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4th International Conference on Gear Production 2022

Key topics discussed:

- **Increasing productivity in gear skiving**
- **Higher tool life for hard finishing processes**
- **Improved gear quality inspection**
- **Methods for designing and manufacturing face, bevel and worm gears**
- **Improved tribo system within the manufacturing process**
- **Enhanced simulation methods for improving the gear manufacturing process**

Presidency:

Prof. Dr.-Ing. Thomas Bergs, WZL, RWTH Aachen University, Germany
Prof. Dr.-Ing. Christian Brecher, WZL, RWTH Aachen University, Germany
Prof. Dr.-Ing. Karsten Stahl, FZG, Technical University of Munich (TUM), Garching, Germany

+ Parallel events

International Conference on Gears 2022

International Conference on High Performance Plastic Gears 2022

+ Exhibition

With experts from:

ANS · BALANCE DRIVE SWISS MOTION · FZG · GEORGII KOBOLD · Gleason · 合肥工業大學 · HEXAGON · Involute Simulation Softwares Inc.

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Event organized by VDI Wissensforum GmbH
www.vdiconference.com/02TA411022
Phone +49 211 6214-201 • Fax +49 211 6214-154
#vdi_gears

September 12 - 14, 2022, Garching/Munich, Germany

1st Conference day
Monday, September 12th, 2022

08:15 Registration

Plenary lectures

09:45 Joint welcome and opening of
- **International Conference on Gears 2022**
- **International Conference on High Performance Plastic Gears 2022**
- **International Conference on Gear Production 2022**

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

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

09:55 Welcome address by

Prof. Dr. sc. tech. Gerhard Kramer, Senior Vice President Research and Innovation, Technical University of Munich (TUM), Germany

10:05 Welcome address by

Dr.-Ing. Burkhard Pinnekamp, Head of Central Research and Development, Renk GmbH, Augsburg; President, Research Association for Drive Technology (FVA), Frankfurt, Germany

10:15 **Keynote session:**
Innovation flashlights: What will be the next game-changing innovations and technologies?
Moderation: **Prof. Dr.-Ing. Karsten Stahl,** Gear Research Center (FZG), Technical University of Munich (TUM), Garching, Germany

Demands in gear technology in structural change of economy
- High performance in inflating the structure of the economy
- Motive force behind human activity is desire
- Necessary performance in sustainable structure of the economy

Prof. h.c. Dr.-Ing. Aizoh Kubo, General Manager, Research Institute for Applied Sciences, Kyoto, Japan

The innovator's DNA
- Exploration
- Acceleration
- Serendipity

Sonja Goris, M. Sc. Mech. Eng., IP & Innovation Manager, ZF Wind Power Antwerpen NV, Antwerpen-Berchem, Belgium

New ways to lubricate
- Sustainability requirements change in raw material landscape
- Sensor technologies – what's possible
- New basefluids – why not water

Dr. Lutz Lindemann, Member of the Executive Board (CTO), FUCHS PETROLUB SE, Mannheim, Germany

High performance plastic gears in future applications
- Intelligent plastics material design
- Processing and design freedom of plastic gears
- Evaluation of plastic gears for new mobility vehicles

Prof. Dr.-Ing. Karl Kuhmann, Head of Polymer Technology Development, High Performance Polymers, Evonik Operations GmbH, Marl, Germany

Roller pairings with lubricant-impregnated sintered material
- Lubrication of the contact by escaping lubricant
- Separation of the contact of the Roller pairings, without metallic contact
- Influence of the surface structure

Prof. i.R. Dr.-Ing. Dr. h.c. Bernd-Robert Höhn, TUM emeritus of excellence, Gear Research Center (FZG), Technical University of Munich (TUM), Garching, Germany

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

Opening of
4th International Conference on Gear Production 2022

Manufacturing of internal gears
Moderation: **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

13:30 **A new method for avoiding meshing interference in gear skiving**
- Modeling of the collision situation between workpiece and tool along the clearance face
- Combination of interference prevention and tool design based on gear theory
- Strategies for collision prevention

Andreas Hilligardt, M. Sc., Research Associate, Jan Klose, M. Sc., Team Leader Gearing Technology, Prof. Dr.-Ing. habil. Volker Schulze, Director, Manufacturing and Materials Technology, wbk Institute of Production Science, Karlsruhe Institute of Technology (KIT), Germany

14:00 **Practical analysis of productivity of grinding tools in the process of internal generating gear grinding**
- Tool life and gear quality analysis of various high-performance corundum grinding tools using internal generating gear grinding
- Benchmarking against CBN grinding tools and evaluation of productivity and economic performance
- Showing the method of improving corundum wheel performance closer to that of CBN-wheels

Dipl.-Ing. Alexander Spatzig, Head of Machine Tool Business Development Europe, Nidec-Shimpo GmbH, Munich; Noritaka Fujimura, M. Sc., Engineering Manager, NIDEC MACHINE TOOL CORPORATION, Ritto, Japan; Patricia de Oliveira Teixeira, M. Sc., Research Assistant, Gear Hard Machining, Gear Department, Laboratory for Machine Tools and Production Engineering (WZL), Faculty for Mechanical Engineering, RWTH Aachen University, Germany

14:30 **Tool wear development in gear skiving of different quenched and tempered steels**
- Comparing the wear of dry and wet machining
- Tool performance in different steels
- Wear phenomena and workpiece quality

Florian Sauer, M. Eng., Research Associate, Tassilo Arndt, M. Sc., Research Associate, Prof. Dr.-Ing. habil. Volker Schulze, Director, Manufacturing and Materials Technology, wbk Institute of Production Science, Karlsruhe Institute of Technology (KIT), Germany

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

Innovative manufacturing processes
Moderation: **Dr.-Ing. Jens Brimmers, M. Sc.,** Chief Engineer Gear Department, Chair of Machine Tools, Laboratory for Machine Tools and Production Engineering (WZL), Faculty for Mechanical Engineering, RWTH Aachen University, Germany

16:00 **Increasing the safety against the scuffing of additivly manufactured gear wheels by internal cooling channels**
- Performance optimization: scuffing, lubrication, splashing losses
- Additive manufacturing of metal powder with laser powder bed fusion (LPBF)
- 30CrNiMo8 steel for quenching and tempering

Dr.-Ing. Hans-Jörg Dennig, Senior lecturer, School of Engineering, Livia Zumofen, M. Sc., Scientific Employee, Centre for Product and Process development, Zurich University of Applied Sciences, Dipl. Masch.-Ing. ETH Daniel Stierli, Team Leader Gear Technology Renk-Maag GmbH, Winterthur, Switzerland

16:30 Tribological design of sintered gears through mechanochemical surface finishing

- Mechanochemical surface finishing: roughness, waviness, densification, compressive stress
- Efficiency and NHV optimisation of gears: EHD simulations, FVA efficiency tests
- FZG test results: scuffing load, friction, wear, micropitting

Boris Zhmud, Ph. D., Assoc. Prof., FRSC, Chief Technology Officer, Martin Bengtsson, M. Sc. Development Engineer, Linus Everlid, M. Sc. Development Engineer, Applied Nano Surfaces Sweden AB, Uppsala, Sweden

17:00 Analysis of friction of bowl-shaped surface structures resulting from alternative gear manufacturing processes

- Evaluation of electrical discharge machining (EDM) process in regard to gear applications
- Analysis of friction EDM and hammered surface structures in comparison with a ground reference

Dr.-Ing. Dieter Mevissen, Research Assistant, Dr.-Ing. Jens Brimmers, M. Sc., Chief Engineer Gear Department, Prof. Dr.-Ing. Thomas Bergs, Full Professor, Laboratory for Machine Tools and Production Engineering (WZL), Chair of Manufacturing Technology, Faculty for Mechanical Engineering, RWTH Aachen University, Germany

17:30 End of the first conference day

18:00 Organized bus transfer to the evening reception

Get-together

You are invited!

At the end of the first conference day we cordially invite you to our evening reception.

19:00 Evening reception at the Hofbräuhaus in Munich

You can look forward to a special evening event. We cordially invite you to our evening reception at the Hofbräuhaus and to enjoy tradition. The Hofbräuhaus is the cradle of Bavarian tavern culture – the origin of tradition, "Gemütlichkeit" and hospitality. Enhance your personal network and use the informal atmosphere for deeper-going discussions.

Source: @ Hofbräuhaus München

Dinner speech

"Mobility is not only an essential feature of freedom – without it, living nature is unimaginable. The key to mobility of humankind and its communities has always been innovation, shaped by our engineers, coming full circle back to living freedom."

Prof. Dr. Dr. h. c. mult. Wolfgang A. Herrmann, President Emeritus, Technical University of Munich (TUM), Garching & Chairman of the Founding Board, Deutsches Zentrum Mobilität der Zukunft (DZM), Munich, Germany

2nd Conference day

Tuesday, September 13th, 2022

Gear soft machining

Moderation: Prof. Dr.-Ing. Thomas Bergs, Full Professor, Laboratory for Machine Tools and Production Engineering (WZL), Chair of Manufacturing Technology, Faculty for Mechanical Engineering, RWTH Aachen University, Germany

08:30 Tooth deburring and chamfering: a general approach for 5-axis CnC manufacturing

- Generalization of the chamfering and deburring processes
- Application of the chamfering process to 5-axis CnC machines
- Variety of tools that can be used for chamfering

Claude Gosselin, Ph.D., P. Eng., Managing Director/CEO, Involute Simulation Softwares Inc., Quebec, Canada; Bastian Leitz, B. Eng., Gear Engineer, Gear engineering and manufacturing support, Neugart GmbH, Kippenheim, Germany

09:00 Sustainable gear manufacturing – Potential and challenges

- Analysis of gear manufacturing regarding sustainability
- Potential and challenges for future gear production in terms of sustainability
- Example on manufacturing process chain of geared shaft for emobility

Mareike Solf, M. Sc., Chief Engineer Gear Manufacturing, Department Gear Technology, Prof. Dr.-Ing. Thomas Bergs, Full Professor, Laboratory for Machine Tools and Production Engineering (WZL), Chair of Manufacturing Technology, Faculty for Mechanical Engineering, RWTH Aachen University, Germany

09:30 New chamfer cutting solutions for cylindrical gears: gaining productivity and flexibility

- Chamfer hobbing for medium- and high-volume production
- Fly cutter chamfering for high flexibility: programmable auto path chamfering with carbide inserts
- Comparison of new chamfer hobbing and fly cutter chamfering with well-known chamfer rolling

Dipl.-Ing. Gottfried Klein, Director Product Management, Hobbing, Shaving, Chamfering, Rack Solutions, Gleason Corporation, Munich, Germany

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

New concepts for machine and manufacturing processes

Moderation: Prof. Dr.-Ing. Thomas Bergs, Full Professor, Laboratory for Machine Tools and Production Engineering (WZL), Chair of Manufacturing Technology, Faculty for Mechanical Engineering, RWTH Aachen University, Germany

11:00 Design of manufacturing cells in the light of improvements in manufacturing technology and automation

- Creation of manufacturing cells with regard to technological improvements
- Influence of new automation systems on the planning of a new plant for gears
- Solutions for the automation of the material flow

Dipl.-Ing. Bernhard Winter, Department Manager Production-Systems, SEW-Eurodrive GmbH & Co. KG, Graben-Neudorf, Germany

11:30 High speed machining with magnetically geared driven tools on rotary milling units

- Design of magnetically driven tool: eddy currents, magnet losses, rotor topology
- Simulation and fabrication of magnetic transmission
- Transmission with 60000 rpm: masurements and applications

Dr.-Ing. Stefan Vonderschmidt, Managing Partner, Dipl.-Psych. Andreas Vonderschmidt, B. Sc., Managing Partner, Annika Ott, M. Eng., R&D engineer, Georgii Kobold GmbH & Co. KG, Horb, Germany

12:00 Quality improvement of an aluminum gearbox housing by implementing additive manufacturing
- Additiv manufacturing: selective laser melting, tool steel, no supporting structure
- Quality improvement: gas porosity, shrinkage holes, mechanical properties
- Integrated cooling system: cooling behavior, controlled coolin down, homogeneous temperature distribution

Dr.-Ing. Florian Dobler, Group Manager, Development Gear Units, Technology Department Materials Technology, SEW-EURODRIVE GmbH & Co KG, Bruchsal, Germany

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

Advances in special gearings

Moderation: Dr.-Ing. Joachim Thomas, Managing Director, ZG Hypoid GmbH, Aschheim, Germany

14:00 Direct flank geometry calculation for face gears
- New face gear geometry calculation method without numerical post-processing
- Comparison with gear geometry calculation software
- Comparison with manufactured face gears

Jonas-Frederick Hochrein, M. Sc., Research Associate, Dr.-Ing. Michael Otto, Head of department Calculation and Verification of Transmission Systems, Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), Technical University of Munich (TUM), Garching, Germany

14:30 Improved design and manufacturing of face gears
- Overview of current manufacturing methods for face gears
- New manufacturing strategies for 5-axis machines
- Analysis of face gears in the same way as bevel gears

Dipl.-Ing. Jürg Fürst, Managing Director/CEO, Balance Drive AG, Schmitten, Switzerland; Dr.-Ing. Joachim Thomas, Managing Director, ZG Hypoid GmbH, Aschheim, Germany, Claude Gosselin, CEO, P. Eng., Ph. D., Involute Simulation Softwares Inc., Quebec, Canada

15:00 Challenges for lead-free brass alloys in worm gears
- Reduction of lead in brass due to REACH
- New lead-free special brass with comparable performance
- Investigation into new high-strength alloy

Dr.-Ing. Björn Reetz, Senior Expert Material Development, Product and Process development, pp. Dr.-Ing. Tileman Münch, Head of Research and Development, Otto Fuchs Dülken GmbH & Co. KG, Viersen; Dipl.-Ing. Walter Kappeler, Chief Technologist, Framo Morat GmbH & Co. KG, Eisenbach, Germany

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

Modeling in gear production

Moderation: Dr.-Ing. Franz Völkel, Sr. Vice President R&D, Business Division Transmission Systems, Schaeffler Technologies AG & Co. KG, Herzogenaurach, Germany

16:30 Approach for multiscale modeling the thermomechanical tool load in gear hobbing
- Derivation of load functions from orthogonal cut simulations
- Coupling of the load functions with penetration calculation
- Evaluation of tool load based on multiscale model

Nico Troß, M. Eng., Team Leader Gear Soft Machining, Gear Department, Dr.-Ing. Jens Brimmers, M. Sc., Chief Engineer Gear Department, Prof. Dr.-Ing. Thomas Bergs, Full Professor, Laboratory for Machine Tools and Production Engineering (WZL), Chair of Manufacturing Technology, Faculty for Mechanical Engineering, RWTH Aachen University, Germany

17:00 Development of a digital ecosystem for a servo planetary gear unit system to provide design automation opportunities
- Making routine design tasks robust and fast by use of APIs
- Automation of CAD assembly, 3D CAD model and 2D CAD drawing creation
- A brief walk-through example of a planetary gear wheel

Philipp Abele, M. Sc., Calculation Engineer, Development Gear Units, Dr.-Ing. Jörg Hermes, Managing Director, Innovation Mechanics, Dr.-Ing. Markus Wöppermann, Head of Precision Gear Units, SEW-Eurodrive GmbH & Co. KG, Bruchsal, Germany

17:30 Method for taking tool topography into consideration in the modeling of the generating gear grinding process
- Simulation model for generating gear grinding
- Micro-interaction characteristics such as grain cross-section area and cutting depth along the contact length
- Influence of tool topography, in terms of grains protuberance and distribution

Patricia de Oliveira Teixeira, M. Sc., Research Assistant, Gear Hard Machining, Gear Department, Dr.-Ing. Jens Brimmers, M. Sc., Chief Engineer Gear Department, Chair of Machine Tools, Prof. Dr.-Ing. Thomas Bergs, Full Professor, Laboratory for Machine Tools and Production Engineering (WZL), Chair of Manufacturing Technology, Faculty for Mechanical Engineering, RWTH Aachen University, Germany

18:00 Evening reception at the conference venue

Source: Uli Benz/TUM

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.

Dinner speech

"Despite all digitalization in the world, also in future real forces will have to be transmitted. Thus, developing and manufacturing transmission systems which aim at the best efficiency factor as well as the lowest possible lifetime costs will always be a challenge for all people involved."

Prof. Dr.-Ing. Sebastian Bauer, President, German Federation of Industrial Research Associations "Otto von Guericke" e. V. (AiF), Cologne & Managing Director (Research and Development), BAUER Maschinen GmbH, Schrobenhausen, Germany

Reasons why you should visit the conference:

- Get insights into recent developments in gear research
- Unique platform for the international community of gear manufacturing experts
- Discuss current challenges in gear production e. g. need for finishing internal gears
- High-quality presentations on the latest trends in gear manufacturing
- Valuable insights into best practices for gear manufacturing in industry
- Outlook and discussion of future gear manufacturing challenges

3rd Conference day
Wednesday, September 14th, 2022

Measurement technology
Moderation: Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), Technical University of Munich (TUM), Garching, Germany

08:30 Validation of evaluation algorithms for cylindrical involute gears measured on coordinate measuring machines – new challenges according to standardization
- Software test: profile, helix and pitch deviations including common modifications
- Gear data exchange format: container for simulated points and evaluated results
- Traceability for computation-intensive metrology – TraCIM

Dr.-Ing. Karsten Lübke, Software development special geometries, Hexagon Metrology GmbH, Wetzlar, Dr. rer. nat. Martin Stein, Dr.-Ing. Shan Lin, Working Group 5.33 "Gears and Threads", Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

09:00 Gear calibration in scanning mode on CMMs
- High accuracy measurement strategy in scanning mode
- Gear calibration from medium size up to large gears
- Analyzing measurement results using single-point and scanning mode

Dipl.-Ing. (FH) Achim Wedmann, Technical Engineer, Dr. rer. nat. Martin Stein, Head, Working Group "Gears and Treads", Dr.-Ing. Karin Kniel, Head, Department "Coordinate Metrology", Physikalisch-Technische Bundesanstalt Braunschweig, Germany

09:30 High speed measurement of hardness distribution with X-ray diffraction
- Converting method from measured FWHM of X-ray diffraction to hardness distribution for all kind of ferric material
- Easy and highspeed contact free measurement of hardness distribution and examples of the measurement for machine parts

Prof. h. c. Dr.-Ing. Aizoh Kubo, General Manager, Dr.-Ing Masahiro Nagae, Research Member, Institute for Applied Sciences, Kyoto, Japan

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

Gear hard machining
Moderation: Dr.-Ing. Jens Brimmers, M. Sc., Chief Engineer Gear Department, Chair of Machine Tools, Laboratory for Machine Tools and Production Engineering (WZL), Faculty for Mechanical Engineering, RWTH Aachen University, Germany

11:00 Potential and challenges of profile gear grinding with vitrified bonded CBN grinding wheels
- Tool performance and gear properties
- Economic efficiency analysis
- Analysis of the grinding-in behavior and tool topography

Babette Schalley, M. Sc., Research Assistant, Dr.-Ing. Jens Brimmers, M. Sc., Chief Engineer Gear Department, Prof. Dr.-Ing. Thomas Bergs, Full Professor, Laboratory for Machine Tools and Production Engineering (WZL), Chair of Manufacturing Technology, Faculty for Mechanical Engineering, RWTH Aachen University, Germany

11:30 Gear hard finishing with 100 % inline quality inspection
- High productive threaded-wheel grinding: double spindle machine, short idle and fast setup times
- Gear measurement using laser technology: 100 % inline gear inspection, replacing SPC control, noise analysis
- Closed loop sorrection: automatic correction of measured gear parameters

Dr.-Ing. Antoine Türich, Director Product Management, Hard Finishing Solutions, Gleason Corporation, Munich, Germany

12:00 A topological flank modification method considering contact trace in continuous generating grinding
- Topological flank modification of tooth flank
- Anti-twist gear flank based on sensitivity matrix
- Correction of flank deviation by additional axes movement

Prof. Dr. Xiaoqing Tian, associate professor, Dan Li, M.Eng., Prof. Dr. Jiang Han, School of Mechanical Engineering, Hefei University of Technology, Hefei, China

12:30 Closing remarks

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

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

Awarding of the best paper by

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

+ Lunchtime snack

14:15 End of the conference

Extract from poster exhibition
+ 5-minute talks

Material database for the mechanical design of components made of powder metallurgy material
Miao Jiacheng, M. Sc., State Key Laboratory of Mechanical Transmission, Chongqing University, China

Thermal deformation characteristic of gear hobbing based on multivariable integrated model
Zheyu Li, B. Eng., State Key Laboratory of Mechanical Transmission, Chongqing University, China

Quality inspection of common step gearings – overview of different types and their assessment
Dr.-Ing. Karsten Lübke, Software development special geometries, Hexagon Metrology GmbH, Wetzlar, Germany

Research on tooth flank twist compensation of continuous generating grinding gear based on flexible electronic gearbox
Lei Zhou, Research Center, School of Mechanical Engineering, Hefei University of Technology, Hefei, China

Presidency

Prof. Dr.-Ing. Thomas Bergs, Full Professor, Laboratory for Machine Tools and Production Engineering (WZL), Chair of Manufacturing Technology, 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), Technical University of Munich (TUM), Garching, Germany

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Project Consultant Exhibition & Sponsorship
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List of exhibitors

- ELTRO Gesellschaft für Elektrotechnik mbH
- Evonik Operations GmbH
- GEORGII KOBOLD GmbH & Co. KG
- Horst Scholz GmbH & Co. KG
- IMS Gear SE & Co. KGaA
- KISSsoft AG
- MESYS AG
- OTEC Präzisionsfinish GmbH
- Smart Manufacturing Technology Ltd., UK
- Winkelmann Flowforming

(May 2022)

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

GearArena

FZG lab tours

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.

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 meet up

Poster exhibition with impulse talks

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.

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 Hofbräuhaus as well as another social event on the second conference day at the university. The Hofbräuhaus is the cradle of Bavarian tavern culture – the origin of tradition, "Gemütlichkeit" and hospitality. 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.

Parallel conferences

Visit for free!

International Conference on Gears 2022

September 12 - 14, 2022, Garching/Munich, Germany

Source: © NORD DRIVESYSTEMS Group

Key topics:

- Improved simulation methods
- Lubrication for enhanced efficiency
- Condition monitoring with smart gear systems
- Multi-body simulation and NVH prediction
- Improved calculation methods for strength and efficiency

Presidency:

Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), Technical University of Munich (TUM), 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), Technical University of Munich (TUM), Garching, Germany
Dr.-Ing. Burkhard Pinnekamp, Head of Central Research and Development, Renk GmbH, Augsburg; President, Research Association for Drive Technology (FVA), Frankfurt, Germany

With experts from:

AKGears | AVL Deutschland | AVL List | Envision COE | dive solutions | Idemitsu Kosan | Jatco | KISSsoft | Nissan Motor | OTEC Präzisions-finish | Ovako | Robert Bosch | Schaeffler Technologies | SEW-Eurodrive | Siemens Industry Software | Small Innovative Enterprise "Mechanic" | Transmission Dynamics | WEBER | ZG Hypoid

Further details and the final program can be found here:

www.vdi-gears.eu

Parallel conferences

4th International Conference on High Performance Plastic Gears 2022

September 12 - 14, 2022, Garching/Munich, Germany

Source: © Firmenarchiv Scholz-HTIK

Key topics:

- Latest developments for enhanced performance of plastic gears
- Status and future of standardized plastic gear strength calculation
- High performance plastic gear applications
- Potential of composite gears with fiber reinforcement
- Lubrication and tribology of plastic gears

Presidency:

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

Conference Board:

Dr.-Ing. Marco Baccalaro, Chassis Systems Control, Gear Development and Test Conception/Realization, Robert Bosch GmbH, Heilbronn, Germany
Dipl.-Ing. Klemens Humm, Manager Gear Development, Corporate Research and Development, ZF Friedrichshafen AG, Friedrichshafen, Germany
Dr.-Ing. Ulrich Kissling, President, KISSsoft AG, Bubikon, Switzerland
Dr.-Ing. Andreas Langheinrich, Development Drive Technology, Horst Scholz GmbH & Co. KG, Kronach, Germany

With experts from:

DSM Engineering Materials | Evonik Operations | IMS Gear | KISSsoft AG | KURARAY | Leibniz-Institut für Verbundwerkstoffe | Longato Riccardo | Podkrižnik | Robert Bosch | ZF Friedrichshafen

Further details and the final program can be found here:

www.vdiconference.com/02TA409022

Venue:

Source: Astrid Eckert/TUM

Source: Andreas Heddergott/TUM

VDI Wissensforum

4th International Conference on Gear Production 2022

Future trends and innovations in manufacturing gears

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Ticket includes entrance to the parallel conferences:
• Gears 2022
• High Performance Plastic Gears 2022

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

4th International Conference on Gear Production 2022
September 12 - 14, 2022, **Garching near Munich, Germany** (02TA411022)
1,590,- EUR

www

☐ Participation fee for personal VDI members and members of associated organisations of the International Conference on Gears 2022 **save EUR 50,- each conference day**
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Venue:
Conference: Technische Universität München (Technical University of Munich), Institute of Machine Elements, Gear Research Center (FZG), Boltzmannstr. 15, 85748 Garching, Germany, www.mec.ed.tum.de/en/fzg/home/
Hotel Reservation: A limited number of rooms have been reserved for conference participants. For booking please visit **www.vdi-gears.eu** where you will find a link for special room rates.
More hotels close to the conference venue may be found via our HRS service, www.vdi-wissensforum.de/hrs

HRS Das Hotelportal

Information: The price includes conference documents (e-book), coffee breaks and beverages during breaks, lunches and two evening receptions.

Exclusive offer: All participants at this event are entitled to a free three-month trial VDI membership. (Offer applies exclusively to new members.)

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