ICMT 2025
International Conference on Mechanical Transmission

April 17-20, 2025 Chongqing, China

Conference Program

About ICMT 2025

In recent years, to meet the escalating demands of modern industry and society, the mechanical transmission technology has been making continual progress and getting new achievements in design theories, advanced materials, processing and evaluation techniques. Currently, new applications such as large megawatt wind turbines, new energy vehicles, all electrical equipment, etc., and increasingly stringent environmental protection requirements poses significant challenges to mechanical transmission. Meanwhile, the emergence of cutting-edge technologies such as artificial intelligence and digital twins bring new revolution to the mechanical transmission.

Therefore, State Key Laboratory of Mechanical Transmission for Advanced Equipment in China is organizing the International Conference on Mechanical Transmission (ICMT 2025), which offers a shared platform for scientists, manufacturers and users, to discuss and present trends and innovations in mechanical transmission. On behalf of the Organization of ICMT 2025, we are delighted to invite academic researchers and industrial engineers from all around the world to participate in this event, scheduled for 17-20 April 2025, in Chongqing, China. The conference covers the most important and interesting research subjects of mechanical transmission such as gears, bearings, reducers/transmissions, and electric drive transmission systems, etc.

HOSTS

State Key Laboratory of Mechanical Transmission for Advanced Equipment

Chongqing University

Chinese Mechanical Engineering Society

SUPPORTERS

SPONSORS

Program Overview

April 17, 2025 -- Day 0

10:00-22:00	Sign-in & Conference Kits Collection — Lobby (1F)
18:30-21:00	Dinner — OPEN All Day Dining Restaurant (4F)

April 18, 2025 -- Day 1

Opening Ceremony — Hua Yuan Hall

08:30-08:50	**Opening Remarks** **Prof. Shuxin Wang,** Conference Chair, President of Chongqing University, Director of SKLMT	**Host:** **Prof. Fei Liu,** Secretary-General Chongqing University, China
	Group Photo	

Keynote Speeches — Hua Yuan Hall

08:50-09:30	**Prof. Philippe Velex,** INSA Lyon, France **Title:** On Mesh Interface Simulations in Complex Three-Dimensional Gears	**Host:** **Prof. Datong Qin,** Program Committee Chair Chongqing University, China
09:30-10:10	**Prof. Ahmet Kahraman,** The Ohio State University, USA **Title:** Gear Dynamics Behavior Unique to High-speed Electric Vehicle Geartrains	
10:10-10:50	**Prof. Karsten Stahl,** Technical University of Munich, Germany **Title:** Superefficient Geared Transmission	
10:50-11:10	**Break**	

Keynote Speeches — Hua Yuan Hall

11:10-11:50	**Dr. Guillermo E.Morales Espejel** SKF, Research and Technology Development, The Netherlands Université de Lyon, LaMCoS, INSA-Lyon, France Imperial College London, UK **Title:** Rolling Bearings – Tribological Damaging Modes Modelling	**Host:** **Prof. Jun Hong,** Program Committee Co-Chair Xi'an Jiaotong University, China
11:50-12:30	**Prof. Xiangyang Xu,** Beihang University, China **Title:** Innovation and Practice of Dedicated Hybrid Transmission Configuration in China	
12:30-13:30	**Lunch** — OPEN All Day Dining Restaurant (4F) / Jia Chinese Restaurant (3F)	

Technical Sessions — 13:30-15:30

Nian Hua Hall	Hua Yuan Hall 2	Grand Ballroom A+B	Yu Yao Hall B+C	Grand Ballroom C
Session 01 Gear Geometry	**Session 02** Gear Measurement and Evaluation	**Session 03** Vibration and Noise Reduction of Transmission	**Session 04** Tribology and Lubrication of Bearing	**Session 05** Transmission System Optimization

15:30-15:50 Break & Poster Session

Technical Sessions — 15:50-17:50

Session 06 Gear Geometry	**Session 07** Gear Measurement and Evaluation	**Session 08** Electric Drive System	**Session 09** Bearing Design	**Session 10** New Technology Application in Gearbox

Banquet — Hua Yuan Hall

18:30-21:30	**Host: Prof. Jun Luo,** Organizing Committee Chair, Chongqing University, China

April 19, 2025 -- Day 2

Invited Plenary Speeches — Hua Yuan Hall 1

08:30-09:00	**Prof. Tomoko Hirayama,** Kyoto University, Japan **Title:** Aerostatic Bearing Actuator for Nano-Positioning	**Host:** **Prof. Shilong Wang,** Organizing Committee Co-Chair Chongqing University, China
09:00-09:30	**Prof. Paolo Pennacchi,** Politecnico di Milano, Italy **Title:** The Challenges of Rotordynamics in the Future Energy Markets	
09:30-10:00	**Dr. Qi Fan,** Bevel Gear Technology of China; Gleason Corporation, USA **Title:** Advanced Developments in Bevel Gear Design and Manufacturing Technology	
10:00-10:20	**Break & Poster Session**	

Technical Sessions — 10:20-12:20

Nian Hua Hall	Hua Yuan Hall 2	Grand Ballroom A+B	Yu Yao Hall B+C	Hua Yuan Hall 1
Session 11 Gear Dynamics	**Session 12** Surface Integrity in Gear Manufacturing	**Session 13** Roller Screw Mechanism Mechanics	**Session 14** Intelligent Maintenance of Bearing System	**Session 15** Novel Transmission Design

12:20-13:30 Lunch — OPEN All Day Dining Restaurant (4F) / Jia Chinese Restaurant (3F)

Technical Sessions — 13:30-15:30

Session 16 Gear Tribology	**Session 17** Manufacturing Method of Gear	**Session 18** Geometry and Lubrication of Worm	**Session 19** Intelligent Maintenance of Bearing System	**Session 20** Novel Transmission Design

15:30-15:50 Break

Technical Sessions — 15:50-17:50

Session 21 Gear Dynamics	**Session 22** Manufacturing Method of Gear	**Session 23** Dynamic and Meshing Characteristics of Geartrain	**Session 24** Bearing Dynamics	**Session 25** Electro-Hydraulic Actuator

17:50-20:30 Dinner — OPEN All Day Dining Restaurant (4F)

April 20, 2025 -- Day 3

Invited Plenary Speeches — Hua Yuan Hall 1

08:30-09:00	**Prof. Zhaoyao Shi**, Beijing University of Technology, China **Title:** In-depth Utilization of Holistic Gear Deviations: Process Tracing and Performance Forecasting	**Host:** **Prof. Jing Wei,** Domestic Program Committee Member Chongqing University, China
09:00-09:30	**Prof. Huaiju Liu**, Chongqing University, China **Title:** Anti-Fatigue Design and Fundamental Data of High-Performance Gears	
09:30-09:50	**Break**	

Technical Sessions — 09:50-11:50

Nian Hua Hall	Hua Yuan Hall 2	Grand Ballroom A+B	Yu Yao Hall B+C	Hua Yuan Hall 1
Session 26 Bevel/Face Gear	**Session 27** Manufacturing Method of Gear	**Session 28** Electromechanical Transmission	**Session 29** Bearing Dynamics	**Session 30** Dynamics of Bearing-Gear and Hybrid Driving System

11:50-13:30 Lunch — OPEN All Day Dining Restaurant (4F)

Technical Sessions — 13:30-15:30

Session 31 Bevel/Face Gear	**Session 32** Gear Dynamics	**Session 33** Spline and Coupling Mechanics	**Session 34** Gear Fatigue and Strength	**Session 35** State Evaluation of Transmission System

15:30-15:40 Break

Technical Sessions — 15:40-17:40

Session 36 Plastic/Magnetic Gear	**Session 37** Planetary Gear	**Session 38** Gear Tribology	**Session 39** Gear Geometry	**Session 40** State Evaluation of Transmission System

Table of Contents

Organizing Committee

Conference Chair
Prof. Shuxin Wang, Academician of CAE, Chongqing University

Conference Co-Chairs
Prof. Qingxue Huang, Academician of CAE, Taiyuan University of Technology
Prof. Ming Mao, Academician of CAS, China North Vehicle Research Institute

Advisory Committee
Prof. Peigen Li, Academician of CAE, Huazhong University of Science and Technology
Prof. Jinji Gao, Academician of CAE, Beijing University of Chemical Technology
Prof. Yuming Wang, Academician of CAE, Tsinghua University
Prof. Jianbin Luo, Academician of CAS, Tsinghua University
Prof. Huayong Yang, Academician of CAE, Zhejiang University
Prof. Xuedong Chen, Academician of CAE, China Machinery Engineering Corporation
Prof. Changle Xiang, Academician of CAE, Dalian University of Technology
Prof. Zongxia Jiao, Academician of CAE, Beihang University

Program Committee Chair
Prof. Datong Qin, Chongqing University

Program Committee Co-Chairs
Prof. Zhaoyao Shi, Beijing University of Technology
Prof. Xiangyang Xu, Beihang University
Prof. Jun Hong, Xi'an Jiaotong University

Organizing Committee Chair
Prof. Jun Luo, Chongqing University

Organizing Committee Co-Chairs
Prof. Shilong Wang, Chongqing University
Prof. Bingkui Chen, Chongqing University
Prof. Caichao Zhu, Chongqing University

Secretary-General
Prof. Fei Liu, Chongqing University

Deputy Secretary-General
Prof. Huaiju Liu, Chongqing University

Secretary
Prof. Peitang Wei
Prof. Wenbin Huang
Prof. Yonghong Chen
A/Prof. Yan Ran
A/Prof. Ye He
Prof. Yonggang Liu
A/Prof. Changzhao Liu

Members of International Program Committee
Prof. Alfonso Fuentes Aznar, Rochester Institute of Technology, USA
Dr. Luc Amar, CETIM, Senlis Cedex, France
Prof. Luis San Andrés, Texas A & M University, USA
Prof. Christian Brecher, WZL, RWTH, Aachen, Germany
Dr. Qi Fan, The Gleason Works, USA
Prof. Carlo Gorla, Politecnico di Milano, Italy
Prof. Diego Galar, Luleå University of Technology, Sweden
Prof. Bernd-Robert Höhn, Technical University of Munich, Germany
Prof. Tomoko Hirayama, Kyoto University, Japan
Prof. Daisuke Iba, Kyoto Institute of Technology, Japan

Prof. Ahmet Kahraman, The Ohio State University, USA
Prof. Amir Khajepour, University of Waterloo, Canada
Prof. Syuhei Kurokawa, Kyushu University, Japan
Prof. Sungki Lyu, Gyeongsang National University, Korea
Prof. Aleksandar Miltenovic, University of Nis, Serbia
Prof. Paolo Pennacchi, Politecnico di Milano, Italy
Prof. Zhongxiao Peng, The University of New South Wales, Australia
Prof. Jose I. Pedrero, Universidad Nacional de Educacion a Distancia (UNED) Madrid, Spain
Prof. Brian Shaw, Newcastle University, UK
Prof. Karsten Stahl, Technical University of Munich, Germany
Prof. Philippe Velex, INSA Lyon, France
Prof. Yi Zhang, University of Michigan-Dearborn, USA

Members of Domestic Program Committee

Prof. Yanzhong Wang, Beihang University
Prof. Kai Feng, Hunan University
Prof. Dongye Sun, Chongqing University
Prof. Xiaohui Shi, Chongqing University of Science and Technology
Prof. Geng Liu, Northwestern Polytechnical University
Prof. Hui Liu, Beijing Institute of Technology
Prof. Zhongming Liu, Zhengzhou Research Institute of Mechanical Engineering Co., Ltd
Chief Engineer, Wenchao Li, Luoyang Bearing Research Institute Co., Ltd
Prof. Rupeng Zhu, Nanjing University of Aeronautics and Astronautics
Prof. Weidong He, Dalian Jiaotong University
Prof. Zhonghou Wang, University of Shanghai for Science and Technology
Prof. Minggang Du, China North Vehicle Research Institute
Prof. Ke Yan, Xi'an Jiaotong University
Prof. Yong Chen, Guangxi University
Prof. Yangzhi Chen, South China University of Technology
Prof. Zhaobo Chen, Harbin Institute of Technology
Prof. Xiaoling Wu, Zhengzhou University
Prof. Changjiang Zhou, Hunan University
Prof. Shanming Luo, Jimei University
Prof. Ning Zhao, Northwestern Polytechnical University
Prof. Yaping Zhao, Northeastern University
Prof. Zhiguo Zhao, Tongji University
Prof. Baian Hu, AECC Hunan Powerplant Research Institute
Prof. Qi Xin, AECC Shenyang Engine Research Institute
Prof. Ligang Yao, Fuzhou University
Prof. Xiaodong Guo, Chongqing University of Science and Technology
Prof. Xiangyang Xu, Chongqing Jiaotong University
Prof. Shan Chang, Harbin Ship Boiler Turbine Research Institute
Prof. Jinyuan Tang, Central South University
Prof. Wenbin Huang, Chongqing University
Prof. Huajun Cao, Chongqing University
Prof. Jiang Han, Hefei University of Technology
Prof. Yulong Lei, Jilin University
Prof. Jing Wei, Chongqing University
Prof. Bingyang Wei, Henan University of Science and Technology

Conference Venue

DoubleTree by Hilton Hotel Chongqing - Nan'an

No. 36 Nanping West Road, Nan'an District, Chongqing, 400060, China

Conference Room

Level	Conference Rooms	April 18	April 19	April 20
3F	Jia Chinese Restaurant	12:30-13:30	12:20-13:30	
4F	OPEN All Day Dining Restaurant	12:30-13:30	12:20-13:30 17:50-20:30	11:50-13:30
5F	Yu Yao Hall B+C	13:30-17:50	10:20-17:50	09:50-17:40
	Grand Ballroom A+B	13:30-17:50	10:20-17:50	09:50-17:40
	Grand Ballroom C	13:30-17:50		
6F	Hua Yuan Hall	08:30-12:30 18:30-21:30		
	Hua Yuan Hall 1		08:30-17:50	08:30-17:40
	Hua Yuan Hall 2	13:30-17:50	10:20-17:50	09:50-17:40
	Nian Hua Hall	13:30-17:50	10:20-17:50	09:50-17:40

Traffic Information

From Chongqing Jiangbei International Airport to DoubleTree by Hilton Hotel Chongqing - Nan'an

By Car: Approx. 34 minutes by car/drive, distance approx.17km.

From Chongqingbei Railway Station to DoubleTree by Hilton Hotel Chongqing - Nan'an

By Car: Approx.19 minutes by car/drive, distance approx.10.9km.

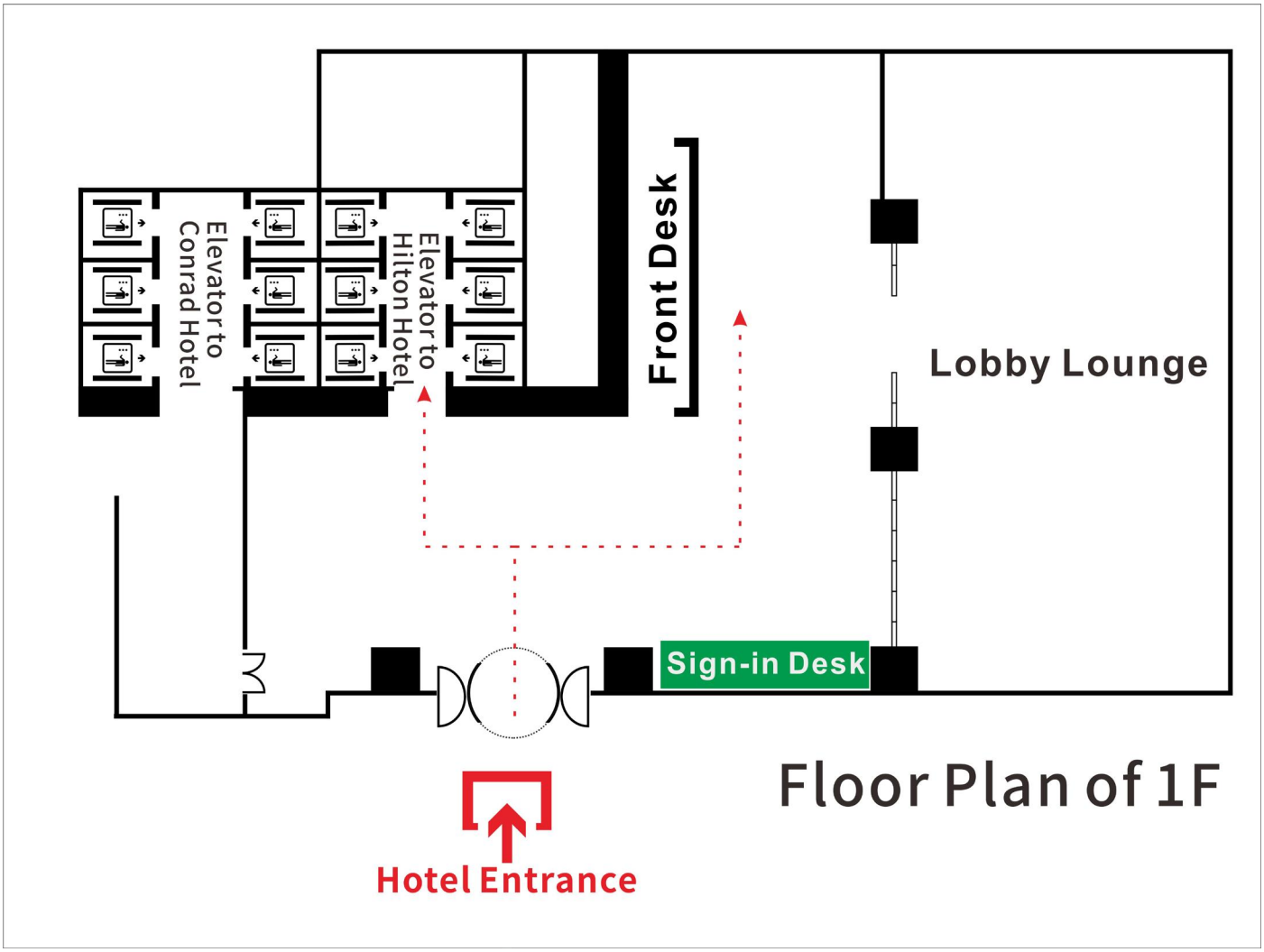
From Chongqingxi Railway Station to DoubleTree by Hilton Hotel Chongqing - Nan'an

By Car: Approx. 30minutes by car/drive, distance approx.15.9km.

From Shapingba Railway Station to DoubleTree by Hilton Hotel Chongqing - Nan'an

By Car: Approx. 28 minutes by car/drive, distance approx.14.3km.

Conference Venue



Important Note

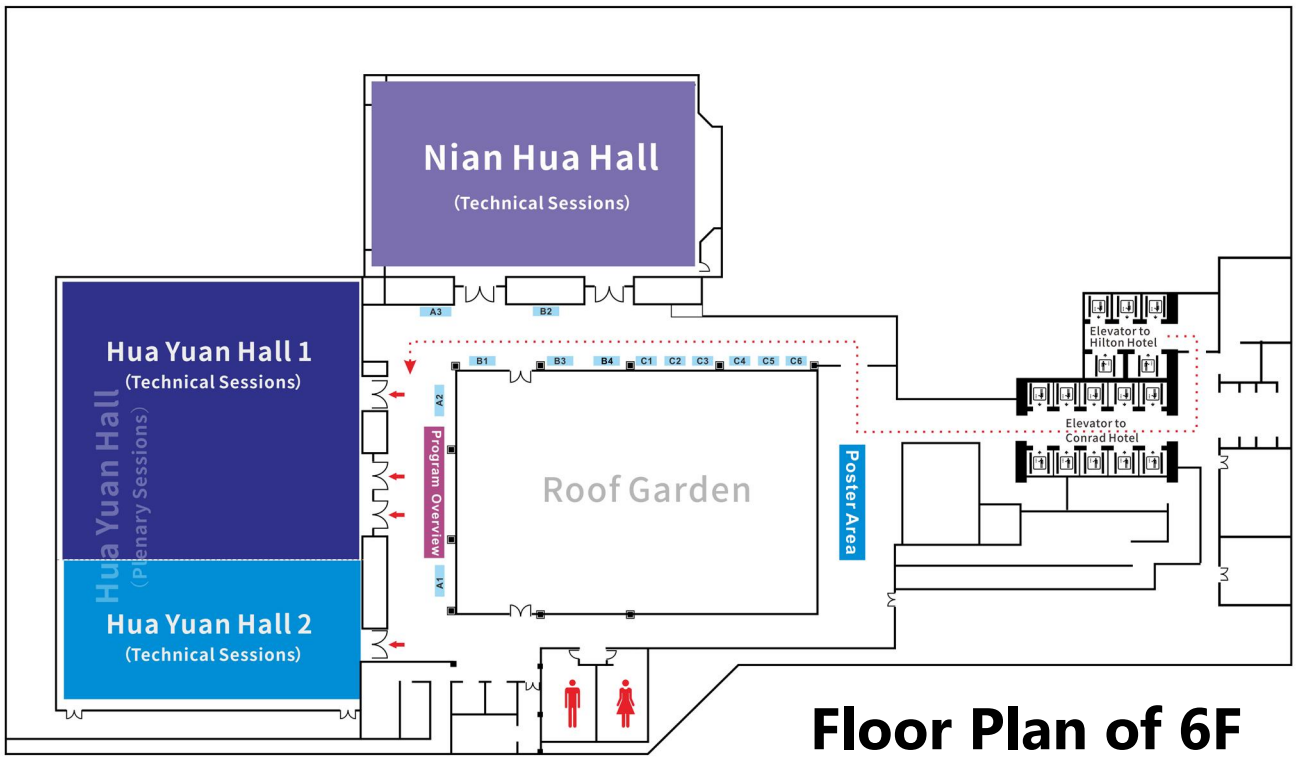
Please line up to collect the conference kits in order of your **family name's Initial**.

* If your family name starts with "**A-H**", join the Line "A-H".

* If your family name starts with "**I-Q**", join the Line "I-Q".

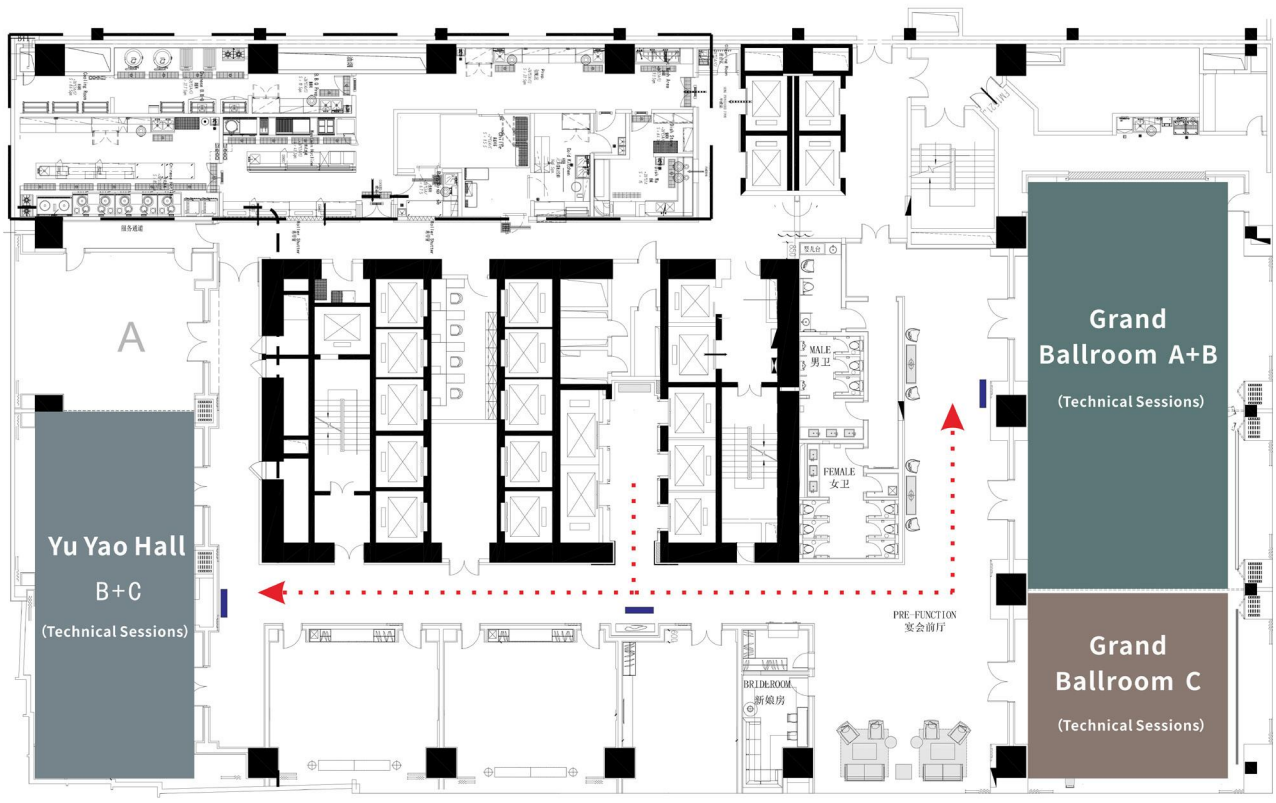
* If your family name starts with "**R-Z**", join the Line "R-Z".

Conference Venue



Floor Plan of 6F

Floor Plan of 5F



Presentation Guide

Oral Presentation

1. Keynote Speakers are limited to **40** minutes.

   Invited Plenary Speakers are limited to **30** minutes.

   Oral Presentations are limited to **20** minutes (including Question & Answer).

2. Please schedule your presentation to allow about 5 minutes for questions from the audience.
3. Your punctual arrival and active involvement in each session will be highly appreciated.

   Get your presentation PPT or PDF files prepared and backed up.

4. Laptops, projector & screen, laser sticks will be provided by the conference organizer.

Poster Presentation

It's expected that at least one author stands by the poster for (most of the time of) the duration of the poster session. This is essential both to present your work to anyone interest in it and to make sure that your presence is verified by committee.

Security

Please ensure that you take your belongings with you at all times when leaving a room.

Do not leave bags or laptops unattended.

Keynote Speaker

08:50-09:30 | April 18, 2025 | Hua Yuan Hall

Prof. Philippe Velex

INSA Lyon, France

Bio.: Philippe VELEX was born in 1961 in Chaumont (France). He graduated with an MEng. in Mechanical Engineering (French Diplôme d'Ingénieur) with Honours from INSA Lyon (France) in 1984. He then started his research on gear dynamics in the Contact Mechanics Laboratory of INSA Lyon and was awarded a PhD with Honours in 1988. He was appointed Associate Professor at INSA Lyon in 1989 and then Full Professor of Mechanical Engineering in 1998. He is the former head of the 'Mechanical Systems and Contact' research group of LaMCoS (INSA Lyon) and served as Associate Editor for several international journals (MMT, J.Mech. Des., J. Vib. Acous., J. Multi-Body Dyn.). He has authored and co-authored more than 100 papers in international journals and conference proceedings and supervised 30+ PhDs. He was the chairman and organiser of the 2014 and 2018 International Gear Conference in Lyon. He is the holder of the SAFRAN-INSA Chair on Innovative Mechanical Transmissions for Aeronautics and the Director of the International Bachelor in Mechanical, Materials and Aerospace Engineering of INSA Lyon.

Speech Title: On Mesh Interface Simulations in Complex Three-Dimensional Gears

Abstract: In this keynote address, the classic notions of mesh stiffness and transmission error will be re-examined and critically assessed, particularly in the context of three-dimensional models of thin-rimmed high-speed spur and helical gears typical of aeronautical applications.

Since the late 80's, transmission error has become a key parameter in gear noise and vibration analyses. However, it can hardly be considered as a primary parameter appearing naturally in the theoretical formulations (as opposed to displacements and forces for instance). Moreover, if the definition of transmission error is clear when using the classic single degree of freedom torsional model, it becomes ambiguous or at least not intrinsic when more advanced models (even purely torsional ones) are employed. This is because transmission error depends on the chosen references for measuring or calculating deviations between the actual and perfect rotation transfers from the pinion to the gear. In this presentation, a pragmatic approach to this somewhat elusive parameter is proposed, which basically reproduces the experimental procedure for transmission error measurements using encoders or accelerometers.

Mesh stiffness is clearly a key parameter in gear analysis as it is needed for static and dynamic simulations, load distribution analysis, the definition of tooth flank modifications, etc. A review of the classic calculation methodologies in the literature and some of their shortcomings will be presented and commented upon. The conditions and hypotheses leading to the existence and uniqueness of a scalar mesh stiffness function (possibly time-varying and/or non-linear) will be discussed. For quasi-static conditions, a tentative general definition of mesh stiffness relying on global parameters such as loads and transmission errors will be introduced along with its conceptual limitations. The proposed formulation can be employed for the majority of the models including extended three-dimensional finite elements, for which the notion of mesh stiffness as a single scalar function is neither readily definable nor straightforward to perceive. Experimental evidence is provided which proves that this definition is sound and that some other received definitions of mesh stiffness can be misleading.

Considering dynamic conditions, some experimental and numerical results will be presented which underscore the fact that, in a number of configurations, different static and dynamic mesh stiffness functions should be used depending on the objective: load distribution and tooth modifications as opposed to gear vibration analysis. To conclude this address, a new high-speed test rig aimed at investigating this issue (amongst other specific high-speed related phenomena) will be presented briefly and some results will be shared.

Keynote Speaker

09:30-10:10 | April 18, 2025 | Hua Yuan Hall

Prof. Ahmet Kahraman

Winbigler Professor of Mechanical and Aerospace Engineering
The Ohio State University, USA

Bio.: Ahmet Kahraman is the Winbigler Professor of Mechanical and Aerospace Engineering at the Ohio State University. He is the Director of the Gear and Power Transmission Research Laboratory (GearLab). He also directs Pratt & Whitney Center of Excellence in Gearbox Technology. He received his Ph.D. degree in Mechanical Engineering from the Ohio State University in 1990. He worked for General Motors as a researcher and engineering manager for 10 years before moving to academia. His research focuses on several areas of power transmission and gearing including gear system design and analysis, gear and transmission dynamics, gear lubrication, efficiency and scuffing, wear and fatigue life prediction, and gear test methodologies. He authored more than 250 papers on gear research. He serves on the editorial boards of Journal of Sound and Vibration, and Journal of Multi-body Dynamics. He is a fellow of ASME.

Speech Title: Gear Dynamics Behavior Unique to High-speed Electric Vehicle Geartrains

Abstract: Electric vehicle (EV) drivetrains, while being rather simple in terms of their kinematic configurations as constant-ratio speed reducers, are subject to high input speeds that are far beyond those experienced by conventional automotive transmissions driven by internal combustion engines. Many dynamic effects overlooked in the past due to their irrelevance to conventional transmission geartrains are becoming relevant to high-speed EV geartrains with potentially significant design and performance concerns. This talk discusses three examples of such dynamic effects that are unique to EV drivetrains. (1) Influences of electric motor torque pulsations as a new source of external excitations. (2) Transient vibro-impact behavior of EV drivetrains that takes place during the transitions between the drive and regenerative breaking modes of vehicle operation. (3) Gear tooth bending resonances caused by high-speed traveling tooth contact forces. Simplified models of typical EV geartrains will be proposed and exercised to demonstrate these behaviors. These predictions will be supplemented by experiments to further demonstrate the presence of such behavior. Shortcomings of conventional gear design and analysis methods in comprehending these effects in reducing gear noise and in capturing dynamic effects in fatigue design will be discussed along with potential remedies.

Keynote Speaker

10:10-10:50 | April 18, 2025 | Hua Yuan Hall

Prof. Karsten Stahl

Full Professor, Technical University of Munich, Germany
Head of Gear Research Center (FZG) at TUM
Head of Department of Mechanical Engineering, TUM

Bio.: Professor Karsten STAHL studied mechanical engineering at the Technical University of Munich (TUM) and served as a research associate at the Gear Research Centre (FZG) at TUM and received his Ph.D. degree (Dr.-Ing.). Then, he worked 10 years for BMW in different positions. He was head of the group "Prototyping, Gear Technology & Methods" in Dingolfing, department leader "Validation Driving Dynamics and Powertrain" at the MINI plant in Oxford, and Manager for "Predevelopment and Innovation Management" within BMW Driving Dynamics and Powertrain in Munich.

Since 2011 Prof. Stahl is head of the Institute for Machine Elements and director of the Gear Research Center (FZG) at TUM and since 2024 he is also head of the Department of Mechanical Engineering at the School of Engineering and Design of TUM.

The focus of his research is experimental and analytical investigations of endurance, tribology, NVH, materials, and condition monitoring on gears, transmission components, and drive systems, targeting to develop methods and tools for the reliable determination of fatigue life, efficiency, and vibration characteristics.

Prof. Stahl is the author of several hundred scientific publications, member of many scientific boards and associations, convenor of DIN and ISO working groups, editor of scientific journals, and chairman of different scientific conferences, including president of the VDI International Conference on Gears.

Speech Title: Superefficient Geared Transmission

Abstract: The reduction of frictional losses in geared transmissions plays a crucial role in achieving carbon neutrality. In addition, the sustainability aspects of the materials and lubricants used in geared transmission are becoming increasingly important from a societal point of view. This study provides an overview of current trends in the development of technologies and methods leading to exeptionally efficient (“superefficient”) geared transmissions. This includes the use of novel materials such as thermoplastics or sintered materials, as well as surface coatings and innovative aqueous lubricants. The latter have demonstrated liquid superlubricity at the contact local scale and at the component level considering gears, and thus can offer high energy saving potentials for geared transmissions. Furthermore, advances in numerical modeling methods support the efficiency-oriented design of gear components and the gear housing. For EHL contacts, full system approach solvers have become state of the art. Increasing computing power drastically reduces the computation time, which allows the generation of large amounts of data, e.g. to derive machine learning based computational approaches. In addition, the application of particle-based methods has led to great efforts in the simulation of oil flow distribution. This makes it possible to tailor lubrication management and reduce the amount of lubricant required. This can be used to apply minimum quantity lubrication or even droplet on demand solutions. However, geared transmissions offer a wide range of applications with a high variety of power loss characteristics. While load-dependent power losses may be dominant in industrial applications, load-independent power losses may be a significant portion of the total power losses in low-load dynamic applications. Thus, depending on the specific boundary conditions, different technologies and methods must be considered for the design of superefficient geared transmissions.

Keynote Speaker

11:10-11:50 | April 18, 2025 | Hua Yuan Hall

Dr. Guillermo E.Morales Espejel

PhD, H d R, Prof.
SKF, Research and Technology Development, The Netherlands
Université de Lyon, LaMCoS, INSA-Lyon, France
Imperial College London, UK

Bio.: Dr. Morales-Espejel is a Principal Scientist at SKF Research and Technology Development at Houten, The Netherlands, and a Chair Professor at LaMCoS, INSA de Lyon, France. He is also a Visiting Professor at Imperial College London, UK. He received a PhD in Tribology from the University of Cambridge, U.K., and he holds a "Habilitation à Diriger des Recherches (INSA-Lyon)". Dr. Morales-Espejel has 10 years of experience as a university lecturer and 25 years of experience in studying rolling bearing tribology. He is the author of more than 100 scientific papers and several book chapters. In addition, he is the Associated Editor of Tribology Transactions and IMechE Part J. Dr. Morales-Espejel research interests include modelling of bearing life, friction, lubrication (EHL and micro-EHL), and surface life.

Speech Title: Rolling Bearings – Tribological Damaging Modes Modelling

Abstract: New operating conditions in many rolling bearing applications mean tougher conditions for the surface, often involving the competition of different damaging mechanisms. At the same time, industry megatrends require higher reliability in the prediction of rolling bearing performance, involving bearing populations and individual bearings. It is well-known that nowadays is often the surface and near-surface in the contacts of a rolling bearing that determine its performance. Then the importance of understanding damaging mechanisms produced by tribological processes often in competition. The development of physically meaningful and deterministic models is paramount in the pursuit of better understanding and eventual mitigation of surface damaging mechanisms in rolling bearings.

The talk will cover some general aspects to highlight the importance of tribology in the rolling bearing performance, like required operating conditions in prominent modern applications (e.g. EV, spindles, aero). Then aspects related to the modelling of bearing lubrication even at asperity level will be covered, models on partial-lubrication, load fluctuation and surface-initiated fatigue will be discussed, including the competition of mild-wear and fatigue. Modelling the interaction of pitting corrosion and fatigue will also be discussed. Finally, when a spall appears in a bearing, its propagation can be modelled in different ways, in this talk a fast-engineering model will be discussed. New model concepts in bearing life prediction with the separation of surface and subsurface will be presented. Examples of the application of these new concepts will be introduced to the audience. Some final conclusions and future perspectives will be presented at the end.

Keynote Speaker

11:50-12:30 | April 18, 2025 | Hua Yuan Hall

Prof. Xiangyang Xu

Professor, Director of the Academic Committee
School of Transportation Science and Technology
Beihang University, China

Bio.: Prof. Xiangyang XU, PhD, Bachelor's and Master's degrees in Vehicle Engineering from Beijing Institute of Technology in 1987 and 1990, PhD in Mechatronic Engineering from Harbin Institute of Technology in 1999. Worked at the School of Automotive Engineering, Harbin Institute of Technology from 1990 to 2002, and as a visiting scholar at Daimler Benz AG from July 1998 to December 1999. From September 2002 to present, Professor at the School of Transportation Science and Engineering, Beihang University, Executive Deputy Director of the National Passenger Vehicle Automatic Transmission Engineering and Technology Research Center, and Fellow of the China SAE. Professor XU has long been engaged in theoretical and engineering technology innovation and industrialization of automatic transmissions for vehicles. He has led the development of the world's first front wheel drive 8-speed automatic transmission (8AT) and its series of products, and won the first prize of National Science and Technology Progress Award (first author) in 2016. His main research interests: Vehicle automatic transmission theory and control technology, hybrid transmission technology, and electric drive technology.

Speech Title: Innovation and Practice of Dedicated Hybrid Transmission Configuration in China

Abstract: Hybrid electric vehicles are an important technical route to achieve the "dual carbon" goals in the automotive industry. The dedicated hybrid transmission (DHT) couples the engine and motors electromechanical to achieve energy conversion and control. The coupling between the engine and motors can be series, parallel, or hybrid (further subdivided into series-parallel and power split), and different coupling methods result in different energy efficiency. Therefore, when enterprises develop dedicated hybrid transmissions, the first thing they need to decide is what kind of technical route to adopt, followed by the synthesis of configuration schemes, optimization of design parameters, and engineering development. The paper first builds a comprehensive performance evaluation platform for hybrid systems based on dynamic programming algorithms, providing methods and tools for the selection of hybrid technical routes. Simulation analysis and comprehensive evaluation show that the multi-speed series-parallel hybrid technical route is the most suitable development direction for dedicated hybrid transmissions in China, which mainly rely on electric drive. On this basis, a comprehensive configuration scheme and parameter optimization method for dedicated hybrid transmissions were proposed, and a database of configuration schemes for dedicated hybrid transmissions was established. Collaborated with Chinese automotive companies, series-parallel dedicated hybrid transmissions with 2/3/4 gears were developed in China. Actual vehicle test data shows that cars equipped with multi-speed series-parallel dedicated hybrid transmissions have significantly better power performance and economy performance than cars equipped with series, power split, and single speed series-parallel hybrid models.

Invited Plenary Speaker

08:30-09:00 | April 19, 2025 | Hua Yuan Hall 1

Prof. Tomoko Hirayama

Professor, Kyoto University, Japan

Bio.: After graduating from the University of Tokyo, she completed graduate school at Kyoto University. She became a professor at Kyoto University since 2019. She is a PI in the machine elements laboratory now. Her main specialty is tribology and machine elements covering bearings.

Speech Title: Aerostatic Bearing Actuator for Nano-Positioning

Abstract: Ultraprecise positioning on the nanometer order has been strongly required, especially in semiconductor stepper equipment. To meet such needs, we proposed a 'pneumatic servo bearing actuator' as a new actuator for ultraprecise positioning. This actuator consists of a servo valve and an aerostatic thrust bearing, which has the appropriate stiffness as an inherent characteristic. In this system, pressurized air controlled by the servo valve moves an actuated spool precisely. The static and dynamic characteristics of the actuator was investigated in comparison with theoretical predictions. As a result, the proposed actuator was confirmed to be an ultra-precise positioning device without any positioning sensors because of the inherent stiffness of the aerostatic thrust bearings. In addition, to improve the positioning characteristics of the pneumatic servo bearing actuator, a feedback control was added to the system. The actuator was controlled by feedback of the position of actuated spool on the control model composed of a proportional controller and parallel observer. An increase in the feedback gain of the proportional controller easily made the actuator respond quickly and performs with high stiffness, but it caused unstable operation. To solve the problem, a parallel observer that can predict the disturbance to the actuator was added to the control model. The parallel observer was designed to remove the position variation at low frequencies. As a result, the actuator performed with higher positioning accuracy and stable operation. The obtained characteristics of the actuator were enumerated as follows; (1) the positioning resolution was less than 1 nm, (2) the step response became sharper without any drift or hysteresis, and (3) the stiffness of the actuator was almost infinite against the positioning disturbance at low frequency. This showed that the actuator's performance could be improved by a simple control, and thus, that the actuator has a high probability of being applied as an ultraprecise positioning device.

Invited Plenary Speaker

09:00-09:30 | April 19, 2025 | Hua Yuan Hall 1

Prof. Paolo Pennacchi

Full Professor of Applied Mechanics
Department of Mechanical Engineering, Politecnico di Milano, Italy

Bio.: Professor Paolo Pennacchi is Full Professor of Applied Mechanics at Politecnico di Milano, where he leads the Rotordynamics and Diagnostics research group. His research primarily focuses on rotor dynamics, vibration analysis, and diagnostics of rotating machinery, with particular attention to cracks in shafts and blades, fluid-film and rolling elements bearings, and seals. His expertise spans from theoretical modeling to experimental validation, developing advanced techniques for condition monitoring, fault identification, and prognostics in turbomachinery, power generation systems, and railway traction systems.

From 2011 to 2017, Professor Pennacchi served as Chairman of the IFToMM Technical Committee on Rotor Dynamics, a role that solidified his international leadership in the field. He also served as President of the Italian Society of Tribology (2014-2021) and is currently President of the Italian Scientific Society of Applied Mechanics (GMA).

He is Senior Editor of Mechanical Systems and Signal Processing, one of the most prestigious journals in the field of mechanical diagnostics and vibration analysis. Over his career, Professor Pennacchi has published more than 400 scientific papers, receiving numerous Best Paper Awards and international recognitions. His research continues to drive innovation in rotor dynamics, with applications in energy production, industrial machinery, and transportation systems.

Speech Title: The Challenges of Rotordynamics in the Future Energy Markets

Abstract: In the coming years, both industrialized and developing countries will face the crucial challenge of the energy transition, a process that will progressively reduce the reliance on fossil fuels, favoring instead the expansion of renewable energy sources and the renewed interest in nuclear power.

At present, rotating machinery forms the technological backbone of energy production systems across the world. However, the field of Rotordynamics will be required to confront entirely new challenges, driven directly by the transformation of energy generation technologies.

Alongside the traditional Rankine and Brayton thermodynamic cycles, which rely on steam and gas turbines, the coming years will witness a growing adoption of ORC (Organic Rankine Cycle) turbines and the introduction of machines operating within high-efficiency thermodynamic cycles such as the Allam-Fetvedt cycle, which requires supercritical carbon dioxide (sCO2) as the working fluid. In parallel, hydrogen—already used in combination with natural gas—will increasingly become the primary fuel in gas turbines, driving the development of a new generation of compressors characterized by very high flow rates and elevated rotational speeds.

This evolving scenario will require Rotordynamics to address a series of technically demanding issues, including the stability of rotors operating with high molecular weight fluids, the design of advanced sealing systems, the progressive reduction in the use of mineral-based lubricants in fluid-film and rolling element bearings, and the exploration of working fluids themselves as lubricants. Furthermore, the field will need to provide innovative solutions for supporting larger, heavier, and faster rotors, while simultaneously meeting the increasingly stringent RAMS (Reliability, Availability, Maintainability, and Safety) requirements.

This keynote lecture will delve into these emerging challenges, presenting not only the critical issues at stake but also the technical solutions that have been developed and experimentally validated so far.

Invited Plenary Speaker

09:30-10:00 | April 19, 2025 | Hua Yuan Hall 1

Dr. Qi Fan

PHD, Director of Bevel Gear Technology of China
Gleason Corporation, USA

Bio.: Dr. Fan, Qi is the Director of Bevel Gear Technology (China) of The Gleason Works, USA. As a well-known scientist in gearing, Dr. Fan is the ASME Fellow and former Chair of the ASME Power Transmission and Gearing Committee (PTG). He also served as an Associate Editor of the ASME Journal of Mechanical Design for two consecutive terms. Prior to joining Gleason, Dr. Fan completed his PhD and postdoctoral program under Professor Dr. Faydor L. Litvin, a world-renowned scientist and educator in the theory of gearing. Dr. Fan's technical accomplishments are represented by his widely-cited technical publications and patents. He has received awards from NASA and the British Association of Mechanical Engineering. Dr. Fan has also been a guest professor at several universities.

Speech Title: Advanced Developments in Bevel Gear Design and Manufacturing Technology

Abstract: General scope of bevel gears covers straight bevel gears, spiral bevel gears, hypoid gears, high reduction hypoid gears, and face gears as well. Recent applications of bevel gears in both traditional automobiles and electric vehicles, aircrafts (including low-altitude e-aircrafts), robots, and etc. demand higher performances of bevel gears in terms of higher transmission ratios, more adaptive forms of designs, higher power density, higher NVH properties, higher efficiency and lower manufacturing cost as well. As a global leader in gear technology and a total gear solution provider, Gleason Corporation has developed some advanced technologies ranging from design methodologies to manufacturing processes to address these market challenges in a manner of closed-loop solutions. This presentation will cover advanced features of the latest bevel gear design software GEMS, sophisticated selective microgeometry optimization of spiral bevel and hypoid gears, straight bevel gear process for e-drive differentials, and advanced face-gear manufacturing process.

Invited Plenary Speaker

08:30-09:00 | April 20, 2025 | Hua Yuan Hall 1

Prof. Zhaoyao Shi

Professor
Beijing University of Technology, China

Bio.: Dr. Zhaoyao Shi is currently a professor of Beijing University of Technology and Distinguished Professor of "Yangtze River Scholars Program", the Ministry of Education, China. His activities involve gear engineering, precision engineering, metrology and Instrument, robot reducer and so on. He obtained his BS., MS. and PhD degrees in Precision Instrument & Machinery in 1984, 1988 and 2001. He has 18-year industry and 23-year university experiences, including research work at the PTB of Germany and the Cranfield Institute of Technology, UK. He is a member of the ISO/TC60/WG2 (Gear), Vice-president of CGMA (China Gear Manufacturers Association) and Director of SAC/TC357 (Reducers), Standardization Administration of the People's Republic of China. He has been awarded among the China National Award for Science and Technology Progress in 2017 for his contribution to high-speed train gearbox(420km/h), China Mechanical Science and Technology Progress Award in 2017 for his contribution to face gears drive and in 2019 to smart micro gearbox, and Science and Technology Progress Award of Guangdong Province in 2021 for his contribution to mini MIM/PM gears. He is author or co-author of over 200 scientific papers and inventor of over 70 patents.

Speech Title: In-depth Utilization of Holistic Gear Deviations: Process Tracing and Performance Forecasting

Abstract: The measurement of holistic gear deviations (HGD) is a fast-developing field of gear measurement technology in recent years. The value of a measurements is in the application of its result. This paper introduces the representation method of the three-dimensional deviations of the tooth flank. The orthogonal decomposition of HGD based on the Legendre polynomials is proposed, especially suitable for the gear flank twist and waviness error. The concept of the map set is presented to facilitate the visual analysis of gear process errors. According to the HGD, a method for extracting elemental deviations from the HGD is found, which can conveniently derive deviations of the involute, helix, line of contact, profile of the path of contact and other lines on the tooth flank. A new evaluation system for gear accuracy is constructed on basis of HGD. New evaluation parameters are defined by applying statistical methods to the data in the function-oriented CDS. They demonstrate advantages over the traditional evaluation parameters in terms of data utilization and stability. The full use of the HGD is explored from two aspects of gear process error analysis and gear performance prediction, including tooth flank twist analysis, calculation of gear integrated error (GIE) and transmission error (TE), matching method of large batch of gears, etc. A cloud platform is built for analyzing the HGD to support the "full life cycle" closed-loop control of gear design, machining, inspection and service. In-depth utilization of HGDs is the key technologies of the next generation gear measurement.

Invited Plenary Speaker

09:00-09:30 | April 20, 2025 | Hua Yuan Hall 1

Prof. Huaiju Liu

Professor
State Key Laboratory of Mechanical Transmission for Advanced Equipment, Chongqing University, China

Bio.: Huaiju Liu is a full professor in the State Key Laboratory of Mechanical Transmission for Advanced Equipment, Chongqing University. His work is centered on intelligent design of high-power-density gear transmissions. He received his PhD in Mechanical Engineering from the University of Warwick, UK in 2013 before enter SKLMT. Prof. Liu has received grants from various funding agencies including the Ministry of Education of China, National Natural Science Foundation of China, the National Science Foundation for Post-doctoral Scientists of China. He has authored more than 160 journal publications and 30 conference articles. He serves as the committee member of ISO TC 60/ SC 1/ WG 4, and editorial member of "Chinese Journal of Mechanical Transmission", "Chinese Journal of Mechanical Engineering"

Speech Title: Anti-Fatigue Design and Fundamental Data of High-Performance Gears

Abstract: As machines such as aero-engines, electrical vehicles, and wind turbines develop towards higher speed and heavier load conditions, increasingly demands are placed on the gear design boundaries of strength and anti-fatigue performance. Taking China gear industry as an example, the lack of fundamental durability data and anti-fatigue design methods has become the foremost technical bottleneck restricting further development. Building upon a decade of studies in gear durability testing, surface integrity characterization, and design methodologies, a relatively comprehensive gear strength database has been preliminarily established. Additionally, some manufacturing processes that enhance fatigue and scuffing resistance have been explored. These studies have been applied across industries including aero-engines, electrical vehicles, wind turbines, and construction machinery, significantly improving power density and reliability of gearboxes.

Technical Session

Session 01- Gear Geometry

Time & Date	13:30-15:30, April 18, 2025	Venue	Nian Hua Hall / 6F

Session Chairs

- **Yangzhi Chen,** South China University of Technology, China
- **Shanming Luo,** Jimei University, China

Paper Details

13:30-13:50	**Paper ID: MT0059** **Title:** Study on the Surface Morphology and Contact Fatigue Damage Evolution Mechanism of Composite Modified and Strengthened Helical Gears **Authors:** Yong Chen, Li Luo **Presenter: Yong Chen**, Guangxi University, China
13:50-14:10	**Paper ID: MT00150** **Title:** Geometry Design and Meshing Characteristics Analysis of a New Internal Gear With S-Shaped Tooth Profile **Authors:** Qunlong Sun, Dong Liang, Hanbao Hu, Hanjie Jia and Xiangyang Xu **Presenter: Dong Liang**, Chongqing Jiaotong University, China
14:10-14:30	**Paper ID: MT00258** **Title:** Meshing Stiffness Analysis of Conjugate-Curves Gear Pair with Circular Arc Tooth Surfaces **Authors:** Tianchi Wang, Luhe Zhang, Dong He, Jia Shi, Bingkui Chen **Presenter: Tianchi Wang**, Chongqing University, China
14:30-14:50	**Paper ID: MT00317** **Title:** Gold Spiral Tooth Profile Design of Short Flexspline Harmonic Drive **Authors:** Wei Huang, Hongzhan Lv **Presenter: Wei Huang**, Donghua University, China
14:50-15:10	**Paper ID: MT00324** **Title:** A Method for Solving Meshing Point of Offset Enveloping Cylindrical Worm Drive Under Point Contact **Authors:** Xinyue Zhu, Yaping Zhao **Presenter: Xinyue Zhu**, Zhejiang University, China
15:10-15:30	**Paper ID: MT00459** **Title:** Microgeometry Optimization of an E-Drive Unit Using System Level Multibody Simulations for Best NVH Performance **Authors:** Jonas Verhoogen, H.Y. Isaac Du, Bo Li and Hai Xu **Presenter: Jonas Verhoogen**, Siemens Digital Industries Software, Belgium

Technical Session

Session 02 - Gear Measurement and Evaluation

Time & Date	13:30-15:30, April 18, 2025	Venue	Hua Yuan Hall 2 / 6F

Session Chairs

- **Xiaoqing Tian,** Hefei University of Technology, China
- **Huajun Cao,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT0079** **Title:** A Full-Information Measurement and Evaluation Method of Gear Profiles Based on Line Structured Light **Authors:** Shengbing Xie, Tao Wang, Youcai Liu, Xianghuan Liu, Jingang Liu, Zhongyang Shu **Presenter: Shengbing Xie**, Xiangtan University, China
13:50-14:10	**Paper ID: MT00127** **Title:** Research on Digital Twin Technology of FZG Gear Fatigue Test Bench **Authors:** Yuhong Wei, Peiyu Cao, Yujia Liu, Yi Qin **Presenter: Yuhong Wei**, Chongqing University High-end Equipment Mechanical Transmission National Key Laboratory, China
14:10-14:30	**Paper ID: MT00212** **Title:** Numerical Simulation for Tooth Surface Wear of Face Gear Based on Mesh Reconstruction **Authors:** Lu Zhang, Shilong Wang, Sibao Wang, Jianpeng Dong, Hao Wang, Yishuang Xuan **Presenter: Lu Zhang**, Chongqing University, China
14:30-14:50	**Paper ID: MT00366** **Title:** A Novel Tooth Surface Wear Prediction Model for Thin-webbed Gear Pairs Considering Manufacturing Errors **Authors:** Bing Yuan, Yuzheng Tan, Yixi She, Bing Han, Geng Liu **Presenter: Bing Yuan**, Xi'an Technological University, China
14:50-15:10	**Paper ID: MT00407** **Title:** A Methodology to Develop and Validate a Friction Formula to Estimate Mechanical Power Loss of an EV Fluid **Authors:** Michael Handschuh, Alex Schragal, Ahmet Kahraman, Kijong Park, Dongwoo Kim **Presenter: Michael Handschuh**, The Ohio State University, USA
15:10-15:30	**Paper ID: MT00456** **Title:** Eigen Analysis of Graph Laplacian of Tooth Helix Deviation Network of Injection-Molded Plastic Gears Fixed at Specific Tightening Torque **Authors:** Yuichiro Seo, Daisuke Iba, Jing Chong Low, Shunta Takahashi, Naoki Yamashita **Presenter: Yuichiro Seo**, Kyoto Institute of Technology, Japan

Technical Session

Session 03 - Vibration and Noise Reduction of Transmission

Time & Date	13:30-15:30, April 18, 2025	Venue	Grand Ballroom A+B / 5F

Session Chairs

- **Karsten Stahl,** Technical University of Munich, Germany
- **Jing Wei,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT00131** **Title:** A Vibration Reduction Method for Electric Drive Gearbox Based on Multi-Objective Structural Optimization **Authors:** Dingchang He, Yonggang Liu, Datong Qin, Jing Wei, Yi Zhang **Presenter: Dingchang He**, Chongqing University, China
13:50-14:10	**Paper ID: MT00196** **Title:** NVH Performance Improvement of a Two-Stage Gear Transmission for an Electric Vehicle **Authors:** Chenxin Wang, Ping Wang, Yunfeng Zhu, Jianhua Lv, Qi Zhang, Mingli Huang, Zhiyue Xu, Rong Zhang **Presenter: Chenxin Wang**, Zhejiang Shuanghuan Driveline Co., Ltd., China
14:10-14:30	**Paper ID: MT00219** **Title:** Vibration Modes and Dynamic Response of 10MW Wind Turbine Gearbox Test Bench **Authors:** Hesheng Lv, Ting Zhang, Tengjiao Lin, Liyang Fu and Qiang Zhang **Presenter: Hesheng Lv**, Chongqing Gearbox Ltd, China
14:30-14:50	**Paper ID: MT00388** **Title:** Tracing the Source of Gearbox Whistling through Multi-Channel Fusion of Acoustic and Vibration Signals **Authors:** Penghao Xie, Fangli Ning, Jialong Wang, Haiwei Wang, Pengchuan Wang **Presenter: Penghao Xie**, Northwestern Polytechnical University, China
14:50-15:10	**Paper ID: MT00445** **Title:** Torsional Stress Analysis and Vibration Characterization of Driveline System of a Heavy-Duty Hybrid Vehicle **Authors:** Jiaxin Jiao, Pu Gao, Dianzhao Yang, Pengfei Yan, Qi Yan, Hui Liu, Keyu Yan **Presenter: Jiaxin Jiao**, Beijing Institute of Technology, China

Technical Session

Session 04 - Tribology and Lubrication of Bearing

Time & Date	13:30-15:30, April 18, 2025	Venue	Yu Yao Hall B+C / 5F

Session Chairs

- **Paolo Pennacchi,** Politecnico di Milano, Italy
- **Liming Wang,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT007** **Title:** Relationship of Friction Loss with Raceway Diameters and Rotational Speeds in Ball Bearing System Based on Nonlinear Dynamic Method **Authors:** Song Deng, Lin Hua, Fei Gao, Xiaokai Yu **Presenter: Song Deng**, Wuhan University of Technology, China
13:50-14:10	**Paper ID: MT00191** **Title:** Effect of Roller Profile on 3D Thermal Distribution of Axle Box Bearing Under Composite Load **Authors:** Wenqi Li, Liming Wang, Wennian Yu and Wenbin Huang **Presenter: Wenqi Li**, Chongqing University, China
14:10-14:30	**Paper ID: MT00325** **Title:** Investigation on Skidding Behaviors of a Four-Contact-Point Ball Bearing During Acceleration Process **Authors:** Shiyu Chen, Yuqing Liu, Zaigang Chen **Presenter: Shiyu Chen**, State Key Laboratory of Rail Transit Vehicle System, Southwest Jiaotong University, China
14:30-14:50	**Paper ID: MT00409** **Title:** Study on the Influence of Rotational Speed and Clearance on Lubricant Oil Flow Characteristics in Cylindrical Roller Bearings **Authors:** Jing Zhang, Fei Chen, Ke Yan, Yongsheng Zhu, Jun Hong **Presenter: Jing Zhang**, Xi'an Jiaotong University, China
14:50-15:10	**Paper ID: MT00418** **Title:** Visual Analysis of the Influence Mechanism of Cage Motion on Lubrication Based on VOF to DPM Method **Authors:** Jindao Guo, Xinglong Zhang, Xinyi Shi, Ke Yan, Fei Chen, Bin Fang, Jun Hong **Presenter: Jindao Guo**, Key Laboratory of Education Ministry for Modern Design and Rotor-Bearing System, Xi'an Jiaotong University, China
15:10-15:30	**Paper ID: MT00437** **Title:** Evaluation of Rolling-Sliding Mechanism of High Performance Rolling Bearing Raceway **Authors:** Lai Hu, Zixi Wang and Yuming Wang **Presenter: Lai Hu**, Tsinghua University, China

Technical Session

Session 05 - Transmission System Optimization

Time & Date	13:30-15:30, April 18, 2025	Venue	Grand Ballroom C / 5F

Session Chairs

- **Xiangyang Xu,** Beihang University, China
- **Ye He,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT0035** **Title:** Configuration Principle and Application Method of the Power Reflux Hydro-Mechanical Transmission System **Authors:** Jiezhong Wang, Dongye Sun and Jianhua Wang **Presenter: Jiezhong Wang**, Chongqing University, China
13:50-14:10	**Paper ID: MT0052** **Title:** Optimal Design of the Energy Contain Adjustment Strategy for Return-Flow Hydro-Mechanical Transmission **Authors:** Yingzhe Kan, Shuangyi Xie **Presenter: Yingzhe Kan**, Chongqing University of Technology, China
14:10-14:30	**Paper ID: MT00209** **Title:** Lightweight Modeling and Vibration Characteristics of Electric Drive Axles for Heavy Commercial Vehicles **Authors:** Jianyu Yang, Zhiguo Zhao, Peng Tang, Wenbo Fan and Yueyue Deng **Presenter: Jianyu Yang**, Tongji University, China
14:30-14:50	**Paper ID: MT00348** **Title:** Comprehensive Gradient-Free Optimization with Adaptive Kernel-Based Cyclical Learning Rate **Authors:** Hu Yu, Rupeng Zhu, Weiping Yan **Presenter: Hu Yu**, Nanjing University of Aeronautics and Astronautics, China
14:50-15:10	**Paper ID: MT00464** **Title:** Topology and Parametric Optimization in the Design of Aircraft Transmissions **Authors:** Dmitry Kalinin, Alexey Zhukov **Presenter: Dmitry Kalinin**, Central Institute of Aviation Motors after P.I. Baranov, Russia

Technical Session

Session 06 - Gear Geometry

Time & Date	15:50-17:50, April 18, 2025	Venue	Nian Hua Hall / 6F

Session Chairs

- **Zhengyu Yang,** Gleason Corporation, China
- **Yaping Zhao,** Northeastern University, China

Paper Details

15:50-16:10	**Paper ID: MT0015** **Title:** Optimization Design of Macro and Micro Meshing Performances of a Novel Inner Gear Enveloping Worm Drive **Authors:** Jingzi Zhang, Shiyu Ma, Xuegang Li, Ju Han, Xueyan Zhang, Shuai Zhao **Presenter: Jingzi Zhang**, North China University of Science and Technology, China
16:10-16:30	**Paper ID: MT0028** **Title:** Research on a Variable-Ratio Line Gear Mechanism with Deformable Teeth **Authors:** Chao He, Yangzhi Chen, Xiaoping Xiao and Zhen Chen **Presenter: Chao He**, Guangdong Ocean University, China
16:30-16:50	**Paper ID: MT0047** **Title:** Computerized Design Methodology and Meshing Behavior Controlling Technology of Face-Milled Hypoid Gear in Non-Orthogonal Configuration **Authors:** Jingwei Pang, Siyuan Liu, Chaosheng Song, Caichao Zhu, Wenjun He, Hailan Song **Presenter: Jingwei Pang**, Chongqing University, China
16:50-17:10	**Paper ID: MT0048** **Title:** High-Performance Bevel Gear Design and Manufacturing Closed-Loop Technology and Software **Authors:** Ruiqi Guo, Weiqing Zhang, Xiaodong Guo, Rulong Tan, Mingde Zhang **Presenter: Weiqing Zhang**, Chongqing University of Technology, China
17:10-17:30	**Paper ID: MT0098** **Title:** A Method for Registration and Denoising of Line Structured Light Gear Data Based on Point Cloud Geometric Features **Authors:** Zhixiang Yu, Tao Wang, Yakun Chang, Hailong Mi, Jingang Liu and Xianghuan Liu **Presenter: Zhixiang Yu**, Xiangtan University, China
17:30-17:50	**Paper ID: MT00123** **Title:** A Review on Line Gear Studies: Theories, Design, Manufacture and Applications **Authors:** Yangzhi Chen, Weitao He, Yanjie Shao **Presenter: Yangzhi Chen**, South China University of Technology & Guangdong Ocean University, China

Technical Session

Session 07 - Gear Measurement and Evaluation

Time & Date	15:50-17:50, April 18, 2025	Venue	Hua Yuan Hall 2 / 6F

Session Chairs

- **Jinyuan Tang,** Central South University, China
- **Sibao Wang,** Chongqing University, China

Paper Details

15:50-16:10	**Paper ID: MT0038** **Title:** Measurement of Gear Meshing Stiffness by 3D-DIC Technique Involving Fractal Contact Stiffness **Authors:** Xin Yu, Yunyun Sun and Shijing Wu **Presenter: Xin Yu**, Wuhan University, China
16:10-16:30	**Paper ID: MT00144** **Title:** Influences of Machine Axes Offsets on the Flank Deviations of Continuously Generated Face Gears **Authors:** Maohao Xia, Jianpeng Dong, Shilong Wang, Weijian Kong and Yi Zhao **Presenter: Maohao Xia**, Chongqing University, China
16:30-16:50	**Paper ID: MT00351** **Title:** An On-Machine Measurement Method of Gear Deviations Based on a Line Laser Sensor **Authors:** Yuanyang Wang, Changjiu Xia, Haoqing Zeng and Xuncai Zhong **Presenter: Yuanyang Wang**, Southwest Jiaotong University, China
16:50-17:10	**Paper ID: MT00360** **Title:** Study on the Influence of Tooth Surface Micro-Texture on Dynamic Characteristics of Face Gear **Authors:** Zhi Wang, Sibao Wang, Shilong Wang, Yuliang Xiao, Jianpeng Dong, Yishuang Xuan, Lu Zhang and Hao Wang **Presenter: Zhi Wang**, Chongqing University, China
17:10-17:30	**Paper ID: MT00396** **Title:** A Method of Assessing Rattle Noise Severity from Torsional Drivetrain Models **Authors:** Ata Donmez, Ahmet Kahraman **Presenter: Ahmet Kahraman**, The Ohio State University, USA
17:30-17:50	**Paper ID: MT00406** **Title:** An Experimental Study of the Influence of Oil Flowrate on the Contact Efficiency of Gears and Discs **Authors:** Michael Handschuh, Anthony Ngo, Alex Schragal, Ahmet Kahraman **Presenter: Michael Handschuh**, The Ohio State University, USA

Technical Session

Session 08 - Electric Drive System

Time & Date	15:50-17:50, April 18, 2025	Venue	Grand Ballroom A+B / 5F

Session Chairs

- **Yong Chen,** Guangxi University, China
- **Chunyun Fu,** Chongqing University, China

Paper Details

15:50-16:10	**Paper ID: MT0041** **Title:** Active and Passive Combined Vibration Reduction and Integrated Optimization Methods for Electric Drive Systems **Authors:** Zongxin Xiao, Minghui Hu, Yinghua Zhang, Xin Jiao and Guozheng Luo **Presenter: Zongxin Xiao**, Chongqing university, China
16:10-16:30	**Paper ID: MT0073** **Title:** Mechanical-Electrical-Magnetic Coupling Dynamic Characteristics of Electric Vehicle Electric Drive System **Authors:** Shuaishuai Ge, Jingpeng Yan, Zhigang Zhang and Huan Wang **Presenter: Shuaishuai Ge**, Chongqing University of Technology, China
16:30-16:50	**Paper ID: MT0084** **Title:** High-Precision PMSM Emulator Considering Torque Ripple and Torsional Vibration Characteristics of Electric Drive Systems **Authors:** Shang Jiang, Zhongyin Sun, Bofu Wu **Presenter: Shang Jiang**, Hefei University of Technology, China
16:50-17:10	**Paper ID: MT00273** **Title:** Feasibility Verification and Simulation Analysis of Novel Permanent Magnetic Direct Drive Nutation Motor System **Authors:** Haocheng Su, Jiaxin Ding, Yaming Liu and Ligang Yao **Presenter: Haocheng Su**, Fuzhou University Engineering and Automation, China
17:10-17:30	**Paper ID: MT00444** **Title:** Design of Integrated Electric Joint Motor for Wheel-Legged Mobile Platforms Based on Operational Requirements **Authors:** Keyu Yan, Pu Gao, Chichen Li, Hui Liu, Jiaxin Jiao, Qi Yan, Dianzhao Yang **Presenter: Keyu Yan**, Beijing Institute of Technology, China

Technical Session

Session 09 - Bearing Design

Time & Date	15:50-17:50, April 18, 2025	Venue	Yu Yao Hall B+C / 5F

Session Chairs

- **Ke Yan,** Xi'an Jiaotong University, China
- **Yongsheng Zhu,** Xi'an Jiaotong University, China

Paper Details

15:50-16:10	**Paper ID: MT00206** **Title:** Optimized Design and Analysis of Internal Macrostructure Parameters of Full-Ceramic Angular Contact Ball Bearings **Authors:** Gefei Lin, Songhua Li, Yu Zhang, Yonghua Wang, Chao Wei, Chi Jin and Jining Zhao **Presenter: Gefei Lin**, Shenyang Jianzhu University, China
16:10-16:30	**Paper ID: MT00224** **Title:** The High-Speed Bearing Test System for New Energy Vehicle Motors: Applications in Bearing Performance Evaluation **Authors:** Xuekai Song, Fang Yang and Yuxiang Sun **Presenter: Xuekai Song**, Henan University of Science and Technology, China
16:30-16:50	**Paper ID: MT00322** **Title:** Optimization of the Fatigue Life of Arm Bearings Considering Needle Roller Tilt **Authors:** Weidong He, Zuoxin Wei, Yinghui Zhang and Yue Sun **Presenter: Zuoxin Wei**, Dalian Jiaotong University, China
16:50-17:10	**Paper ID: MT00397** **Title:** An Investigation on Dynamic Performance of Multi-Point Contact Ball Bearings with Integrated Rings **Authors:** Shuaijun Ma, Liu Zhuo, Yan Ke, Haizhen Li, Fei Chen, Jun Hong **Presenter: Shuaijun Ma**, Xi'an Jiaotong University, China
17:10-17:30	**Paper ID: MT00402** **Title:** Damping Bearing Optimization Design and Experimental Verification on Marine Gear Transmission System aimed at Vibration Attenuation **Authors:** Mengqi Wang, Bozhao Ma, Xiaohong Wang and Yibin Guo **Presenter: Mengqi Wang**, No.703 Research Institute of CSSC, China
17:30-17:50	**Paper ID: MT00420** **Title:** Estimation of Rolling Bearing Damage from Particle Contamination via Surface Inspection **Authors:** Guillermo Morales, Yuxin Zhou **Presenter: Yuxin Zhou**, SKF (Shanghai) Automotive Technologies Co., Ltd, China

Technical Session

Session 10 - New Technology Application in Gearbox

Time & Date	15:50-17:50, April 18, 2025	Venue	Grand Ballroom C / 5F

Session Chairs

- **Zhiguo Zhao,** Tongji University, China
- **Shuaishuai Ge,** Chongqing University of Technology, China

Paper Details

15:50-16:10	**Paper ID: MT0036** **Title:** Synchronization Accuracy Prediction Method for Electronic Gearboxes of Gear Grinding Machines **Authors:** Lichen Shao, Jiang Han, Xiaoqing Tian and Lian Xia **Presenter: Lichen Shao**, Hefei University of Technology, China
16:10-16:30	**Paper ID: MT0051** **Title:** The Coupling Effect of Driving Intention and Internal Excitation of Transmission System on the Dynamic Characteristics of DCT Vehicle Starting **Authors:** Zheng Guo, Datong Qin, Yonggang Liu, Yongqiang Zheng, Jihao Feng, Guangliang Liao and Huachao Xu **Presenter: Zheng Guo**, Southwest University, China
16:30-16:50	**Paper ID: MT0060** **Title:** Digital Twin-Based Intelligent Control Technology for Automatic Transmission Assembly **Authors:** Bin Xie, Yanzhong Wang, Yunyi Zhu, Xinyu Zhang, Yaping Zhang, Yu Wu, Shengjiang Yang and Lina Wang **Presenter: Bin Xie**, Beihang University, China
16:50-17:10	**Paper ID: MT00282** **Title:** Robust Speed Sensor Fault Detection and Isolation of a Dual Clutch Transmission Vehicle **Authors:** Jinchao Mo, Changzhao Liu, Bo Huang and Sheng Lai **Presenter: Jinchao Mo**, Sichuan University of Science and Engineering, China
17:10-17:30	**Paper ID: MT00311** **Title:** A Machine Learning-Based Prediction Method for Transmission Efficiency in High-Speed Gear Reducers **Authors:** Ningwei Xia, Shengwen Hou, Changjiang Zhou, Yu Gong, Guoliang Liu **Presenter: Ningwei Xia**, Hunan University, China

Technical Session

Session 11 - Gear Dynamics

Time & Date	10:20-12:20, April 19, 2025	Venue	Nian Hua Hall / 6F

Session Chairs

- **Philippe Velex,** INSA Lyon, France
- **Lang Xu,** Chongqing University, China

Paper Details

10:20-10:40	**Paper ID: MT0066** **Title:** Application of Asymmetric Gears in Ev Gearbox **Authors:** Alexander L. Kapelevich, Longzhou Zhang **Presenter: Alexander L. Kapelevich**, AK Gears, USA
10:40-11:00	**Paper ID: MT00153** **Title:** The Design and Tooth Contact Analysis of the Novel Miniature Gears with the Directly Designed Contact Trace and Transmission Error **Authors:** Xiaoping Xiao, Maoxi Zheng, Zhen Chen, Chao He, Weitao He, Yangzhi Chen **Presenter: Xiaoping Xiao**, Guangdong Ocean University, China
11:00-11:20	**Paper ID: MT00162** **Title:** Dynamic Contact Stress Prediction of Spur Gears Based on BP Neural Network **Authors:** Junbo Zhang, Lifeng Chen and Xiaoling Wu **Presenter: Junbo Zhang**, Hunan University of Science and Technology, China
11:20-11:40	**Paper ID: MT00227** **Title:** The Influence of Meshing Misalignment on Coupling Vibration Characteristic of High Contact Ratio Wide Helical Gear Transmission **Authors:** Haodong Wei, Huajian Long, Jing Wei and Ruizhi Shu **Presenter: Haodong Wei**, Chongqing University of Technology, China
11:40-12:00	**Paper ID: MT00424** **Title:** Research on Tooth Contact of Single Point-Line Meshing Gear Transmission with Axis Deviation **Authors:** Hai Huang, Yu Tang, Ke Zhang and Wenheng Xiong **Presenter: Hai Huang**, Wuhan University of Technology, China

Technical Session

Session 12 - Surface Integrity in Gear Manufacturing

Time & Date	10:20-12:20, April 19, 2025	Venue	Hua Yuan Hall 2 / 6F

Session Chairs

- **Oliver Koch,** RPTU University of Kaiserslautern Landau, Germany
- **Bingyang Wei,** Henan University of Science and Technology, China

Paper Details

10:20-10:40	**Paper ID: MT0037** **Title:** Characterization of Roughness Parameters for Surface Morphology Evolution in Gear Testing **Authors:** Yunfei Li, Qiang Xie, Yunjin Xiang and Jiachun Lin **Presenter: Yunfei Li**, Beijing University of Technology, China
10:40-11:00	**Paper ID: MT00146** **Title:** A Novel Grinding Wheel Surface Modeling Method Based on Image Recognition and Clustering Algorithms **Authors:** Gefei Ren, Yuliang Xiao, Jianyu Wang, Sibao Wang, Bo Yang, Jianpeng Dong and Shilong Wang **Presenter: Gefei Ren**, Chongqing University, China
11:00-11:20	**Paper ID: MT00210** **Title:** Mechanism and Simulation Analysis of the Influence of Light Finishing on Gear Surface Roughness **Authors:** Yanzhong Wang, Libin Zhang, Bo Yu, Yulu Su, Yiming Liu, Shuang Jia, Pei Tang, Le Wang **Presenter: Libin Zhang**, Beihang University, China
11:20-11:40	**Paper ID: MT00304** **Title:** Modeling the Surface Topography of Face Gears Generating Grinding with Wheel Angle Interference **Authors:** Song Gao, Xiaofan Ma, Zhiqin Cai, Shicong You, Ziyi Xing **Presenter: Song Gao**, Xiamen University, China
11:40-12:00	**Paper ID: MT00337** **Title:** Surface Quality Prediction and Process Parameter Optimization of Face Gear Grinding Based on Disc Grinding Wheel **Authors:** Yanzhong Wang, Yizhan Huang, Shuoshuo Nie, Shibo Gao, Guangju Chen, Peng Liu, Xiaomeng Chu, Yanyan Chen **Presenter: Yizhan Huang**, Beijing University of Aeronautics and Astronautics, China
12:00-12:20	**Paper ID: MT00446** **Title:** Error Evaluation of STL Tooth Surface in Bevel Gear Cutting Simulation **Authors:** Yi-Pei Shih, Yi-Hui Lee, Zhang-Hua Fong, Jia-Liang Hong and Bing-Shyun Lee **Presenter: Yi-Pei Shih**, Taiwan University of Science and Technology, China

Technical Session

Session 13 - Roller Screw Mechanism Mechanics

Time & Date	10:20-12:20, April 19, 2025	Venue	Grand Ballroom A+B / 5F

Session Chairs

- **Sungki Lyu,** Gyeongsang National University, Korea
- **Peitang Wei,** Chongqing University, China

Paper Details

10:20-10:40	**Paper ID: MT0034** **Title:** Influence of the Screw Rotational Velocity on Dynamic Characteristics of the Planetary Roller Screw Mechanism **Authors:** Xin Li, Dong Wang, Xiaojun Fu, Shangjun Ma and Geng Liu **Presenter: Xin Li**, Northwestern Polytechnical University, China
10:40-11:00	**Paper ID: MT0040** **Title:** Meshing Characteristics of a New Recirculating Roller Screw Mechanism **Authors:** Xiaojun Fu, Jinran Chen, Ye Xu, Shangjun Ma and Geng Liu **Presenter: Jinran Chen**, Northwestern Polytechnical University, China
11:00-11:20	**Paper ID: MT00268** **Title:** Mathematical Design and Computerized Analysis of Pure-Rolling Contact Planetary Roller Screw Mechanism Based on Geometric Elements **Authors:** Xing Du, Rui Tang, Yijie Zhu, Jiacheng Miao, Xiaobing Li, Bingkui Chen **Presenter: Xing Du**, Nanchang University, China
11:20-11:40	**Paper ID: MT00309** **Title:** Meshing Characteristics Analysis of the Recirculating Planetary Roller Screw Mechanism **Authors:** Guan Qiao, Nianqi Li, Fule Liu, Shufeng Tang, Geng Liu **Presenter: Guan Qiao**, Inner Mongolia University of Technology, China
11:40-12:00	**Paper ID: MT00454** **Title:** Local Contact Characteristics of Line-Contact Planetary Roller Screw Mechanisms via Thread Profile Modification **Authors:** Rui Tang, Jiacheng Miao, Xing Du, Dongyu Wang, Zhicheng Wang, Bingkui Chen **Presenter: Rui Tang**, Chongqing University, China

Technical Session

Session 14 - Intelligent Maintenance of Bearing System

Time & Date	10:20-12:20, April 19, 2025	Venue	Yu Yao Hall B+C / 5F

Session Chairs

- **Daisuke Iba,** Kyoto Institute of Technology, Japan
- **Xiaoxi Ding,** Chongqing University, China

Paper Details

10:20-10:40	**Paper ID: MT00207** **Title:** Study on Design and Performance of Bearing Preload Control Component Based on Piezoelectric Ceramics **Authors:** Yonghua Wang, Songhua Li, Yu Zhang, Gefei Lin, Chao Wei, Jining Zhao and Haibing Guo **Presenter: Yonghua Wang**, Shenyang Jianzhu University, China
10:40-11:00	**Paper ID: MT00222** **Title:** CFRNet: Causality Inspired Few-Shot Learning in Mechanical Fault Diagnosis **Authors:** Haoyu He, Juan Xu, Qile Ren, Mingguang Dai and Xuan Liu **Presenter: Haoyu He**, Hefei University of Technology, China
11:00-11:20	**Paper ID: MT00279** **Title:** Response Analysis of Bearing Faults in Servo Motor Drive Mechanical Equipment to Servo Signals **Authors:** Xiaolong Han, Dexin Chen, Sen Li, Shudong Ou, Biao Ma and Ming Zhao **Presenter: Xiaolong Han**, Xi'an Jiaotong University, China
11:20-11:40	**Paper ID: MT00281** **Title:** A Novel Mechanism-Data Fusion Approach for Imbalanced Fault Diagnosis of Tooth Root Crack **Authors:** Yuxuan Li, Wankai Shi and Yu He **Presenter: Yuxuan Li**, Chongqing University, China
11:40-12:00	**Paper ID: MT00283** **Title:** Fault Diagnosis Method of Rolling Bearing Based on Multi-Source Domain Transfer Learning Based on Wavelet Information Initialization and Double-Path Convolution **Authors:** Zhiming Lv, Shaojiang Dong **Presenter: Shaojiang Dong**, Chongqing Jiaotong University, China
12:00-12:20	**Paper ID: MT00296** **Title:** A Novel Fault Diagnosis Framework with the Ability to Identify Network Abnormal Inputs and Mispredictions **Authors:** Yu Huang, Renxiang Chen, Hua Zhang and Tengwei Yu **Presenter: Yu Huang**, Chongqing Jiaotong University, China

Technical Session

Session 15 - Novel Transmission Design

Time & Date	10:20-12:20, April 19, 2025	Venue	Hua Yuan Hall 1 / 6F

Session Chairs

- **Ahmet Kahraman,** The Ohio State University, USA
- **Yan Ran,** Chongqing University, China

Paper Details

10:20-10:40	**Paper ID: MT0094** **Title:** High Reduction Hypoids - Experimental Investigations on an Alternative Gearing Concept for High Reduction Transmissions **Authors:** Lorenz Constien, Michael Geitner, Karsten Stahl **Presenter: Lorenz Constien**, Technical University of Munich, Gear Research Center (FZG), Germany
10:40-11:00	**Paper ID: MT00229** **Title:** Transfer Path Analysis of the Encased Differential Gear Train for Coaxial Twin-Rotor Helicopter **Authors:** Jingjing Wang, Rupeng Zhu, Wenzheng Liu and Wenguang Zhou **Presenter: Jingjing Wang**, Nanjing University of Aeronautics and Astronautics, China
11:00-11:20	**Paper ID: MT00243** **Title:** Analysis of Mechanical Properties of Carbon Fiber Reinforced Composite Laminate and Its Experimental Validation **Authors:** Yankun Yang, Xiangying Hou, Hong Zhang, Junbo Liu, Zhaojing Fan, Zhen Qin, Sung-Ki Lyu **Presenter: Yankun Yang**, Nanjing University of Aeronautics and Astronautics, China
11:20-11:40	**Paper ID: MT00362** **Title:** Power Loss Model of 2K-V Gearbox with Anti-Backlash Beveloid Gear **Authors:** Feihong Zhu, Chaosheng Song, Luca Bonaiti, Carlo Gorla. **Presenter: Chaosheng Song**, Chongqing University, China
11:40-12:00	**Paper ID: MT00136** **Title:** A Fast and Efficient Model for the Quasi-Static Analysis of Splines **Authors:** G. Verdeaux, D. Gueudry, J-P. de Vaujany, P. Velex **Presenter: Gabriel Verdeaux**, INSA Lyon / LAMCOS, France

Technical Session

Session 16 - Gear Tribology

Time & Date	13:30-15:30, April 19, 2025	Venue	Nian Hua Hall / 6F

Session Chairs

- **Zeyin He**, Chongqing Jiaotong University, China
- **Luca Bonaiti,** Politecnico di Milano, Italy

Paper Details

13:30-13:50	**Paper ID: MT0011** **Title:** Innovative CFD and Experimental Insights into Graphene Oxide-Enhanced Gear Lubrication **Authors:** Jie Su, Xinghe Jiang, Bo Hu, Changjiang Zhou and Zhaoyao Shi **Presenter: Jie Su**, Changsha University of Science and Technology, China
13:50-14:10	**Paper ID: MT0064** **Title:** Contact Model and Simulation Program for Gears with Parallel and Intersecting Axis **Authors:** Yang Zhang, Lixin Xu and Kai Wang **Presenter: Yang Zhang**, State Key Laboratory of Mechanical Transmission for Advanced Equipment, Chongqing University, China
14:10-14:30	**Paper ID: MT00116** **Title:** Cavitation Mechanism of High-Speed Helical Gears Induced by Vibration **Authors:** Tiancheng Ouyang, Yinxuan Li, Hongyang Tian, Shaohui Qin, Yang Yang **Presenter: Tiancheg Ouyang**, Guangxi University, China
14:30-14:50	**Paper ID: MT00200** **Title:** Theoretical Analysis of Gear Meshing Characteristics Taking Account the Elastic Deformation of Gear Teeth **Authors:** Daisuke Matsuura, Ryota Matsuo, Tsune Kobayashi **Presenter: Daisuke Matsuura**, Institute of Science Tokyo, Japan
14:50-15:10	**Paper ID: MT00280** **Title:** Analysis of the Influence of Basic Gear Parameters on the Misalignment Degree of Wide-Faced Helical Gears **Authors:** Qizhi Wan, Rupeng Zhu and Weifang Chen **Presenter: Qizhi Wan**, Nanjing University of Aeronautics and Astronautics, China
15:10-15:30	**Paper ID: MT00344** **Title:** Influence of the Diversion Structure on the Temperature Field of High-Speed Double-Helical Gear Transmissions **Authors:** Ting Zhang, Tengjiao Lin, Yuhao Xiang, Jin Yang, Tao Chen and Shuo Li **Presenter: Ting Zhang**, State Key Laboratory of Mechanical Transmission for Advanced Equipment, Chongqing University, China

Technical Session

Session 17 - Manufacturing Method of Gear

Time & Date	13:30-15:30, April 19, 2025	Venue	Hua Yuan Hall 2 / 6F

Session Chairs

- **Tsune Kobayashi,** Tokyo Institute of Technology, Japan
- **Kun Li,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT00167** **Title:** A Method of Controlling Gear Tooth Flank Texture in Continuous Generating Gear Grinding Based on the Superimposed Micromotion of an Electronic Gearbox **Authors:** Xiaoqing Tian, Dongwang Pan, Zhilai Zhang, Jiang Han, Lian Xia **Presenter: Dongwang Pan**, Hefei University of Technology, China
13:50-14:10	**Paper ID: MT00201** **Title:** Dynamics Modeling of Gear Honing Machine Based on Parameter Identification **Authors:** Guanghui Li, Jiang Han, Xiaoqing Tian, Jianping Tang, Tongfei You, Lian Xia **Presenter: Guanghui Li**, Hefei University of Technology, China
14:10-14:30	**Paper ID: MT00306** **Title:** A Novel Method for Hierarchical Micro-Texturing of Face Gear Tooth Surface via Ultrasonic Vibration Assisted 5-Axis Ultra-precision Turning **Authors:** Yishuang Xuan, Sibao Wang, Xianyu Li, Shilong Wang, Yuliang Xiao, Jianpeng Dong, Hao Wang and Lu Zhang **Presenter: Yishuang Xuan**, Chongqing University, China
14:30-14:50	**Paper ID: MT00349** **Title:** Prediction and Experimental Validation of Cutting Forces in Form Milling of Large Internal Gears **Authors:** Haoyu Wu, Sibao Wang, Shilong Wang, Yuliang Xiao, Jianpeng Dong, Zhenkun Yin, Degang Fan, Kunlong Li and Xun Zhang **Presenter: Haoyu Wu**, Chongqing University, China
14:50-15:10	**Paper ID: MT00458** **Title:** New Version of Skiving in Production of Worm, Spiroid and Bevel Gears **Authors:** Evgeniy Trubachev, Kirill Bogdanov and Tatyana Pushkareva **Presenter: Evgeniy Trubachev**, Kalashnikov ISTU, MIP Mechanic Ltd., Russia

Technical Session

Session 18 - Geometry and Lubrication of Worm

Time & Date	13:30-15:30, April 19, 2025	Venue	Grand Ballroom A+B / 5F

Session Chairs

- **Weiqing Zhang,** Chongqing University of Technology, China
- **Yonghong Chen,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT0039** **Title:** A New Generation Method of Conical Worm Gear Surface by Linear Cutter Edge with Two Degrees of Freedom **Authors:** Ming Ma, Haitao Li, Na Li, Zhaokuan Xu, Xuyang Yang, Ao Xiao **Presenter: Ming Ma**, China Agricultural University, China
13:50-14:10	**Paper ID: MT0061** **Title:** Meshing Characteristics of Double Circular-Arc-Toothed Conical Worm Drive **Authors:** Yue Guo, Qingxiang Meng, Fangzheng Lu, Jiazhen Chen, Yaping Zhao **Presenter: Qingxiang Meng**, Yanshan University, China
14:10-14:30	**Paper ID: MT00340** **Title:** Accurate Modeling and Thermal Elastohydrodynamic Lubrication Analysis of Dynamic Pressure Oil Film Worm Gear Pair **Authors:** Xinlei Li, Shilong Wang, Sibao Wang, Yuliang Xiao, Jianpeng Dong, Qihui Xu, Jingyi Ye, Haoyu Wu **Presenter: Xinlei Li**, Chongqing University, China
14:30-14:50	**Paper ID: MT00417** **Title:** Grease Lubrication Optimized Worm Gears **Authors:** Felix Müller, Oliver Koch **Presenter: Oliver Koch**, RPTU University of Kaiserslautern Landau, Germany
14:50-15:10	**Paper ID: MT00269** **Title:** Evaluation Method of Involute Dressing Wheel Accuracy and Its Influence on Drum-Shaped Worm Grinding Wheel **Authors:** Jianyu Wang, Gefei Ren, Yuliang Xiao, Sibao Wang, Lili Yi and Shilong Wang **Presenter: Jianyu Wang**, Chongqing University, China

Technical Session

Session 19 - Intelligent Maintenance of Bearing System

Time & Date	13:30-15:30, April 19, 2025	Venue	Yu Yao Hall B+C / 5F

Session Chairs

- **Qi Xin,** AECC Shenyang Engine Research Institute, China
- **Wenbin Huang**, Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT00100** **Title:** Calculation of Roller Bearing Contact Stiffness Considering Raceway Crack Defects **Authors:** Gang Zhang, Zhifeng Shi and Changfeng Yan **Presenter: Gang Zhang**, Lanzhou University of Technology, China
13:50-14:10	**Paper ID: MT00181** **Title:** Fault Diagnosis of Rolling Bearings based on Manhattan Self-Attention and Residual Neural Network **Authors:** Yong Lin, Yaming Liu, Jiaxin Ding, Pengzhe Xu, Haoyu Ma and Ligang Yao **Presenter: Yong Lin**, Fuzhou University, China
14:10-14:30	**Paper ID: MT00197** **Title:** Digital-Twin Driven Dual Transfer: A Novel Simulation-Real Domain Information Adaptation Method for Smart Bearing Fault Diagnosis **Authors:** Zixian Li, Xiaoxi Ding, Yongtao Sun, Liming Wang, Qiang Zeng **Presenter: Zixian Li**, Chongqing University, China
14:30-14:50	**Paper ID: MT00339** **Title:** Bayesian Vector Autoregressive Assisted GRU Weighted Combination Model for Bearing Degradation Prediction **Authors:** Changyuan Wang, Hailiang Sun, Xuyan Jia, Kangbo Fan and Yizhen Peng **Presenter: Kangbo Fan**, Chongqing University, China
14:50-15:10	**Paper ID: MT00354** **Title:** Study on Vibration Characteristics of the Gear-Sliding Bearing System Considering Coupling Misalignment **Authors:** Jingyi Gong, Hepeng Zhao,Geng Liu and Bing Yuan **Presenter: Jingyi Gong**, Xi'an Shiyou University, China

Technical Session

Session 20 - Novel Transmission Design

Time & Date	13:30-15:30, April 19, 2025	Venue	Hua Yuan Hall 1 / 6F

Session Chairs

- **Yanzhong Wang,** Beihang University, China
- **Huaiju Liu,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT00465** **Title:** Longitudinal and Profile Modification Application for the Purpose of Reducing Contact Stresses on Gear Teeth Working Surfaces **Authors:** Dmitry Kalinin, Alexey Zhukov **Presenter: Alexey Zhukov**, Central Institute of Aviation Motors after P.I. Baranov, Russia
13:50-14:10	**Paper ID: MT00107** **Title:** Configuration Synthesis of Compound Power-Split Mechanism Based on Structural Matrix **Authors:** Xiaodong Yang, Weitao Du, Dong Yang, Huali Han, Wennian Yu, Xuan Liu, Hehe Kang **Presenter: Xiaodong Yang**, ZhouKou Normal University, China
14:10-14:30	**Paper ID: MT00149** **Title:** Closed Hydraulic System Based on Three-Chamber Cylinder Drive and Its Energy Regeneration **Authors:** Rongrong Zhuang, Qihuai Chen, Tianliang Lin, Huiyu Zhang, Changxi Ji, Wen Gong, Yuxiang Liu and Haoling Ren **Presenter: Rongrong Zhuang**, Huaqiao University, China
14:30-14:50	**Paper ID: MT00369** **Title:** Prediction and Compensation Method for Gear Machining Errors Based on Multi-Axis Motion Control of Electronic Gearbox **Authors:** Tongfei You, Jiang Han, Xiaoqing Tian, Zhilai Zhang, Jianping Tang, Guanghui Li, Lian Xia **Presenter: Tongfei You**, Hefei University of Technology, China
14:50-15:10	**Paper ID: MT00394** **Title:** Performance Enhancement Techniques for High-Thermal-Load Marine Carbon-Based Friction Components **Authors:** Bin Liu, Yongfan Wang, Shengnan Qu, Qingtan Ren, Jie Sheng **Presenter: Bin Liu**, Harbin Institute of Technology, China
15:10-15:30	**Paper ID: MT00449** **Title:** Time-Varying Reliability Evaluation of High-Power Wind Turbine Gearboxes **Authors:** Yao Li, Xiaolong Wu, Shuan Zhang, Gaoxiang Ni, Zifan Fang and Caichao Zhu **Presenter: Yao Li**, China Three Gorges University, China

Technical Session

Session 21 - Gear Dynamics

Time & Date	15:50-17:50, April 19, 2025	Venue	Nian Hua Hall / 6F

Session Chairs

- **Geng Liu,** Northwestern Polytechnical University, China
- **Qiang Zeng,** Chongqing University, China

Paper Details

15:50-16:10	**Paper ID: MT0027** **Title:** Dynamic Modeling and Characteristic Analysis of High-Speed Thin-rimmed Gear Transmission **Authors:** Jiayu Zheng, Datong Qin and Changzhao Liu **Presenter: Jiayu Zheng**, Chongqing University, China
16:10-16:30	**Paper ID: MT00140** **Title:** A Modification Method of High-Speed Gear Transmission System for Suppression Vibration Considering Nonlinear Factors **Authors:** Guopeng Liao, Jianjun Hu, Zhicheng Sun **Presenter: Guopeng Liao**, Chongqing University, China
16:30-16:50	**Paper ID: MT00203** **Title:** Numerical and Experimental Study on the Dynamic Characteristics of Herringbone Gear Systems Considering Actual Tooth Surface Deviations **Authors:** Fengfeng Liu, Geng Liu, Lan Liu, Zilong Du, Haoqin Zhang and Guanghao Dai **Presenter: Fengfeng Liu**, Northwestern Polytechnical University, Shaanxi Engineering Laboratory for Transmissions and Controls, China
16:50-17:10	**Paper ID: MT00244** **Title:** Dynamic Modelling of Rack Vehicle Gear Transmissions Under the Pitch Deviation Excitation of Rack Joint **Authors:** Guojun Yang, Zaigang Chen, Zhihui Chen **Presenter: Guojun Yang**, Southwest Jiaotong University/State Key Laboratory of Rail Transit Vehicle System, China
17:10-17:30	**Paper ID: MT00254** **Title:** Study on Nonlinear Dynamics of Double-Sided Impact of Monorail Vehicle Gear Transmission Under Regenerative Braking **Authors:** Linfang Fan, Xiangyang Xu, Junlin Chen and Hulin Li **Presenter: Linfang Fan**, Chongqing Jiaotong University, China
17:30-17:50	**Paper ID: MT00315** **Title:** A Study of the Meshing Excitation Model and Dynamic Characteristics of Helical Gear Considering Modification **Authors:** Shan Chang, Jing Wei, Gangqiang Wang, Lin Fu, Lidong Jiang **Presenter: Shan Chang**, Harbin Marine Boiler and Turbine Research Institute, China

Technical Session

Session 22 - Manufacturing Method of Gear

Time & Date	15:50-17:50, April 19, 2025	Venue	Hua Yuan Hall 2 / 6F

Session Chairs

- **Zhonghou Wang,** University of Shanghai for Science and Technology, China
- **Jianpeng Dong,** Chongqing University, China

Paper Details

15:50-16:10	**Paper ID: MT00101** **Title:** Wear Prediction for the Kinematic Pair of Spent Fuel Shearing Machine **Authors:** Weijian Kong, Jianpeng Dong, Chuang Ding, Sibao Wang, Yuliang Xiao and Yi Zhao **Presenter: Weijian Kong**, Chongqing University, China
16:10-16:30	**Paper ID: MT00297** **Title:** Tool Path Planning Method for 5-Axis Ultra-Precision Single-Point Diamond Turning Face Gear with Ultrasonic Vibration Assisted **Authors:** Hao Wang, Sibao Wang, Shilong Wang, Yuliang Xiao, Jianpeng Dong, Yishuang Xuan and Lu Zhang **Presenter: Hao Wang**, Chongqing University, China
16:30-16:50	**Paper ID: MT00370** **Title:** Skiving Method for Chamfering and Deburring of Cylindrical Gears **Authors:** Erkuo Guo, Hongchuan Zhang and Zexu Zhang **Presenter: Erkuo Guo**, Jiangsu University, China
16:50-17:10	**Paper ID: MT00404** **Title:** Tuning Flank Waviness for Minimized Mesh Force Variation **Authors:** Hanspeter Dinner, Calogero Principato **Presenter: Hanspeter Dinner**, KISSsoft AG, Switzerland
17:10-17:30	**Paper ID: MT00439** **Title:** Research and Development of Gear Chamfering Machine Tool **Authors:** Yan-e Gao, Ming Zhang, Fusun Feng, Yingce Liao, Yifei Zhang **Presenter: Yan-e Gao**, Southwest University, China
17:30-17:50	**Paper ID: MT00448** **Title:** Gear Form-Grinding: Research on Controlled Topological Modification and Optimization Method for Arbitrary Tooth Surfaces **Authors:** Yan Li, Zhonghou Wang, Gang Li, Yunlong Wu **Presenter: Yan Li**, University of Shanghai for Science and Technology, China

Technical Session

Session 23 - Dynamic and Meshing Characteristics of Geartrain

Time & Date	15:50-17:50, April 19, 2025	Venue	Grand Ballroom A+B / 5F

Session Chairs

- **Robert Parker,** University of Utah, USA
- **Changzhao Liu,** Chongqing University, China

Paper Details

15:50-16:10	**Paper ID: MT0017** **Title:** Research on the Effect Mechanism of Self-Excited Vibration Instability on the Supercritical Tail Drive Shaft System **Authors:** Chao Zhang, Rupeng Zhu, Hu Yu, Weifang Chen and Dan Wang **Presenter: Zhang Chao**, Nanjing University of Aeronautics and Astronautics, China
16:10-16:30	**Paper ID: MT00138** **Title:** Meshing Mechanism of Mixed Mismatched Conical Worm Drive **Authors:** Fangzheng Lu, Qingxiang Meng, Yue Guo, Jiazhen Chen, Yaping Zhao **Presenter: Qingxiang Meng**, Yanshan University, China
16:30-16:50	**Paper ID: MT00185** **Title:** Design and Analysis of a Quasi-zero Stiffness Torsional Vibration Isolator **Authors:** Yi Yang, Pu Gao, Hui Liu, Zihan Li **Presenter: Yi Yang**, Beijing Institute of Technology, China
16:50-17:10	**Paper ID: MT00384** **Title:** Study on Meshing Characteristics of Cycloid-pin Planetary Drive with Multi-tooth Number Difference **Authors:** Haidong Yang, Xuan Li, Yang Li **Presenter: Haidong Yang**, Soochow University, China
17:10-17:30	**Paper ID: MT00412** **Title:** New Demands for Gear Noise in EV and BEV Vehicles **Authors:** Klaus Deininger, Parag Wagaj and Yibing Zhang **Presenter: Yibing Zhang**, Gleason Metrology Systems Corp, USA

Technical Session

Session 24 - Bearing Dynamics

Time & Date	15:50-17:50, April 19, 2025	Venue	Yu Yao Hall B+C / 5F

Session Chairs

- **Zaigang Chen,** Southwest Jiaotong University, China
- **Yizhen Peng,** Chongqing University, China

Paper Details

15:50-16:10	**Paper ID: MT0050** **Title:** Vibration Characteristics of Rolling Bearings Caused by Flexible Cage Plastic Deformation and Crack Propagation **Authors:** Zhifeng Shi, Futong Yu, Jin Zhang, Gang Zhang, Jiqiao Li, Jing Liu **Presenter: Zhifeng Shi**, Lanzhou University of Technology, China
16:10-16:30	**Paper ID: MT0053** **Title:** Strength Evaluation of Planet Bearings under Revolution-Rotation Coupled Conditions **Authors:** Shumiao Zuo, Junbin Lai, Shenlong Li, Xiangyang Xu, Yanfang Liu, Shuhan Wang, Peng Dong **Presenter: Shumiao Zuo**, Beihang University, China
16:30-16:50	**Paper ID: MT00249** **Title:** Research on Stiffness Characteristics of Angular Contact Ball Bearings Based on Uncertainty of Structural Parameters **Authors:** Jinrong Guo, Jinhua Zhang, Yongsheng Zhu, Jun Hong, Bin Fang **Presenter: Jinrong Guo**, Xi'an Jiaotong University, China
16:50-17:10	**Paper ID: MT00346** **Title:** Research on the Dynamic Characteristics of Cylindrical Roller Bearings under the Operating Conditions of the Bearing Tester **Authors:** Shushen Gao, Xiangying Hou, Chenfei Ma, Rui Yin, Sung-Ki Lyu **Presenter: Kai Yang**, Nanjing University of Aeronautics and Astronautics, China
17:10-17:30	**Paper ID: MT00383** **Title:** Investigating Tonal Noise Caused by Shaft Waviness in Electric Vehicle Motor **Authors:** P. van Dalen, D. Lin, A. Approsio, Y. Pan **Presenter: Piet van Dalen**, SKF, Netherlands
17:30-17:50	**Paper ID: MT00419** **Title:** Transient Mechanical Characterization of Tapered Roller Bearings Based on Oil Film Damping Model **Authors:** Zitan Liu, Lin Zhao, Zhenguo Bian, Ke Yan, Bin Fang, Jun Hong **Presenter: Zitan Liu**, Xi'an Jiaotong University, China

Technical Session

Session 25 - Electro-Hydraulic Actuator

Time & Date	15:50-17:50, April 19, 2025	Venue	Hua Yuan Hall 1 / 6F

Session Chairs

- **Yulong Lei,** Jilin University, China
- **Chaoyang Li,** Chongqing University, China

Paper Details

15:50-16:10	**Paper ID: MT0045** **Title:** Design of Electromechanical Actuator Integrated Normal-Stressed Electromagnetic Linear Actuator for Aircraft Brake Actuation **Authors:** Hengzhang Su, Xinzhe Yang, Kuanhao Gu, Bingchu Li **Presenter: Hengzhang Su**, University of Shanghai for Science and Technology, China
16:10-16:30	**Paper ID: MT0089** **Title:** Fracture Mechanism of Friction Plate with the Excitation from Compound Planetary Gear Set **Authors:** Junbin Lai, Shenglong Li, Qiang Zhang, Xiangyang Xu, Yanfang Liu, Wei Guo, Peng Dong **Presenter: Junbin Lai**, Beihang University, China
16:30-16:50	**Paper ID: MT00166** **Title:** Research on Temperature Field of Wet Clutch Considering Time-Varying Friction Characteristics of Paper-Based Friction Pair **Authors:** Li Qi, Hongwei Cui, Long Cui, Xuefei Gao **Presenter: Li Qi**, Taiyuan University of Technology, China
16:50-17:10	**Paper ID: MT00172** **Title:** Wet Clutch Pressure Model Under Variable Oil Temperatures for Electro-Hydraulic Actuators **Authors:** Antai Li, Shukai Duan, Datong Qin and Zheng Guo **Presenter: Antai Li**, Southwest University, China
17:10-17:30	**Paper ID: MT00211** **Title:** Steady-State Thermal Simulation of Oil-Injected Lubricated Gearbox Based on Two-Way Heat-Fluid-Solid Coupling **Authors:** Cong Zeng, Weifang Chen **Presenter: Cong Zeng**, Nanjing University of Aeronautics and Astronautics, China
17:30-17:50	**Paper ID: MT00245** **Title:** Temperature and Stress Prediction for Multiplate Wet Clutches Based on the Thermal-Liquid-Solid Coupling Method **Authors:** Chengyun Su, Yuqi Yang, Meitao Wang, Xiao Liu and Guanghan Zhang **Presenter: Chengyun Su**, Beijing Jiaotong University, China

Technical Session

Session 26 - Bevel/Face Gear

Time & Date	09:50-11:50, April 20, 2025	Venue	Nian Hua Hall / 6F

Session Chairs

- **Qi Fan,** Bevel Gear Technology, China; Gleason Corporation, USA
- **Zhongming Liu,** Zhengzhou Research Institute of Mechanical Engineering Co., Ltd, China

Paper Details

09:50-10:10	**Paper ID: MT0075** **Title:** Investigating on the Impact of Assembly Errors on the Meshing Performance of Spiral Bevel Gear Transmission **Authors:** Lingyin Meng, Chongfei Huai, Wenlei Wang, Ziming Wang, Hao Zhang **Presenter: Chongfei Huai**, Shenyang Ligong University, China
10:10-10:30	**Paper ID: MT0087** **Title:** Design and Strength Analysis of New Logarithmic Spiral Gear Transmission **Authors:** Jingyu Mo, Shanming Luo, Xiangming Zeng, Kong Yuan **Presenter: Jingyu Mo**, Jimei University, China
10:30-10:50	**Paper ID: MT00176** **Title:** Analysis of the Influences of Dynamic Force and Normal Relative Displacement in Boundary Lubrication State on Spiral Bevel Meshing Characteristics **Authors:** Pinghua Huang, Ziheng Wen, Jiaxin Ding, Shiqiang Chen, Haolin Chen and Ligang Yao **Presenter: Pinghua Huang**, Fuzhou University, China
10:50-11:10	**Paper ID: MT00193** **Title:** Multi-Objective Optimization of the Thermal and Vibration Behavior for a Spiral Bevel Gear Set **Authors:** Wassim Ramdane, Christophe Changenet, Jérôme Bruyere, Philippe Velex, Cyril Chevrel--Fraux, Pierre Casanova **Presenter: Wassim RAMDANE**, INSA LYON / LAMCOS, France
11:10-11:30	**Paper ID: MT00330** **Title:** Evaluation of Dangerous Vibration Modes and Damping Analysis in Thin-Walled Spiral Bevel Gears **Authors:** Weiping Yan, Hu Yu, Shuai Wang and Rupeng Zhu **Presenter: Weiping Yan**, Nanjing University of Aeronautics and Astronautics, China

Technical Session

Session 27 - Manufacturing Method of Gear

Time & Date	09:50-11:50, April 20, 2025	Venue	Hua Yuan Hall 2 / 6F

Session Chairs

- **Syuhei Kurokawa,** Kyushu University, Japan
- **Yuliang Xiao,** Chongqing University, China

Paper Details

09:50-10:10	**Paper ID: MT00106** **Title:** Research on Generating Milling of Variable Transmission Ratio Rack by Disk Cutter **Authors:** Wei Lin, Fangyan Zheng and Xinghui Han **Presenter: Wei Lin**, Wuhan University of Technology, China
10:10-10:30	**Paper ID: MT00143** **Title:** Dry Hobbing Parameters Optimization Using Multi-Objective Parrot Optimizer **Authors:** Hao Liu, Yingtao Zhang, Rui Liu, Weidong Cao **Presenter: Hao Liu**, Hohai University, China
10:30-10:50	**Paper ID: MT00292** **Title:** Machining of Curved Tooth Cylindrical Gears by Skiving Method **Authors:** Peng Wang, Baofang Qiao, Yi Song, Ephrem Bekele, Zhuo Guo **Presenter: Peng Wang**, Beijing University of Technology, China
10:50-11:10	**Paper ID: MT00378** **Title:** Inspection and Analysis of Surface Quality of Small Modulus Gears Manufactured by Metal Injection Molding and SLM **Authors:** Xunwei Wang, Baozhen Lei, Harald Löwe, Shengna Zhao **Presenter: Baozhen Lei**, Beijing Union University, China

Technical Session

Session 28 - Electromechanical Transmission

Time & Date	09:50-11:50, April 20, 2025	Venue	Grand Ballroom A+B / 5F

Session Chairs

- **Zhaobo Chen,** Harbin Institute of Technology, China
- **Zhen Qin,** Shandong University of Technology, China

Paper Details

09:50-10:10	**Paper ID: MT0010** **Title:** Performance Analysis of Four-Element Confluence Coupling Mechanism of Mechanical Transmission **Authors:** Qingkun Xing, Wankai Shi **Presenter: Qingkun Xing**, Chongqing University, China
10:10-10:30	**Paper ID: MT0049** **Title:** Analysis of Magnetic Field and Torque of Two-Stage Nutation Magnetic Gear **Authors:** Meiyan Lou, Ligang Yao, Jiaxin Ding **Presenter: Meiyan Lou**, Fuzhou Polytechnic, China
10:30-10:50	**Paper ID: MT00124** **Title:** Longitudinal and Lateral Coupled Motion Control of Intelligent Vehicles Based on Triple-Step Method **Authors:** Xin Ye, Kang Yu, Shijie Zhang, Yuchen Hou **Presenter: Yuchen Hou**, Chongqing University of Technology, China
10:50-11:10	**Paper ID: MT00238** **Title:** Study on the Electromechanical Coupling Dynamics of an Underwater Vehicle Drive System Considering Hydrodynamic Effects **Authors:** Zhengming Xiao, Zeming Lian, Qianxi Zhang, Tianyang Zhou **Presenter: Zhengming Xiao**, Kunming University of Science and Technology, China
11:10-11:30	**Paper ID: MT00327** **Title:** Integrated Design Method for Electro-mechanical Brake Based on Multi-objective Optimization **Authors:** Shuhan Wang, Hanning Zhang, Mingrui Li, Junqing Li, Peishen Zhao, Xiangyang Xu and Peng Dong **Presenter: Hanning Zhang**, Beihang University, China

Technical Session

Session 29 - Bearing Dynamics

Time & Date	09:50-11:50, April 20, 2025	Venue	Yu Yao Hall B+C / 5F

Session Chairs

- **Tomoko Hirayama,** Kyoto University, Japan
- **Wennian Yu,** Chongqing University, China

Paper Details

09:50-10:10	**Paper ID: MT0085** **Title:** Load Bearing Capacity Analysis of Face Gear with Equiangular Spiral Tooth Profile **Authors:** Shuaiqiang Ding, Zhiqin Cai, Junhang Deng and Shaofeng Chen **Presenter: Shuaiqiang Ding**, Xiamen University, China
10:10-10:30	**Paper ID: MT0099** **Title:** Research on Local Skidding Characteristics and Influencing Factors of Cylindrical Roller Bearings **Authors:** Ming Li, Jinhua Zhang, Wenchao Li, Hongqi Wang, Jun Hong, Bin Fang **Presenter: Ming Li**, Key Laboratory of Education Ministry for Modern Design and Rotor-Bearing System, Xi'an Jiaotong University, China
10:30-10:50	**Paper ID: MT00137** **Title:** Dynamic Characteristics of A Novel Porous Tilting Pad Bearing with Umbrella-Type Dampers Featuring Negative Poisson's Ratio **Authors:** Shaocun Han, Jianwei Wang and Kai Feng **Presenter: Shaocun Han**, Hunan University, China
10:50-11:10	**Paper ID: MT00175** **Title:** Measurement of Bearing Raceway Load Distribution Based on Smart Roller **Authors:** Pan Zhang, Xiaoxi Ding, Wenbin Huang **Presenter: Pan Zhang**, Chongqing University, China
11:10-11:30	**Paper ID: MT00259** **Title:** Research on the Dynamic Behavior Characteristics and Sensitivity Analysis of High-Speed, Heavy-Load Three-Point Contact Ball Bearing **Authors:** Chenfei Ma, Xiangying Hou, Shushen Gao, Zhen Qin, Rui Yin, Sung-Ki Lyu **Presenter: Chenfei Ma**, Nanjing University of Aeronautics and Astronautics, China

Technical Session

Session 30 - Dynamics of Bearing-Gear and Hybrid Driving System

Time & Date	09:50-11:50, April 20, 2025	Venue	Hua Yuan Hall 1 / 6F

Session Chairs

- **Hui Liu,** Beijing Institute of Technology, China
- **Dongye Sun,** Chongqing University, China

Paper Details

09:50-10:10	**Paper ID: MT00159** **Title:** Dynamic Behaviors of Electric Drive Transmission System under Open-Phase Faults and Fault-Tolerant Control **Authors:** Wenyu Bai, Yun Kuang, Junyang Cai, Zhizhong Xu, Yawen Wang, Changzhao Liu, Zhimin Ma and Xia Hua **Presenter: Wenyu Bai**, Zhejiang University of Technology, China
10:10-10:30	**Paper ID: MT00373** **Title:** Study on Torsional Vibration and Active Suppression Method of Helicopter Electric Propulsion System **Authors:** Guanghong Hu, Hanjie Jia, Datong Qin, Dong Liang, Xiangyang Xu and Hao Ding **Presenter: Hanjie Jia**, Chongqing Jiaotong University, China
10:30-10:50	**Paper ID: MT00442** **Title:** Active Vibration Control Strategy Research for Power-Split Hybrid Electric Vehicles **Authors:** Qi Yan, Hui Liu, Pu Gao, Dianzhao Yang, Jiaxin Jiao, Keyu Yan, Yi Yang **Presenter: Qi Yan**, Beijing Institute of Technology, China
10:50-11:10	**Paper ID: MT00108** **Title:** Research on Faulty Vibration Characteristics of Gear-Bearing Coupling System in Subway Gearboxes **Authors:** Chao Cai, Wennian Yu, Yueqiu Liu and Weitao Du **Presenter: Chao Cai**, Chongqing University, State Key Laboratory of Mechanical Transmission for Advanced Equipment, China
11:10-11:30	**Paper ID: MT00359** **Title:** Nonlinear Analysis of Gearbox System with Dynamic Interaction Between Nonlinear Bearings and Meshing **Authors:** Hongtao Dong, Jinyuan Tang, Zehua Hu, Wentao Liu and Kairan Zhang **Presenter: Wentao Liu**, Central South University, China

Technical Session

Session 31 - Bevel/Face Gear

Time & Date	13:30-15:30, April 20, 2025	Venue	Nian Hua Hall / 6F

Session Chairs

- **Ning Zhao,** Northwestern Polytechnical University, China
- **Chaosheng Song,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT00119** **Title:** Calculation of Contact Characteristics for High Reduction Hypoid Gears Using Surfaces Synthesis Analysis **Authors:** Dewan Gu, Bingyang Wei, Kaiwang Yang, Jianjun Yang **Presenter: Dewan Gu**, Henan University of Science and Technology, China
13:50-14:10	**Paper ID: MT00154** **Title:** Research on Inner Bevel-Shaped Gears Conjugated With Involute Cylindrical Gears and Non-Parallel Axes **Authors:** Noritsugu Maeda, Syuhei Kurokawa **Presenter: Noritsugu Maeda**, Ogasawara Precision Laboratory LTD., Japan
14:10-14:30	**Paper ID: MT00318** **Title:** Dynamic Modeling of High-Power Density Bevel Gear Rotor System **Authors:** Zhaoyang Tian, Jinyuan Tang, Zehua Hu **Presenter: Zhaoyang Tian**, Central South University, China
14:30-14:50	**Paper ID: MT00398** **Title:** Optimal Design of a Bevel Gear Spoke Plate Structure with Integrated Multiple Topological Features **Authors:** Jian Li, Haoyuan Zhu, Weihua Meng, Changyao Wu, Zhichao Cui and Cheng Yan **Presenter: Haoyuan Zhu**, Xiamen University, China
14:50-15:10	**Paper ID: MT00403** **Title:** Study on Tooth Deviation of Conical Face-Gear Ground by a Worm Wheel **Authors:** Hui Guo, Xinkun Yang, Yuhang Ruan, Jianing Guo, Lei Wang, Ning Zhao **Presenter: Hui Guo**, Northwestern Polytechnical University, China
15:10-15:30	**Paper ID: MT00455** **Title:** Curvature Interference Characteristics of Straight Bevel Gear **Authors:** Sha Huang, Yaping Zhao and Kai Ma **Presenter: Sha Huang**, Northeastern University, China

Technical Session

Session 32 - Gear Dynamics

Time & Date	13:30-15:30, April 20, 2025	Venue	Hua Yuan Hall 2 / 6F

Session Chairs

- **Baydu AI,** KISSsoft AG, Switzerland
- **Jianjun Tan,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT00103** **Title:** An Improved Nonlinear Dynamic Model of Spur Gear System Considering Gear Teeth Flexibility **Authors:** Chao Ye, Jianfei Shi, Chuang Han and Wuyin Jin **Presenter: Chao Ye**, Lanzhou University of Technology, China
13:50-14:10	**Paper ID: MT00182** **Title:** Equivalent Parameter Model and Optimization Design of Gear Additional Damping Ring **Authors:** Junchu Yang, Weifang Chen **Presenter: Junchu Yang**, Nanjing University of Aeronautics and Astronautics, China
14:10-14:30	**Paper ID: MT00277** **Title:** The Influence of Transverse Contact Ratio and Axial Contact Ratio on the Vibration Characteristic for a Super-High- Contact-Ratio Helical Gear Transmission System **Authors:** Huajian Long, Jing Wei and Ruizhi Shu **Presenter: Huajian Long**, Chongqing University of Technology, China
14:30-14:50	**Paper ID: MT00312** **Title:** Research on Commutation Shock Suppression Method of Rotary Actuator Considering Gap Nonlinearity **Authors:** He Yu, Zhenhao Su, Wankai Shi **Presenter: He Yu**, Chongqing University, State Key Laboratory of Mechanical Transmission, China
14:50-15:10	**Paper ID: MT00313** **Title:** A New Dynamic Modeling Method Applied to Thin-Walled Herringbone Gear System **Authors:** Tiancheng Li, Jinyuan Tang, Xiannian Kong **Presenter: Tiancheng Li**, Central South University, China
15:10-15:30	**Paper ID: MT00428** **Title:** Analysis of Dynamic Characteristics of High Contact Spur Gear System Under Different Speed Conditions **Authors:** Chongyang Zhang, Songlin Chen, Jing Wei **Presenter: Chongyang Zhang**, Shanxi Taizhong Intelligent Mining Equipment Technology Co., Ltd., China

Technical Session

Session 33 - Spline and Coupling Mechanics

Time & Date	13:30-15:30, April 20, 2025	Venue	Grand Ballroom A+B / 5F

Session Chairs

- **Kai Feng,** Hunan University, China
- **Luhe Zhang,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT00126** **Title:** Influence of Misalignments on Loads, Stresses and Tooth Friction in Grid Couplings **Authors:** Elias Rechreche, Jérôme Bruyere, Quentin Le Guennec, Philippe Velex **Presenter: Elias Rechreche**, INSA Lyon, France
13:50-14:10	**Paper ID: MT00226** **Title:** Electric Vehicles Half-Shaft Spline's Fatigue Life Prediction and Optimization **Authors:** Chengyu Duan, Wenhan Wang, Qiang Zeng, Liming Wang **Presenter: Chengyu Duan**, Chongqing University, China
14:10-14:30	**Paper ID: MT00334** **Title:** Contact Stress Prediction of Aeronautic Helical Involute Splines **Authors:** Guangming Yang, Shanlin Tian, Guang Zhao, Liangliang Gong, Yuxin He and Yunbo Yuan **Presenter: Guangming Yang**, Dalian University of Technology, China
14:30-14:50	**Paper ID: MT00338** **Title:** New Composite Splines and Crowned Circular-Arc Splines for Relieving Contact Stress Concentration and Reducing Contact Sliding **Authors:** Zhaoyang Liu, Guang Zhao, Hengwen Qiao, Yuxin He, Hongtao Wang and Yunbo Yuan **Presenter: Yunbo Yuan**, Dalian University of Technology, China
14:50-15:10	**Paper ID: MT00332** **Title:** Numerical Study on Dynamic Wedging Characteristics of Sprag Clutch-Accessory Gear Transmission System **Authors:** Changqi Hao, Liangliang Gong, Yunbo Yuan, Haomin Chen, Hongchao Zhang, Guang Zhao **Presenter: Changqi Hao**, Dalian University of Technology, China

Technical Session

Session 34 - Gear Fatigue and Strength

Time & Date	13:30-15:30, April 20, 2025	Venue	Yu Yao Hall B+C / 5F

Session Chairs

- **Carlo Gorla,** Politecnico di Milano, Italy
- **Siyuan Liu,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT0024** **Title:** Micropitting Prediction of Spur Gears During FZG Tests Base on Archard's Wear Law **Authors:** Jiachun Lin, Qiang Xie, Yunfei Li, Yunjin Xiang and Ulf Olofsson **Presenter: Jiachun Lin**, Beijing University of Technology, China
13:50-14:10	**Paper ID: MT0032** **Title:** Influence of Lubricant Properties and Lubricating Conditions on the Pitting Load Carrying Capacity of Cylindrical Gears **Authors:** Markus Brummer, Thomas Tobie, Karsten Stahl **Presenter: Markus Brummer**, Technical University of Munich, Gear Research Center (FZG), Germany
14:10-14:30	**Paper ID: MT00109** **Title:** Research on Grey Prediction and Data Synthesis Evaluation Method for Bending Fatigue Life of Spiral Bevel Gears **Authors:** Bingyang Wei, Peifei Shi, Shaokun Feng and Tianxing Li **Presenter: Peifei Shi**, Henan University of Science & Technology, China
14:30-14:50	**Paper ID: MT00326** **Title:** Study on Loading Capacity and Database of High-Performance Gears **Authors:** Chenfan Jia, Jizhan Wu, Difa Chen, Taimin Chen and Huaiju Liu **Presenter: Chenfan Jia**, Chongqing University, China
14:50-15:10	**Paper ID: MT00393** **Title:** Tooth Root Fatigue Fracture: a Comparison Between Pulsator and Running Gear Tests **Authors:** Luca Bonaiti, Lorenzo Valsecchi, Michael Geitner, Thomas Tobie, Karsten Stahl, Carlo Gorla **Presenter: Luca Bonaiti**, Politecnico di Milano, Italy
15:10-15:30	**Paper ID: MT00460** **Title:** Verification of a Flank Fracture Simulation Model **Authors:** Jean-Andre Meis **Presenter: Jean-Andre Meis**, Flender GmbH, Germany

Technical Session

Session 35 - State Evaluation of Transmission System

Time & Date	13:30-15:30, April 20, 2025	Venue	Hua Yuan Hall 1 / 6F

Session Chairs

- **Xiaohui Shi,** Chongqing University of Science and Technology, China
- **Min Cheng,** Chongqing University, China

Paper Details

13:30-13:50	**Paper ID: MT0082** **Title:** Dynamic Parameter Identification of Wind Turbine Gear Based on Torsional Vibration Model **Authors:** Dongliang Zhang, Ye Zhou, Caichao Zhu, Jianjun Tan, Wen Lv and Lei Wang **Presenter: Lei Wang**, Chongqing University, China
13:50-14:10	**Paper ID: MT0093** **Title:** Drag Torque of Wet Clutches as a Function of Service Time **Authors:** Bangzhi Wu, Hongbin Yuan and Jian Xing **Presenter: Bangzhi Wu**, Hangzhou Normal University, China
14:10-14:30	**Paper ID: MT00155** **Title:** Research on Dynamic Characteristics of an Aero-Engine Accessory Transmission System **Authors:** Zhibin Li, Linlin Liu, Jinde Zheng and Sanmin Wang **Presenter: Linlin Liu**, Northwestern Polytechnical University, China
14:30-14:50	**Paper ID: MT00164** **Title:** Dynamic Mesh Force Identification for Gear Transmissions Using Physics-Informed Neural Networks **Authors:** He Dai, Shunan Luo, Xinhua Long and Bin Zi **Presenter: He Dai**, Hefei University of Technology, China
14:50-15:10	**Paper ID: MT00198** **Title:** Influence of Gear Tooth Surface Wear on Nonlinear Dynamics of Aviation Planetary Gearbox Under Mixed Lubrication **Authors:** Lan Luo, Kangkang Cui, Haofeng Jiao, Jiamin Lu and Yongqiao Wei **Presenter: Kangkang Cui**, Lanzhou University of Technology, China

Technical Session

Session 36 - Plastic/Magnetic Gear

Time & Date	15:40-17:40, April 20, 2025	Venue	Nian Hua Hall / 6F

Session Chairs

- **Hanspeter Dinner,** KISSsoft AG, Switzerland
- **Shuai Gao,** Chongqing University, China

Paper Details

15:40-16:00	**Paper ID: MT0092** **Title:** Magnetic Nutation Transmission–Current State and Future Potentials **Authors:** Jiaxin Ding, Yaming Liu, Bing Yang, Ligang Yao **Presenter: Jiaxin Ding**, Fuzhou University, China
16:00-16:20	**Paper ID: MT00328** **Title:** Investigation on the Transmission Error Behavior of Polymer Gears **Authors:** Markus Rothemund, Michael Otto and Karsten Stahl **Presenter: Markus Rothemund**, Technical University of Munich, Gear Research Center, Germany
16:20-16:40	**Paper ID: MT00336** **Title:** Modeling and Meshing Characteristics of PEEK Planetary Gear Transmission System **Authors:** Xinping Zhu, Zhongxing Huang, Wuxi Shi and Liqing Shi **Presenter: Xinping Zhu**, Tiangong University, China
16:40-17:00	**Paper ID: MT00347** **Title:** Performance Evaluation and Design Parameters for Plastic Gears **Authors:** Damijan Zorko, Rok Kalister, Borut Černe, Huaiju Liu, Peitang Wei **Presenter: Damijan Zorko**, RD Motion, d.o.o., Slovenia
17:00-17:20	**Paper ID: MT00350** **Title:** An Experimental Study on the NVH Performance of Plastic Gears **Authors:** Damijan Zorko, Borut Černe, Rok Kalister, Huaiju Liu, Peitang Wei **Presenter: Damijan Zorko**, RD Motion, d.o.o., Slovenia

Technical Session

Session 37 - Planetary Gear

Time & Date	15:40-17:40, April 20, 2025	Venue	Hua Yuan Hall 2 / 6F

Session Chairs

- **Shan Chang,** Harbin Ship Boiler Turbine Research Institute, China
- **Minggang Du,** China North Vehicle Research Institute, China

Paper Details

15:40-16:00	**Paper ID: MT00163** **Title:** Analysis of Load Characteristics of High-Speed Planetary Gear Transmission System Considering Operating Conditions and Errors **Authors:** Jiandong Duan, Wankai Shi, Zhenhao Su, He Yu **Presenter: Jiandong Duan**, Chongqing University, China
16:00-16:20	**Paper ID: MT00179** **Title:** Dynamic Analysis and Optimization of Planetary Gear Transmission System With 3-D Tooth Surface Modification **Authors:** Jin Yang, Duanchang Liang, Tengjiao Lin and Zeyin He **Presenter: Jin Yang**, Chongqing Jiaotong University, China
16:20-16:40	**Paper ID: MT00213** **Title:** Transforming Real-Valued Modes to Structured Complex-Valued Modes for Epicyclic/Planetary Gears **Authors:** Chenxin Wang, Hua Qiao, Li Yu, Robert G. Parker **Presenter: Chenxin Wang**, Zhejiang Shuanghuan Driveline Co., Ltd., China
16:40-17:00	**Paper ID: MT00331** **Title:** The Hybrid Dynamic Model of a Single-Stage Planetary Gear Transmission System and Its Nonlinear Vibration Characteristics **Authors:** Zhen Wang, Changle Xiang, Hui Liu, Jinji Gao **Presenter: Zhen Wang**, Beijing University of Chemical Technology, China
17:00-17:20	**Paper ID: MT00416** **Title:** FEA Investigation on the Fatigue Life of Cycloidal Gear in N-type Planetary Transmission with Small Tooth Difference **Authors:** Changhe Zhai, Zhenhua Han, Xiaofei Han, Wentao Shan, Hai Li, Wankai Shi, Lang Xu, Qifeng Tan, Huachao Xu, Wenjian Wang **Presenter: Changhe Zhai**, Jiangsu University of Technology, China

Technical Session

Session 38 - Gear Tribology

Time & Date	15:40-17:40, April 20, 2025	Venue	Grand Ballroom A+B / 5F

Session Chairs

- **Changjiang Zhou,** Hunan University, China
- **Ye Zhou,** Chongqing University, China

Paper Details

15:40-16:00	**Paper ID: MT0012** **Title:** Influence of Unbalanced Sliding Conditions on the Slow Speed Wear Behavior of Internal Gears **Authors:** Michael Geitner, Thomas Tobie and Karsten Stahl **Presenter: Michael Geitner**, Technical University of Munich, Gear Research Center (FZG), Germany
16:00-16:20	**Paper ID: MT0086** **Title:** Detection of Gear Surface Roughness Based on Dual-Branch Multi-level Deep Feature Fusion with Clustering Optimal Transport Domain Adaptation Network **Authors:** Junhang Deng, Zhiqin Cai, Shuaiqiang Ding, Shaofeng Chen **Presenter: Junhang Deng**, Xiamen University, China
16:20-16:40	**Paper ID: MT00250** **Title:** Measurement and Modelling of Friction for Cylindrical Gears with Pitch Line Velocities Up to 100 M/s **Authors:** Mathis Steinrötter, Jaacob Vorgerd, Alexander Thomas, Manuel Oehler **Presenter: Mathis Steinrötter**, Ruhr University Bochum, Germany
16:40-17:00	**Paper ID: MT00256** **Title:** Dynamic Analysis of Planetary Gear Transmission Considering Gear Lubrication **Authors:** Yixin Wang, Nanze Wu, Yonggang Xiang, Chara Lama Tasisa, Changzhao Liu, Wenyu Bai **Presenter: Yixin Wang**, State Key Laboratory of Mechanical Transmission for Advanced Equipment, Chongqing University, China
17:00-17:20	**Paper ID: MT00372** **Title:** Rough Surface Characterization of Face Gear Considering Fractal Dimension and Simulation Analysis of Elastohy-drodynamic Lubrication **Authors:** Qihui Xu, Sibao Wang, Xinlei Li and Kunlong Li **Presenter: Qihui Xu**, Chongqing University, China
17:20-17:40	**Paper ID: MT00436** **Title:** Research on Vibration Characteristics of Spur Gear Drive Considering Tooth Surface Friction Under Elastohydrodynamic Lubrication **Authors:** Shengping Fu, Shanming Luo, Xudong Li **Presenter: Shengping Fu**, Jimei University, China

Technical Session

Session 39 - Gear Geometry

Time & Date	15:40-17:40, April 20, 2025	Venue	Yu Yao Hall B+C / 5F

Session Chairs

- **Jean-André Meis,** Flender GmbH, Germany
- **Ligang Yao,** Fuzhou University, China

Paper Details

15:40-16:00	**Paper ID: MT0031** **Title:** Design and Tooth Contact Analysis of Pure Rolling Cylindrical Gears with Circular Arc Tooth Profile in the Normal Section **Authors:** Zhen Chen, Hui Yang, Xiaoping Xiao, Chao He, Yangzhi Chen and Alfonso Fuentes **Presenter: Zhen Chen**, Guangdong Ocean University, China
16:00-16:20	**Paper ID: MT00263** **Title:** Dynamic Characteristics Analysis of Concave-Convex Contact S-Gear Planetary Transmission **Authors:** Ling Lu, Chao Jia, Ligang Yao and Xiaolin Zhu **Presenter: Ling Lu**, Fuzhou University, China
16:20-16:40	**Paper ID: MT00267** **Title:** Macro Parameters Optimization Design of High Contact Ratio Spur Gears **Authors:** Songlin Chen, Li Fang, Zanhan Yin, Jing Wei, Ruizhi Shu **Presenter: Songlin Chen**, Chongqing University of Technology, China
16:40-17:00	**Paper ID: MT00380** **Title:** A Contact Fatigue Model for Gear Pairs with Thin Web and Tooth Surface Modification **Authors:** Songtao Zhao, Jinlong Wang, Bing Yuan, Shan Chang **Presenter: Songtao Zhao**, No.703 Research Institute of CSSC/Tongji University, China
17:00-17:20	**Paper ID: MT00426** **Title:** Design Optimization of Tooth Tip Profile Modification for Aero Engine Gear **Authors:** Haixin He, Minghao Chu, Huaming Qian, Hongzhong Huang, Jing Wei, Ning Lu **Presenter: Minghao Chu**, University of Electronic Science and Technology of China, China

Technical Session

Session 40 - State Evaluation of Transmission System

Time & Date	15:40-17:40, April 20, 2025	Venue	Hua Yuan Hall 1 / 6F

Session Chairs

- **Xiangyang Xu,** Chongqing Jiaotong University, China
- **Yi Qin,** Chongqing University, China

Paper Details

15:40-16:00	**Paper ID: MT00275** **Title:** Research on Motor Drive Planetary Gearbox Mathematical Model and Sun Gear Fault Response Analysis **Authors:** Dexin Chen, Xiaolong Han, Sen Li, Shudong Ou, Yue Zhang and Ming Zhao **Presenter: Dexin Chen**, Xi'an Jiaotong University, China
16:00-16:20	**Paper ID: MT00294** **Title:** Fatigue Damage Modeling and Simulation of Pearlitic Rail Steel under Wheel-Rail Rolling Contact **Authors:** Manjiang Yu, Fangli Duan **Presenter: Manjiang Yu**, Chongqing University, China
16:20-16:40	**Paper ID: MT00298** **Title:** Research on Mechanism of Gear Fault Feature Extraction Based on Signal Analysis Method **Authors:** Xiaoxu Zhang, Peng Yao, Jinfu Liu, Kun Zhang **Presenter: Xiaoxu Zhang**, Harbin Marine Boiler&Turbine Research Institute/Harbin Institute of Technology, China
16:40-17:00	**Paper ID: MT00335** **Title:** Dynamic Characteristics Analysis of Gear Transmission System for High-Speed Trains Under Tooth Pitting **Authors:** Shi Wang, Xuan Li, Yawen Wang **Presenter: Shi Wang**, Soochow University, China
17:00-17:20	**Paper ID: MT00341** **Title:** Multi-Sensor Feature Fusion Network for Gearbox Fault Diagnosis **Authors:** Qiang Xiang, Teng Zhan, Wentao Chen, Wenbin Huang and Xiaoxi Ding **Presenter: Qiang Xiang**, Chongqing University, China

Poster Session

Time	15:30-15:50，April 18, 2025 10:00-10:20，April 19, 2025	Venue	Corridor / 6F

Board No.	Paper Details
01	**Paper ID: MT0016** **Title:** The Effect of Design Power on the Weight under Different Coaxial Reverse Transmission System **Authors:** Xiaoyu Che, Xiaojie Yuan, Rupeng Zhu **Presenter: Xiaoyu Che**, Nanjing University of Aeronautics and Astronautics, China
02	**Paper ID: MT0090** **Title:** Comparative Analysis of Contact Method and Traditional Lumped Parameter Method for Dynamic Modeling of Spur Gear Transmission **Authors:** Yuankui Luo, Lixin Xu and Kai Wang **Presenter: Yuankui Luo**, Chongqing University, China
03	**Paper ID: MT00125** **Title:** Errors Analyses of the Inner Gear Plane Enveloping Worm Drive **Authors:** Jingzi Zhang, Shuai Zhao, Xuegang Li, Ju Han, Xueyan Zhang, Shiyu Ma **Presenter: Jingzi Zhang**, North China University of Science and Technology, China
04	**Paper ID: MT00141** **Title:** Micropitting Analysis of Gears for Large Megawatts Wind Turbines Main Gearbox with Thermal Elastohydrodynamic Lubrication Contact Theory **Authors:** Yongqiang Xiong, Yifei He, Yizhong Sun **Presenter: Yongqiang Xiong**, Nanjing High Speed Gear Manufacturing Co., Ltd., China
05	**Paper ID: MT00151** **Title:** Calculation of Wear Depth of Spur Gear and Analysis of Influencing Factors **Authors:** Zao He, Yumei Hu **Presenter: Zao He**, Chongqing University, China
06	**Paper ID: MT00204** **Title:** Study on Vibration Control for Aero Engine Accessory Transmission System Based on Finite Element Method **Authors:** Shize Tang, Sihan Yu, Wenjun Luo **Presenter: Shize Tang**, Chongqing University, China
07	**Paper ID: MT00233** **Title:** Influence of Misalignment on Meshing Performance of Spiral Bevel Gears with High Transmission Efficiency Based on the Curve Elements **Authors:** Dongyu Wang,Luhe Zhang, Bingkui Chen, Xinxin Ye, Yangyong Ni, Liang Cheng, Rui Tang **Presenter: Dongyu Wang**, Chongqing University, China
08	**Paper ID: MT00241** **Title:** Transmission Characteristics Analysis of Arc Tooth Cylindrical Gear **Authors:** Liang Cheng, Luhe Zhang, Yangyong Ni, Dongyu Wang, Jia Shi, Bingkui Chen **Presenter: Liang Cheng**, Chongqing University, China

Board No.	Paper Details
09	**Paper ID: MT00104** **Title:** Research on Dynamic Characteristics of Traveling Wave Superposition Resonance of Aero-Engine Bevel Gear **Authors:** Liubing Chen, Wenjun Luo, Zhongya Jia, Dongbing Tu **Presenter: Liubing Chen**, Chongqing University, China
10	**Paper ID: MT00316** **Title:** The Mesh Stiffness and Dynamic Models of Cracked Spur Gears in Elastohydrodynamic Contacts Considering a Novel Crack Propagation **Authors:** Zeliang Xiao, Baokui Yan and Yukun Yang **Presenter: Zeliang Xiao**, Changsha University of Science and Technology, China
11	**Paper ID: MT00319** **Title:** Investigation on the Dynamic Behaviors of the Gear Transmission System With Eccentricity in High-Speed Trains **Authors:** Jieyu Ning, Zaigang Chen **Presenter: Jieyu Ning**, Southwest Jiaotong University, China
12	**Paper ID: MT00323** **Title:** Dynamic Analysis of Thin-Webbed Helical Gears Using a Multi-Theory Elastic Approach **Authors:** Tiancheng Li, Jinyuan Tang **Presenter: Tiancheng Li**, Central South University, China
13	**Paper ID: MT00342** **Title:** An Improved Algorithm for the Meshing Stiffness of Asymmetric Helical Gears Based on Finite Element Method and Elastic Contact Theory **Authors:** Chongxing Cao, Haiwei Wang, Youjing Wang, Shuan Yao, Fangli Ning **Presenter: Chongxing Cao**, Northwestern Polytechnical University, China
14	**Paper ID: MT00363** **Title:** Sensitivity Analysis of Structural Parameters of Short-Cup Flexible Gears **Authors:** Shuming Guo, Wenhe Han, Shuyan Wang, Xinyi Zhang, Hongwei Chen, Zebin Lin **Presenter: Shuming Guo**, Donghua University, China
15	**Paper ID: MT00375** **Title:** Research on Nonlinear Dynamic Characteristics of Two-Stage Planetary Gear System Considering Time-varying Mesh Parameters **Authors:** Yang Fu, Wei Yang, Xiaolin Tang, Jinping He **Presenter: Yang Fu**, Chongqing University, China
16	**Paper ID: MT00377** **Title:** An Adhesive Wear Calculation Model of Gear Tooth Surface Considering the Eccentricity Error **Authors:** Hongbing Wang, Shicheng Feng, Lairong Yin, Bo Hu, Jianxiong Dong and Changjiang Zhou **Presenter: Bo Hu**, Changsha University of Science and Technology, China
17	**Paper ID: MT00387** **Title:** Dynamics Characteristics Study of Cylindrical Gear Considering Elastohydrodynamics Lubrication Coupling **Authors:** Yu Tang, Kun Zhang, Shengjian Ye, Zhiqiang Wang **Presenter: Yu Tang**, Harbin Marine Boiler & Turbine Research Institute, China

Board No.	Paper Details
18	**Paper ID: MT00405** **Title:** Research on Belt Grinding and Chamfering of the Pump Gear Transverse Plane **Authors:** Peiyao Zhang, Lai Zou, Yun Huang **Presenter: Peiyao Zhang**, Chongqing University, China
19	**Paper ID: MT00421** **Title:** Analyzing Thermal-Elastic Coupling Mesh Stiffness of Herringbone Gear and Its Influencing Factors **Authors:** Shihao Yang, Jiaqi Xue, Lubing Shi, Zhongming Liu, Wei Wang **Presenter: Lubing Shi**, Zhengzhou Institute of Machinery (Zhengzhou) Transmission Technology Co., Ltd., China
20	**Paper ID: MT00288** **Title:** Simulation Study on Elastohydrodynamic Lubrication Under Rough Surface of Aerospace Bevel Gear Pair **Authors:** Song Xin, Yumei Hu, Wenjun Luo **Presenter: Song Xin**, Chongqing University, China
21	**Paper ID: MT00102** **Title:** Optimization and Simulation Analysis of Cycloidal Gear Actuator **Authors:** Junhua Bao,Yaoqiang Liu and Weidong He **Presenter: Yaoqiang Liu**, Dalian Jiaotong University, China
22	**Paper ID: MT008** **Title:** Integrated Mechanical and Electrical Parameter Design of Wind Turbine Gearbox-Generator System **Authors:** Ruibo Chen, Zhonghua Wu, Datong Qin, Changzhao Liu, Hongshan Zhao **Presenter: Ruibo Chen**, Drilling Technology Research Institute of Shengli Petroleum Engineering Corporation, China
23	**Paper ID: MT0023** **Title:** Study on the Influence of Working Conditions on the Vibration Characteristics of Helicopter Main Reducer **Authors:** Huachao Xu, Zhiliang Xu, Zhenhua Han, Datong Qin, Jixiang Xie **Presenter: Huachao Xu**, Chongqing Polytechnic University of Electronic Technology, China
24	**Paper ID: MT0025** **Title:** An Improved Dynamic Model for Wind Turbine Gear-Bearing Coupling System Considering Tooth Root Crack and Slicing Coupling Effect **Authors:** Shuyi Yang, Jianjun Tan, Caichao Zhu, Ye Zhou, Chengwu Li, Bo Liao **Presenter: Shuyi Yang**, State Key Laboratory of Mechanical Transmission for Advanced Equipment, Chongqing University, China
25	**Paper ID: MT0030** **Title:** Development of 2000kW Digital Reducer for Armoured Face Conveyor **Authors:** Yang Yu, Yun Chen, Jin Kong **Presenter: Yang Yu**, Ningxia Tiandi Benniu Transmission Technology Co., Ltd., China

Board No.	Paper Details
26	**Paper ID: MT0043** **Title:** Modeling and Simulation of P-gear Parking System **Authors:** Ming Ye, Jiang Peng, Tao Jiang, Zhengming Peng and Yi Zheng **Presenter: Ming Ye**, Chongqing University of Technology, China
27	**Paper ID: MT0055** **Title:** Principle and Simulation Analysis of a Novel Multi- gear Transmission **Authors:** Xuelian Zeng, Ligang Yao **Presenter: XueLian Zeng**, Fujian Chuanzheng Communications College, China
28	**Paper ID: MT0062** **Title:** Research on Dynamic Modeling of DCT System Based on Mechanism-Data Driven **Authors:** Jihao Feng, Linhai Zhao, Yonggang Liu, Hanjie Jia **Presenter: Jihao Feng**, Chongqing Jiaotong University, China
29	**Paper ID: MT0065** **Title:** Axial Balance Analysis and Structural Strength Check of Hydraulic Retarder in AT **Authors:** Maohan Xue, Yulong Lei, Yao Fu, Xiaohu Geng **Presenter: Maohan Xue**, Jilin University, China
30	**Paper ID: MT0077** **Title:** A Hybrid Remaining Life Prediction Method Based on Meta-Action **Authors:** Xinyi Yu, Yan Ran **Presenter: Xinyi Yu**, Chongqing University, State Key Laboratory of Mechanical Transmission for Advanced Equipment, China
31	**Paper ID: MT00110** **Title:** A New Dynamic Boring Force Prediction Method Using Time-Varying Cutting Toolpath and Orthogonal Cutting Force Model **Authors:** Weitao Du, Liwei Zhang, Jia Shi, Xuejiao Li, Dong He, Xiangdong Cheng and Yimin Shao **Presenter: Weitao Du**, Chongqing Gearbox Co. Ltd, China
32	**Paper ID: MT00114** **Title:** Analysing and Optimising the Lubricating Oil Circuit of the Power Coupling Mechanism **Authors:** Ruyi Zhou, Tianze Zhou, Minghui Hu, Haiyang Yu, Xinyi Li and Jing Zhang **Presenter: Tianze Zhou**, Chongqing University, China
33	**Paper ID: MT00168** **Title:** Research on a Flexible Gear Lead Modification and Precision Control Method Based on Multi-Axis Linkage **Authors:** Xiaoqing Tian, Zhilai Zhang, Dongwang Pan, Jiang Han and Lian Xia **Presenter: Xiaoqing Tian**, Hefei University of Technology, China
34	**Paper ID: MT00177** **Title:** Design of Pinwheel Transmission with Planar Fluctuation **Authors:** Yanqiang Sun, Dayou Liu, Guiping Xie, Ting Xia, Huiming Cheng **Presenter: Yanqiang Sun**, Shandong Jiaotong University, China
35	**Paper ID: MT00183** **Title:** Hybrid Model Predictive Control for Integrated Electro-Pneumatic Shift System with On-Off Solenoid Valves **Authors:** Xiaohu Geng, Yulong Lei, Weidong Liu, Maohan Xue, Yao Fu and Ke Liu **Presenter: Xiaohu Geng**, State Key Laboratory of Automotive Simulation and Control, Jilin University, China

Board No.	Paper Details
36	**Paper ID: MT00202** **Title:** The Formation Mechanism and Analysis of Waviness on Tooth Surface for Internal Gearing Power Honing **Authors:** Jianping Tang, Jiang Han, Xiaoqing Tian, Tongfei You, Guanghui Li, Lian Xia, Xiaowu Liu and Yanliang Hu **Presenter: Jianping Tang**, Hefei University of Technology, China
37	**Paper ID: MT00205** **Title:** Simulation Analysis and Optimization of Dynamic Characteristics of Aero-Engine Accessory Gear System **Authors:** Yongkang Gu, Cheng Yang, Bingkui Chen **Presenter: Yongkang Gu**, Chongqing University, China
38	**Paper ID: MT0019** **Title:** Integrated Optimization Strategy for Torsional Vibration Suppression and Energy Management in Parallel Hybrid Electric Powertrain **Authors:** Shuang Chen, Minghui Hu and JianJun Hu **Presenter: Shuang Chen**, Chongqing University, China
39	**Paper ID: MT0063** **Title:** Research on Evaluation Model of the Intelligence Degree of Vehicle Shift Schedule **Authors:** Jihao Feng, Teng Zhang, Datong Qin, Yonggang Liu, Zheng Guo, Hanbing Wei **Presenter: Jihao Feng**, Chongqing Jiaotong University, China
40	**Paper ID: MT00361** **Title:** Study on the Churning Loss and Numerical Calculation Model of Planetary Gear Train **Authors:** Huixiao Chen, Haoyuan Ding, Lubing Shi, Zihao Yue, Bang Pei, Zhongming Liu **Presenter: Lubing Shi**, Zhengzhou Institute of Machinery (Zhengzhou) Transmission Technology Co., Ltd., China
41	**Paper ID: MT00367** **Title:** Analysis of the Stiffness Performance of Precision Reducers for Robot Joints Considering Thermal Effects **Authors:** Xianglong Kong, Hao Liu, Chao Wei and Chaoyang Li **Presenter: Xianglong Kong**, Chongqing University, China
42	**Paper ID: MT00390** **Title:** Design and Testing of Highly Reliable Adaptive Seals for Marine Applications **Authors:** Shuangxing Wang, Gang Shao, Xuan Zou, Zhuang Liu, Qiang Shen, Tao Chen, Lidong He **Presenter: Shuangxing Wang**, No.703 Research Institute of CSSC, China
43	**Paper ID: MT00395** **Title:** High-Frequency Fatigue Strain Field Measurement in Marine Clutch Control Mechanisms Using Parallel Matching 3D-DIC **Authors:** Xin Wang, Yongfan Wang, Kexin Chen, Weize Dai and Zaigong Wang **Presenter: Yongfan Wang**, Harbin Marine Boiler and Turbine Research Institute, China

Board No.	Paper Details
44	**Paper ID: MT00463** **Title:** Design of Low Resistance Planetary Gear Reducer Based on Low Backlash Method **Authors:** Muye Bai, Gang Qin, Wang Maokun, Qifei Fang, Yonggang Liu, Jing Wei **Presenter: Muye Bai**, Chongqing University, China
45	**Paper ID: MT0029** **Title:** A Precise Evaluation Method for Gear Wear Amount Based on Iterative Filtering Algorithm **Authors:** Yunjin Xiang, Jiachun Lin and Yunfei Li **Presenter: Yunjin Xiang**, Beijing University of Technology, China
46	**Paper ID: MT00133** **Title:** Test Study of Bending Strength of 2.5 Dimension Braided Carbon Fiber Composite Gear **Authors:** Layue Zhao, Jixuan Bian, Liuyang Guo and Mingxing Du **Presenter: Layue Zhao**, China North Vehicle Research Institute, China
47	**Paper ID: MT0097** **Title:** Thermal Coupling Analysis and Experimental Study of Residual Stress on Gear Tooth Surface for Internal Gearing Power Honing Process **Authors:** Bin Yuan, Zixiang Xu, Jiang Han, Wei Ding, Runmei Zhang, Xiaoqing Tian, Lian Xia **Presenter: Bin Yuan**, Anhui Jianzhu University, China
48	**Paper ID: MT00160** **Title:** A Time-Varying Mesh Stiffness Model of Orthogonal Face Gears with Installation Errors Considering EHL **Authors:** Wenguang Zhou, Rupeng Zhu, Wenzheng Liu and Jingjing Wang **Presenter: Wenguang Zhou**, Nanjing University of Aeronautics and Astronautics, China
49	**Paper ID: MT00214** **Title:** Research on Grinding Force Prediction of Spiral bevel Gear Based on Undormed Grinding Chips **Authors:** Nan Liu, Jiang Han, Xiaoqing Tian, Minglei Li, Rui Xue, Lian Xia **Presenter: Nan Liu**, Hefei University of Technology, China
50	**Paper ID: MT00252** **Title:** Automatic Generation and Refinement Technology of Finite Element Mesh for Spiral Bevel Gear with Root Transition Fillet **Authors:** Chuanlong Liu, Jing Wei, Yuxin Tan, Siyu Chen **Presenter: Chuanlong Liu**, State Key Laboratory of Mechanical Transmission for Advanced Equipment, China
51	**Paper ID: MT00271** **Title:** Optimization of Process Parameters for Helical Gear Grinding with Worm Wheel Considering Grinding Wheel Vibration Effects **Authors:** Dong Guo, Kuankuan Wang, Ziqian Liu and Yu Xin **Presenter: Kuankuan Wang**, Chongqing University of Technology, China
52	**Paper ID: MT00295** **Title:** A Digital Twin Model of Planetary Gear Set for Intelligent Fault Diagnosis of Root Cracks **Authors:** Wanheng He, Shumiao Zuo, Qihong Chu, Yanfang Liu, Xiangyang Xu, Shuhan Wang and Peng Dong **Presenter: Wanheng He**, Beihang University, China

Board No.	Paper Details
53	**Paper ID: MT00358** **Title:** Testing and Characterization of the Gradient Mechanical Properties of the Sur-face Hardened Layer of Carburized Gear by Flat Indentation **Authors:** Xiaokun Liu, Lubing Shi, Shuaizong Huang, Shidang Yan, Zhongming Liu, Guan Rongxin **Presenter: Xiaokun Liu**, ZRIME Gearing Technology Co., Ltd., China
54	**Paper ID: MT00365** **Title:** EFAST-Based Identification of Key Geometric and Thermal Errors for Gear Profile Grinders **Authors:** Haoqing Zeng, Changjiu Xia, Yuanyang Wang and Xuncai Zhong **Presenter: Haoqing Zeng**, Southwest Jiaotong University, China
55	**Paper ID: MT00401** **Title:** Analysis of Warm Rolling Finishing Forming Process for Spiral Bevel Gears **Authors:** Xiaotao An, Bowen Zhang, Linlin Sun, Ning Zhao, Jing Deng and Jinran Li **Presenter: Bowen Zhang**, Northwestern Polytechnical University, China
56	**Paper ID: MT00440** **Title:** A Multidimensional Information Calibration Method for Spiral Bevel Gears **Authors:** Hongtao Dong, Hanbin Zhou, Longting Chen, Jingyuan Tang **Presenter: Hanbin Zhou**, Central South University, China
57	**Paper ID: MT00457** **Title:** Vector Ffield of Normals as an Effective Technique for Analysis and Synthesis of Worm-type Gears **Authors:** Evgeniy Trubachev **Presenter: Evgeniy Trubachev**, Kalashnikov ISTU, MIP Mechanic Ltd., Russia
58	**Paper ID: MT0054** **Title:** Bearing Fault Diagnosis Based on Dual-Channel Multi-Scale Attention Mechanism Optimized Transformer **Authors:** Jintao Shu, Xingle Feng, Renpeng Yang, Jinyang Hao **Presenter: Jintao Shu**, Changan University, China
59	**Paper ID: MT0056** **Title:** A Novel ARMA-based Approach for Online Early Fault Detection of Rolling Bearings **Authors:** Yichao Li, Yanfang Liu, Xiangyang Xu and Yongze Lang **Presenter: Yichao Li**, Beihang University, China
60	**Paper ID: MT00112** **Title:** Development of an Online Fault Diagnosis System for Steel Rolling Mill based on Vibration Signal Analysis **Authors:** Biaolin Luo, Jiaxin Ding, Yaming Liu, Minlong Huang, Xiaolin Zhu and Ligang Yao **Presenter: Biaolin Luo**, Fuzhou University, China
61	**Paper ID: MT00216** **Title:** An Improved Lightweight WDCNN for Smart Gear Edge Diagnosis **Authors:** Qihang Wu, Wenbin Huang and Xiaoxi Ding **Presenter: Qihang Wu**, Chongqing University, China

Board No.	Paper Details
62	**Paper ID: MT00287** **Title:** An Improved Impact Vibration Signal Model for Defective Ball Bearings Considering Multiple Events **Authors:** Jiqiao Li, Zhifeng Shi, Xincheng Yin and Hua Huang **Presenter: Jiqiao Li**, Lanzhou University of Technology, China
63	**Paper ID: MT00357** **Title:** Life Prediction of Rolling Bearings Based on FITR-Bi-LSTM Network **Authors:** Fangcheng Shi, Fang Yi, Yuyan Li, Jingsong Xie, Tongyang Pan, Yuntian Ta, Tiantian Wang **Presenter: Yi Fang**, Hunan University, China
64	**Paper ID: MT00413** **Title:** Optimization Design of Coaxial Reverse Rotor Axis Based on Response Surface Method **Authors:** Zhian Hu, Kefeng Li, Zhizhong Zhang, Miaomiao Li **Presenter: Zhian Hu**, Aecc Hunan Aviation Powerplant Research Institute, China
65	**Paper ID: MT00132** **Title:** Optimization Design for Idler Shaft Support Structure of the Integrated Transmission Device Based on Topology Optimization **Authors:** Ming-gang Du, Layue Zhao and Yang Yang **Presenter: Ming-gang Du**, China North Vehicle Research Institute, China
66	**Paper ID: MT00147** **Title:** Optimization of Cutter Posture for Minimum Cutting Force, Surface Residual Stress, and Surface Roughness in Five-Axis Milling **Authors:** Jun Wang, Zehua Wang and Jianpeng Dong **Presenter: Jun Wang**, Chongqing University Fuling Hospital, China
67	**Paper ID: MT0042** **Title:** An Analytical Equation to Compute the Maximum Contact Stress of the Incomplete Spur Gear in the Planetary Roller Screw Mechanism **Authors:** Xiaojun Fu, Xiaokun Bu, Dong Wang, Shangjun Ma and Geng Liu **Presenter: Xiaokun Bu**, Northwestern Polytechnical University, China
68	**Paper ID: MT0046** **Title:** Research on the Transmission Transparency of Quasi-Direct Drive Actuator **Authors:** Hongyu Ding, Zhaoyao Shi, Shuzhi Mo, Wenjie Yang **Presenter: Hongyu Ding**, Guangdong Ocean University, China
69	**Paper ID: MT0057** **Title:** Integrated Optimization Design of Axial-Flow Turbine Based on Kriging Model and White Shark Optimizer **Authors:** Guopan Xu, Yuxin Zhu, Jiahong Zhong, Yuchuan Song, Yunfan Yang and Guantong Chen **Presenter: Guopan Xu**, Chongqing University, China
70	**Paper ID: MT0083** **Title:** Improved Parametric Model for High Reliable Reset Stranded Wire Helical Spring **Authors:** Wenhan Yang, Jianghan Lv, Qiusheng Wu, Yanqin Zhao, Jiajia Wang, Shijie Lv, Xuexing Gu, Yankai Wang **Presenter: Wenhan Yang**, Yangzhou University, China

Board No.	Paper Details
71	**Paper ID: MT00111** **Title:** Torque Ripple Minimization of Interior Permanent Magnet Synchronous Motors Based on Harmonic Current Injection **Authors:** Xinyu Guo, Xiangjin Du, Wenjin Zhao, Chunyun Fu **Presenter: Chunyun Fu**, Chongqing University, China
72	**Paper ID: MT00139** **Title:** Design and Optimization for Asymmetric Rotor Auxiliary Notch of Permanent Magnet Synchronous Motors **Authors:** Zutang Yao, Jianjun Hu and Zhicheng Sun **Presenter: Zutang Yao**, Chongqing University, China
73	**Paper ID: MT00157** **Title:** Simulation and Experimental Verification for Reducing Spatter in BusBar Laser Welding with Superimposed Ring laser **Authors:** Yangxin Chen, Ligang Yao, Yaming Liu, Jiaxin Ding, Minlong Huang and Biaolin Luo **Presenter: Yangxin Chen**, Fuzhou University, China
74	**Paper ID: MT00208** **Title:** Research on the Influence of Inverter Control on the Dynamic Behavior of Wind Turbine under Transmission System Faults **Authors:** Shijie Zhang, Suyan Ge, Xuhui Zhou, Dayuan Wu, Jiangtao Sun **Presenter: Shijie Zhang**, Luoyang Normal University, China
75	**Paper ID: MT00248** **Title:** Fatigue Damage Life Prediction Method for Wind Turbine Blades Considering Aeroelastic Coupling Effects **Authors:** Shengkai Wang, Chengwu Li, Caichao Zhu, Jianjun Tan and Shuyi Yang **Presenter: Shengkai Wang**, Chongqing University, China
76	**Paper ID: MT00251** **Title:** Research on the Injection Molding Process for PEEK-Based Polymer Composite Involute Spline Couplings **Authors:** Xiangzhen Xue, Chen Wang, Junhong Jia, Li Xiao, Wei Zhao, Zhaopeng Wu **Presenter: Xiangzhen Xue**, Shaanxi University of Science & Technology, China
77	**Paper ID: MT00257** **Title:** Dynamic Model and Composite Adaptive Synchronous Control of Flexible Rail Drilling Robot **Authors:** Junang Wu, Zemin Pan, Wenbin Zhang, Libin Wang, Lianwei Ma, Qiang Fang **Presenter: Junang Wu**, Zhejiang University, China
78	**Paper ID: MT00305** **Title:** Cost-Considered Evaluation Method for the Cooling Structure of PMSMs **Authors:** Yuntong Xin, Jianjun Hu **Presenter: Yuntong Xin**, Beijing Institute of Technology, China
79	**Paper ID: MT00374** **Title:** A Lightweight Fault Diagnosis Method of Motor Based on Efficient Additive Self-attention and Separable Dilated Convolution **Authors:** Yiran Xue, Dianyan Ning, Zhijun Ren, Fengqi Li, Yi Han, Yongsheng Zhu, Ke Yan, Jun Hong **Presenter: Zhijun Ren**, Xi'an Jiaotong University, China

Board No.	Paper Details
80	**Paper ID: MT00431** **Title:** Analysis and Experimental Study on the Transmission Efficiency of Planetary Roller Screw Mechanism **Authors:** Zhenwen Cheng, Li Zu, Changguang Zhou, Yang Xu, Zijie Xu, Mingcai Xing **Presenter: Zhenwen Cheng**, Nanjing University of Science and Technology, China
81	**Paper ID: MT00451** **Title:** Dynamic Characteristics Analysis of Feed System of Fixed Beam Gantry Machining Center **Authors:** Xiujun Du, Jiawei Yan, Bo Huang, Tun Tang, Bangyv Tan, Liangliang Xie **Presenter: Bo Huang**, Sichuan University of Science & Engineering, China
82	**Paper ID: MT0095** **Title:** Analysis of Multi-State Meshing and Dynamic Stability of Herringbone Gears Based on Nonlinear Dynamics **Authors:** Zongxiang Yue, Zengcheng Wang, Zhaobo Chen, Jianjun Qu, Guangbin Yu and Lushchyk Pavel **Presenter: Zongxiang Yue**, Harbin Institute of Technology, China
83	**Paper ID: MT0076** **Title:** Design and Experiment Research of RV Reducer Comprehensive Test Benches **Authors:** Qingwang Zhu, Jing Zhang, Faxiang Xie, Zhonggang Zhu, Kang Tian and Chunping Wang **Presenter: Qingwang Zhu**, Zhejiang Fine Motion Robot Joint Technology Co. LTD, China
84	**Paper ID: MT0044** **Title:** Analysis of EHL and Frictional Coefficient in Cylindrical Worm Drives **Authors:** Xinxin Ye, Bingkui Chen, Dongyu Wang, Luhe Zhang and Yonghong Chen **Presenter: Xinxin Ye**, Chongqing University, China
85	**Paper ID: MT00129** **Title:** Study on the Contact Force and Efficiency of TI Worm **Authors:** Fei Liu, Yonghong Chen, Chenyang Dou and Bingkui Chen **Presenter: Fei Liu**, Chongqing University, China
86	**Paper ID: MT00240** **Title:** Research on Efficiency Model of Hydro-mechanical CVT under All Operating Conditions **Authors:** Xu Cheng, Zengxiong Peng, Chongbo Jing, Jiayin Jin, Jian Xiong and Wenjie Ma **Presenter: Xu Cheng**, Beijing Institute of Technology, China
87	**Paper ID: MT00260** **Title:** Calculation of the Synchro-angle and Analysis of the Load Sharing Characteristics in a Split-Torque Gear Transmission System **Authors:** Shiyuan Qi, Yanling Lu, Zongxiang Yue, Guangbin Yu, Chizhik Sergei and Lapatsin Siarhei **Presenter: Zongxiang Yue**, Harbin Institute of Technology, China
88	**Paper ID: MT00410** **Title:** Experimental Investigation of Fretting Friction and Wear of Aeronautical Spline Material Considering the Effect of Loads **Authors:** Wei Song, Zhaoyang Liu, Hengwen Qiao, Guang Zhao and Fanrong Kuang **Presenter: Zhaoyang Liu**, Dalian University of Technology, China

Laboratory Tour

State Key Laboratory of Mechanical Transmission for Advanced Equipment, Chongqing University, China

Visiting Time: 09:00am ~ 11:00am, April 21, 2025

*Please be informed that participants scheduled to attend the laboratory tour are kindly requested to assemble at the **sign-in desk** at **9:00 AM** sharp. Transportation will be provided by a designated coach departing promptly at the specified time.

Laboratory Tour Registration Form

Memo

Memo

Memo

State Key Laboratory of
Mechanical Transmission for Advanced Equipment

Chongqing University

Chinese Mechanical Engineering Society