eng., Gear Development, Group Wide Components, Corporate Research & Development, ZF Friedrichshafen AG, Friedrichshafen, Germany

16:30 In situ measurement method of wear profile progression of polymer gears

- Optical wear measurement of polymer gears
- Wear profile development over time
- Influence of load, speed and temperature

Nejc Osolnik, M. Sc., Ph.D. student, Prof. Dr. Mitjan Kalin, University Professor, Laboratory for Tribology and Interface Nanotechnology, Faculty of Mechanical Engineering, University of Ljubljana, Slovenia

17:00 Predicting abrasive wear of reinforced thermoplastic spur gears

- Gear wear measurements under isothermal conditions
- Wear factor measurements on dedicated tribological setup
- Predictive framework based on advanced CAE methods

Benjamin van Wissen, M. Sc., CAE Expert/Scientist, Dr. ir. Leonid Pastuhkov, Scientist, Polymer Mechanics, Fatigue, Wear and Tribology, Research and Development, Envalior, Geleen, The Netherlands; Adnan Hasanovic, M. Sc., System Expert Gears and Actuators, DSM, Geleen, The Netherlands

17:30 Analysis of wear emissions in high-performance bio-based epoxy GFRP laminated composite gears

- Wear emissions in high performance laminated composite gears
- Methodology for analysis of worn-out particles: Measurements, identification, segmentation
- Computer vision case study for automated feature extraction

Aleš Durjava, M. Sc., Researcher, Dr. Bor Mojškerc, Partial teaching assistant, Researcher, Dr. Nikola Vukašinović, Associate Professor, FME, LECAD Laboratory, Faculty of Mechanical Engineering, University of Ljubljana, Slovenia

18:00 End of the lectures

Get-together

You are invited!

18:00 Evening reception at the university

We are pleased to invite you to our evening reception at the end of the second conference day. Enhance your personal network and use the relaxed and informal atmosphere for deepening talks with other participants and speakers.

Source: Uli Benz/TUM

The conference will give you the answers to these questions:

- How can plastic gears be efficiently designed and optimized for performance?
- What are the key challenges and opportunities in modern plastic gear applications?
- Which tools and methods are available for simulation, analysis, and stress calculation?
- How can fatigue and load-carrying capacity be reliably predicted?
- What influences material and lubrication selection for long-term reliability?
- Which factors affect NVH behavior, and what are the current research focus areas?

3rd Conference day
Friday, September 12th, 2025

Geometry
Moderation: Dr.-Ing. Ulrich Kissling, Advisor, KISSsoft AG, Bubikon, Switzerland

08:30 Consideration of the challenges and possibilities of flank form modifications on plastic gears
- Comparison of micro-flank modifications for plastic gears
- Influence of material behaviour on their effectiveness
- Showing the influence on TE and contact pattern

Dipl.-Ing. (FH) Matthias Koop, Head of Small Gears & Manufacturing Processes, Dipl.-Ing. Christian Kötz, Development Engineer, MAHLE ZG Transmissions GmbH, Eching, Germany

09:00 Shape evaluation of all transverse sections bounded by the left and right tooth helix deviations of injection-molded plastic gears
- New methodology for the systematic evaluation of warpage and twist deviations in injection-molded gears
- Analysis of a trapezoidal cross-section, consisting of the gear side and the left and right tooth helices
- Results: Identification of injection molding characteristics and validation of the proposed evaluation method

Yuichiro Seo, M. Sc, Student, Jing Chong Low, B. Sc., Prof. Daisuke Iba, Faculty of Mechanical Engineering, Kyoto Institute of Technology, Japan

09:30 Optimisation of the tooth root fillet of plastic gears
- Influence of optimised tooth root geometries on fatigue strength
- Finite element analysis of optimized POM gear root fillet
- Running test of size 2 VDI 2736

Dr.-Ing. Hans-Jörg Dennig, Senior lecturer; Simon Winterberg, M. Sc., Research Associate, Institute of Product Development and Production Technologies (IPP), Sven Düzel, M. Sc., Research Associate, Prof. Dr.-Ing. Robert Eberlein, Institute of Mechanical Systems (IMES), Zurich University of Applied Sciences (ZHAW), Winterthur, Switzerland

10:00 Coffee break – Meet & greet in the exhibition area, poster presentation area and GearArena

Finite element methods
Moderation: Dr.-Ing. Marco Baccalaro, Senior Manager Gear Development, Engineering Mechanics and Hydraulics, Robert Bosch GmbH, Heilbronn, Germany

11:00 Viscoelastic material model for a multiphysics simulation of short fibre reinforced plastic gears
- Consideration of the fatigue and deformation behaviour of plastic gears
- Material-dependent damage calculation: Time-dependent deformation mechanisms, thermal influence on mechanical properties, stiffness degradation and fracture behaviour
- Interaction between mechanical, thermal and tribological effects

Dipl.-Ing. Victoria Maria Schröder, Mechanical Engineer, Prof. Dr.-Ing. Oliver Koch, Full Professor, Head of Chair of Machine Elements, Gears and Tribology (MEGT), Department of Mechanical and Process Engineering, Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau (RPTU), Kaiserslautern, Germany

11:30 FEM for microgeometry optimization of spur gears for noise- and fatigue improvement
- Derivation of modification parameters from the finite element analysis of the unmodified geometry
- Determination of the optimum modified tooth form by striving for a specific course of the Hertzian pressure
- Evaluation of the modification based on the course of the normal force and the transmission error

Dipl.-Ing. Thomas Trietz, Design & Simulation Engineer, Mechanical Design & Simulation, Minebea-Mitsumi GmbH (MTCE GmbH), Dipl.-Ing. Helmut Schneider, Design engineer, Brushless DC-Motor Dept., MTCE GmbH, Villingen-Schwenningen, Germany

12:00 An automated process to create finite element meshes of gearwheels out of scanned measurement data for the simulation of gears
- FEA simulation of contour scanned gearwheels
- Convert contour scans of gears into FE meshes
- Automation in the FE calculation of gears

Eugen Stoppel, M. Eng., Engineering Manager – R&D, Simulation and Gearing Technology, Dipl.-Ing. Michael Dold, Process Engineer, Industrial Engineering Plastics, Maxim Cvartin, M.Comp.Sc. & IT, Software Engineer, Software Development by R&D, IMS Gear SE & Co. KGaA, Donaueschingen, Germany

12:30 Closing remarks

12:45 Awarding of the best presentation for young engineers by the conference president

Prof. Dr.-Ing. Karsten Stahl, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

Caroline Körber, Productmanagement, VDI Wissensforum GmbH, Duesseldorf, Germany

+ Lunchtime snack

14:15 End of the conference

Presidency

Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

Conference board

Highly committed and with a great passion to succeed, the program committee – consisting of the following experts – draws up the conference agenda for you.




from left to right:

Dr.-Ing. Marco Baccalaro, Senior Manager Gear Development, Engineering Mechanics and Hydraulics, Robert Bosch GmbH, Heilbronn, Germany

Ingo Decker, M. Eng., Gear Development, Group Wide Components, Corporate Research & Development, ZF Friedrichshafen AG, Friedrichshafen, Germany

Dr.-Ing. Ulrich Kissling, Advisor, KISSsoft AG, Bubikon, Switzerland

Dr.-Ing. Andreas Langheinrich, Berg, Germany

Scientific support:

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www.vdi.eu

Gears interactive – new ideas, more added value for your business

GearArena

Gather hands-on experience in the transmission world!

Take a look at individual gear components, gain an insight into how the different components interact and compare design and workmanship!
You will find an on-site contact person from the exhibitor to answer all your questions.

FZG lab tours

Get the chance to visit innovative laboratory facilities!

Seize the opportunity and visit the nearby test and laboratory facilities at the Gear Research Center (FZG). Several guided tours with different core topics offer opportunities of gaining deeper insights into a variety of innovative gear test rigs and laboratory equipment.

For registration meet at the FZG information desk during the conference.

Speakers meetup

Do you still have unresolved questions?

You can address your questions to the speakers right after the lecture during the coffee break. Take the chance to say hello to your favorite speakers and to connect with them. They will be available for at least 15 minutes after their session.

Poster exhibition with impulse talks

The poster exhibition is combined with a 5-minute talk.

The compact style of presentation called the '5-minute rapid' presentation will provide you with all information in a clear, succinct manner. Poster presentations are scheduled during the coffee breaks. Presentation times will be announced on-site.

Two gear community nights

Your networking hotspot for the international gear community!

Enjoy the evening reception at the 'Löwenbräukeller' as well as another social event at the university. The 'Löwenbräukeller' is a restaurant with a long tradition offering modern Bavarian cuisine. Both – the get-together at the FZG and the brewery visit – offer you an excellent opportunity to network with your peers and catch up on trends.

Source: VDI Wissensforum GmbH

Conference venue:

How to find us

Find all travel information at a glance!

www.mec.ed.tum.de/en/fzg/contact-and-directions/fzg/

Source: Scharger, Albert/TUM

Parallel conferences

International Conference on Gears 2025

September 10 - 12, 2025, Garching/Munich, Germany

Source: © NORD DRIVESYSTEMS Group

Key topics:

- AI in gear design and gear failure prediction
- Numerical methods and multiscale simulation tools to improve gear performance
- Optimization of gear design and geometry
- Condition monitoring and predictive maintenance
- Advancements in NVH simulation and optimization
- Innovative gear materials

Presidency:

Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany
Dr.-Ing. Bernhard Bouché, Director of Research and Development Mechanics, Getriebebau NORD GmbH & Co. KG, Bargteheide, Germany
Prof. i.R. Dr.-Ing. Dr. h.c. Bernd-Robert Höhn, TUM emeritus of excellence, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany
Prof. Dr.-Ing. Burkhard Pinnekamp, former Head of Central Technology, RENK GmbH, Augsburg, Germany; President, Research Association for Drive Technology (FVA), Frankfurt, Germany; Hononary Professor, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

Further details and the final program can be found here:
www.vdi-gears.eu

Parallel conferences

6th International Conference on Gear Production 2025

September 10 - 12, 2025, Garching/Munich, Germany

Source: © MTI/WZL, RWTH Aachen University

Key topics:

- Challenges in gear production for e-mobility
- Innovative process monitoring and quality inspection
- New materials and heat treatment
- Additive manufacturing of gears
- Bevel and face gear cutting
- Manufacturing of high-order tooth flank modifications

Presidency:

Prof. Dr.-Ing. Thomas Bergs, Full Professor, Chair of Manufacturing Technology, Manufacturing Technology Institute - MTI, Faculty for Mechanical Engineering, RWTH Aachen University, Germany
Prof. Dr.-Ing. Christian Brecher, Full Professor, Chair of Machine Tools, Laboratory for Machine Tools and Production Engineering (WZL), Faculty for Mechanical Engineering, RWTH Aachen University, Germany
Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

Further details and the final program can be found here:
www.vdi-wissensforum.de/02TA411025

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As an exhibitor or sponsor you can position your company with a clearly perceptible presence within a selected circle of participants. Get in contact with top-class attendees at this conference and present your products and services to a specialist audience in your market without any coverage waste.

Your contact person:

Vanessa Ulbrich
Project Consultant Exhibition & Sponsoring
Phone: +49 211 6214-918
Email: ulbrich@vdi.de

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- Curtiss-Wright Surface Technologies
- Delrin Switzerland Sàrl
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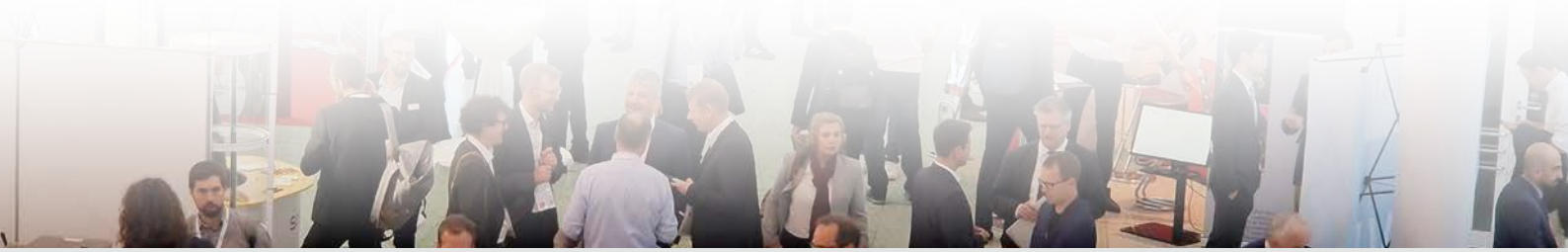
- Telemetrie Elektronik GmbH

(April 2025)



VDI Wissensforum

6th International Conference on High Performance Plastic Gears 2025

Plastic gears for optimized performance, durability, and reliability

VDI Wissensforum GmbH | VDI-Platz 1 | 40468 Duesseldorf | Germany

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Ticket includes entrance to the parallel conferences:
• Gears 2025
• Gear Production 2025

✓ **Please register for (price per person plus VAT):**

6th International Conference on High Performance Plastic Gears 2025
September 10–12, 2025, **Garching near Munich, Germany** (02TA409025)
EUR 1,690.-

1111

☐ Participation fee for personal VDI members and members of associated organisations of the International Conference on Gears 2025 **save EUR 50,- each conference day**
VDI membership no.*:_____

* For price category 2, please state your VDI membership number or the name of the associated organisation (outlined at the homepage www.vdi-gears.eu)

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www.vdi-wissensforum.de/en/terms-and-conditions/

Venue:
Conference Venue: Gear Research Centre, Chair of Machine Elements, TUM School of Engineering and Design, Technical University of Munich, Garching, Boltzmannstr. 15, 85748 Garching, Germany, https://www.mec.ed.tum.de/en/fzg/home/
Hotel reservation: A limited number of rooms has been reserved for the benefit of the conference participants at the **Courtyard by Marriott München Garching** (use booking link: https://www.marriott.com/event-reservations/reservation-link.mi?id=1702890937559&key=GRP&app=resvlink), the **B&B Hotel München-Garching,** +49 89 3270952-0, muenchen-garching@hotelbb.com (mention keyword 'VDI-GEARS') and the **Motel One München Garching,** +49 89 3603525-0, muenchen-garching@motel-one.com (mention keyword 'VDI-GEARS'). For more hotels: www.vdi-wissensforum.de/hrs

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Services: The price includes beverages during breaks, lunch as well as the evening function. Participants will have online access to the congress documents (E-Book).

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