# The 14th International Conference on Fracture Fatigue and Wear (FFW 2026)

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# The 9th International Conference on Numerical Modelling in Engineering (NME 2026)

## 15-18 July 2026, Matsue, Japan

Conferences Programme

Venue: physically (Kunibiki Messe) and online (MS Teams)

Kunibiki Messe (Shimane Prefectural Convention Center)

Room 601, 6th floor

Address: 1-2-1 Gakuen Minami Matsue City, Shimane, JAPAN 690-0826

For online: to join the conference sessions, please click on the following link:

Click here to join the meeting

All presentations are scheduled according to Japan Standard Time (GMT+9)

# The 14th International Conference on Fracture Fatigue and Wear (FFW 2026) 15-18 July 2026

## Chairman

**Prof. Magd Abdel Wahab**
Ghent University, Belgium

## International Scientific Committee

Prof. S Abdullah, Universiti Kebangsaan Malaysia, Malaysia
Dr. J Abenojar, Universidad Carlos III de Madrid, Spain
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Dr. A Rudawska, Lublin University of Technology, Poland
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Prof. K Oda, Oita University, Japan
Dr. Dagang Wang, China University of Mining and Technology, China
Prof. Hung Nguyen-Xuan, VinUniversity, Vietnam
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Prof. X. Zhuang, Leibniz Unversität Hannover, Germany
Dr. Y.L. Zhou to Xi'an Jiaotong University, China
Dr. Qi Zhao, Hubei University of Automotive Technology, China
Prof. Lihau Wang, Tongji University, Shanghai, China
Prof. Mojtaba Ayatollahi, University of Zanjan, Iran
Dr. Anagnostis Toulfatzis, ELKEME Hellenic Research Centre for Metals S.A., Greece
Prof. Magdalena Niemczewska-Wójcik, Cracow University of Technology, Poland
Dr. Raul Campilho, Instituto Superior de Engenharia do Porto, Portugal
Prof. Yusuf Şahin, OSTIM Technical University, Turkey
Prof. N. B. Dhokey, COEP Technological University, India

# The 9th International Conference on Numerical Modelling in Engineering (NME 2026)
# 15-18 July 2026

## Chairman

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Prof. L. Vanegas Useche, Universidad Tecnológica de Pereira, Colombia
Prof. Hung Nguyen-Xuan, VinUniversity, Vietnam
Prof. Timon Rabczuk, Bauhaus University Weimar, Germany
Prof. Xiaoying Zhuang, Leibniz Unversität Hannover, Germany
Dr. Y.L. Zhou to Xi'an Jiaotong University, China
Prof. Lihau Wang, Tongji University, Shanghai, China
Dr. Qi Zhao, Hubei University of Automotive Technology, China
Dr. Yong Ling, Ghent University, Belgium
Prof. Mojtaba Ayatollahi, University of Zanjan, Iran
Dr. Ho Viet Long, University of Transport and Communications, Vietnam
Dr Feiyang Wang, University of Shanghai for Science and technology
Dr. Francesco Petrini, Sapienza University of Rome, Italy
Dr. Ilaria Fiore, University of Catania, Italy
Dr. Christine Detournay, Itasca Consulting Group, USA
Dr. Desmond Adair, Nazarbayev University, Republic of Kazakhstan
Dr. Cristhian Mendoza, National University Of Colombia
Dr. Carlos Frajuca, Rio Grande Federal University, Brazil
Professor Raul Duarte Salgueiral Gomes Campilho, Instituto Superior de Engenharia do Porto, Portugal
Assoc. Prof. Ángel A. San-Blas, Miguel Hernandez University of Elche, Spain

## KEYNOTE LECTURE 1

**Thursday 16 July 2026**
**Time**: 9:05 am to 9:45 am
**Keynote speaker**: Professor Kazuhiro Oda
**Affiliation**: Division of Mechanical Engineering, Faculty of Science and Technology, Oita University, Japan
**Title**: Identification of Ideal Adhesive Strength Using an Adhesive Specimen without Singular Stress Field

**Abstract**: Various testing methods for adhesive strength are prescribed in JIS; however, no testing method has been established for conditions in which a singular stress field does not exist. In general, material strength should be evaluated using smooth specimens that provide a uniform stress distribution. In adhesive strength evaluation, however, all bonded specimens inherently contain a singular stress field, and its intensity (ISSF) varies depending on the adhesive layer geometry. This is the fundamental reason why adhesive strength depends on adhesive layer configuration.
In this study, a protruded butt joint is proposed to obtain a constant interfacial stress distribution. Using this configuration, the ideal adhesive strength under a uniform interfacial stress condition without local stress concentration was clarified. While the adhesive strength of conventional butt joints strongly depends on the adhesive layer thickness h, the proposed joint exhibits thickness-independent strength, remaining constant at a critical stress of σ_B=47.7MPa. Furthermore, for the JIS butt joint, it was found that the failure mechanism can be classified at a boundary thickness of h=0.1mm into failure governed by internal stress and that governed by the singular stress field. When fracture is controlled by the singular stress field, failure is considered to initiate at a distance of r_B=14.7" " μ"m" from the adhesive edge, determined by evaluating the region (process zone) where the average stress reaches the inherent joint strength σ_B=47.7MPa. This value agrees well with previously reported fracture initiation locations in square-column butt joints, supporting the validity of the proposed evaluation method.
The key contribution of this study is the proposal of an adhesive test specimen in which the singular stress field is eliminated, enabling identification of an ideal maximum strength independent of adhesive geometry, namely the ideal adhesive strength. This finding clarifies the mechanical essence of adhesive strength and the influence of singular stress fields, and is expected to contribute to improving the reliability of adhesive joint design.

**Biographical Record**: Professor Kazuhiro Oda is a faculty member in the Mechanical Engineering Program, Faculty of Science and Technology, Oita University. He received his Ph.D. in Engineering from Kyushu Institute of Technology in 1995. His research interests include strength of materials, elasticity, and fracture mechanics, with a particular focus on stress analysis and singular stress fields at dissimilar material interfaces and strength design of adhesive structures. After completing his doctoral studies in 1995, he served as a Research Fellow of the Japan Society for the Promotion of Science (JSPS) and later joined Tokuyama College of Technology, where he held positions as Associate Professor and Professor. In 2012, he moved to Oita University as Professor in the Faculty of Engineering (now the Faculty of Science and Technology). He is currently engaged in research on advanced strength evaluation methods for adhesive joints and stress intensity factor analysis for orthotropic dissimilar materials. Professor Oda also serves as Special Assistant to the President for Industry–Academia Collaboration, promoting partnerships between the university and industry. He was a Board Member of the Society of Materials Science, Japan (2020–2024). With numerous publications and contributions, he is recognized as one of the leading researchers in fracture mechanics–based design of dissimilar material joints. In 2025, he received the Society of Automotive Engineers of Japan's Technical Paper Award.

## KEYNOTE LECTURE 2

**Thursday 16 July 2026**
**Time**: 9:45 am to 10:25 am
**Keynote speaker**: Professor Nao-Aki Noda
**Affiliation**: Kyushu Institute of Technology, Mechanical Engineering Department, Kitakyushu 804-8550, Japan
Concurrent Professor: Northeastern University, Henan University of Science and Technology, East China Jiatong University
Guest Professor: Shandong University, Shandong University of Technology
**Title**: Effect of Adhesive Geometry on Nominal Lap Joint Strength Defined as Average Stress in JIS

**Abstract**: The JIS standard defines adhesive strength as the nominal stress per unit area of the bonded surface of a small test specimen. This is a basic material strength index that does not consider stress concentration at the bonded ends. In actual structures, the singular stress field strength (ISSF) depends on the shape and dimensions of the joint, so the measured adhesive strength changes depending on the ISSF. This paper uses ISSF analysis and previously published experimental results to verify how the shape of the joint affects the JIS strength of a typical lap joint and clarifies the following:

1) Reported nominal strengths for resin/metal combinations differ by specimen geometry. Butt joints show nominal strengths ranging from 18.8-44.8 MPa (mean 31.8 ± 13.0 MPa), while lap joints show nominal strengths ranging from 11.7-26.1 MPa (mean 18.9 ± 7.19 MPa). The mean butt-joint strength divided by the mean lap-joint strength is about 1.7, so butt-joint strengths exceed lap-joint strengths on average.

2) Geometry dependence differs markedly between butt joints and lap joints. Butt-joint nominal strength varies by roughly a factor of three as adhesive thickness changes over a typical range (0.10-1.0 mm). Lap-joint nominal strength is strongly controlled by bond length and adherend thickness. For FM73 film on aluminum with an adherend thickness of 7 mm, increasing the bond length from 10 mm to 100 mm reduces lap-joint nominal strength from 28 MPa to 10 MPa (about one third). With a bond length of 25 mm, the lap-joint nominal strength remains 28 MPa as adherend thickness falls from 100 mm to 10 mm, but a further reduction to 1.6 mm (the JIS condition) lowers the lap-joint nominal strength to 10 MPa.

3) For short bond lengths, yielding can occur through the adhesive layer so the maximum shear stress approaches the bulk shear strength, an upper bound that can be misread as ideal cohesive failure. For long bond lengths, however, the intrinsic strength is governed by a constant ISSF for the lap joint. Modeling a fictitious interfacial edge crack and comparing stress intensity factors for lap and butt joints yields predicted JIS ratios of butt-joint nominal strength to lap-joint nominal strength between 1.57-1.69, matching the experimental value of about 1.7. Finally, the relative nominal strengths depend on material pairing, bonded area, adherend thickness, and adhesive thickness.

**Biographical Sketch**: Nao-Aki Noda received his Ph.D. degree in Mechanical Engineering from Kyushu University, Japan in 1984. He has been doing research and teaching at Kyushu Inst. Tech., Kitakyushu, Japan, 1984-2022. He is an author of Theory of Elasticity useful for engineers and a co-author of Safety Engineering for Workers in Industry and other several books. He is a co-editor of Stress Intensity Factors Handbook, vol. 4 & 5, Advances in Finite Element Analysis for Computational Mechanics. He is a recipient of Outstanding Paper Medal of Japan Soc. Tech. Plasticity, Sokeizai Industry Technology award from the Materials Process Tech. Ctr., a fellow of JSME (Japan Soc. Mech. Engrs.) and a fellow of JSAE (Soc. Automotive Engrs. Japan), JSMS Award for Academic Contribution and JSME Materials and Mechanics Division Award. Nao-Aki Noda supervised more than 28 PhD students including 18 international students, most of whom are supported by MEXT. He also supervised more than 30 international master students most of whom are working in Japanese companies. He invited more than 25 international researchers to Kyushu Tech for collaboration. For contributing to the development of excellent international students and foreign researchers, he received the Commendation of Consulate-General of China in Fukuoka. His achievements include research in stress analysis for notched material testing specimens, and development for large ceramics structures used for steel manufacturing machinery and special bolt-nut connection improving anti-loosening and fatigue strength. In 2025, he received the Society of Automotive Engineers of Japan's Best Paper Award and the International Society for Advanced Materials' Advanced Materials Scientist Medal.

## KEYNOTE LECTURE 3

**Friday 17 July 2026**
**Time**: 9:00 am to 9:50 am
**Keynote speaker**: Professor Jaehong Lee
**Affiliation**: Sejong University, Department of Architectural Engineering, Seoul, Korea
**Title**: Artificial Intelligence in Structural Engineering: From Physics-Informed Learning to Agentic Design Automation

**Abstract**: Artificial intelligence is rapidly reshaping structural engineering by connecting mechanics-based analysis, data-driven learning, and automated design workflows. This keynote presents a coherent pathway from physics-informed learning to agentic design automation, with emphasis on how AI can support reliable structural analysis, digital-twin-based assessment, and engineering decision making. Rather than treating AI as a black-box replacement for conventional simulation, the lecture frames AI as a mechanism for embedding equilibrium, compatibility, constitutive behavior, boundary conditions, and design constraints directly into computational models.

1) Physics-informed learning provides a data-efficient framework for structural analysis by combining first-principles mechanics with neural-network approximation. Applications include surrogate modeling of finite-element responses, inverse identification from sparse measurements, uncertainty-aware prediction, and scalable parametric analysis for complex structural systems.

2) AI-enabled structural engineering extends these models to structural health monitoring and digital twins. Sensor data, inspection images, numerical simulations, and engineering knowledge can be integrated to diagnose damage, estimate structural performance, and update analytical models across the life cycle of buildings and infrastructure.

3) Agentic design automation represents the next stage, where large language models, optimization algorithms, finite-element solvers, design codes, and domain-specific databases cooperate as verifiable engineering agents. These systems can generate design alternatives, execute analysis tasks, check code compliance, prepare reports, and support iterative decision making under human supervision. The keynote concludes by discussing the requirements for trustworthy implementation, including traceability, validation, explainability, and clear responsibility between AI systems and structural engineers.

**Biographical Record:** Jaehong Lee is Professor of Architectural Engineering at Sejong University, Seoul, Korea, where he has served since 1998. He received his Ph.D. in Engineering Mechanics from Virginia Tech in 1992, his M.S. in Architectural Structures from Yonsei University in 1988, and his B.S. in Architectural Engineering from Yonsei University in 1986. His research interests include computational mechanics, AI applications to structural engineering, physics-informed neural networks, digital twins, and structural optimization. He is the Founding Director of the Deep Learning Architecture Research Center and has provided national R&D leadership in academia-industry collaboration for AI-driven structural engineering. He has published more than 300 SCI-indexed journal papers, with more than 12,000 citations and an h-index of 62. His honors include the Presidential Young Scientist Award and the Minister of Science and ICT Award. He is a Fellow of the Korean Academy of Science and Technology and a Fellow of the Asia-Pacific Artificial Intelligence Association. He has also served as President of the Korean Association for Spatial Structures, Vice President for International Affairs at Sejong University, and Dean of the College of Engineering at Sejong University. His editorial service includes Editorial Board Member of Engineering Structures and Advances in Engineering Software, and Guest Editor of Computers & Structures.

## CONFERENCE PROGRAM SUMMARY

### Wednesday 15 July 2026

Location: Corridor outside Meeting Room 501, Kunibiki Messe

| Time | Session |
|---|---|
| 4:00 pm to 6:00 pm | Early registration |

### Thursday 16 July 2026

Location: Meeting Room 601, Kunibiki Messe

| Time | Activity |
|---|---|
| 9:00 am to 9:05 am | Opening Address |
| 9:05 am to 9:45 am | Keynote Lecture 1 |
| 9:45 am to 10:25 am | Keynote Lecture 2 |
| 10:25 am to 10:45 am | Group Photo |
| 10:45 am to 11:00 am | Coffee Break |
| 11:00 am to 12:20 pm | Oral Session 1 |
| 12:20 pm to 2:00 pm | Lunch Break |
| 2:00 pm to 2:40 pm | Oral Session 2 |
| 2:40 pm to 3:30 pm | Posters session + Coffee Break |
| 3:30 pm to 5:30 pm | Oral Session 3 |

### Friday 17 July 2026

Location: Meeting Room 601, Kunibiki Messe

| Time | Activity |
|---|---|
| 09:00 am to 9:50 am | Keynote Lecture 3 |
| 09:50 am to 10:30 am | Oral Session 4 |
| 10:30 am to 10:50 am | Coffee Break |
| 10:50 am to 11:30 am | Online Session 1 |
| 12:20 pm to 2:00 pm | Lunch Break |
| 2:00 pm to 3:20 pm | Online Session 2 |
| 3:30 pm to 3:45 pm | Coffee Break |
| 3:45 pm to 5:00 pm | Online Session 3 |
| 5:30 pm to 8:30 pm | Awarding Banquet |

### Saturday 18 July 2026

| Time | Activity |
|---|---|
| 09:00 am to 3:45 pm | One Day Tour In Matsue |

| Wednesday 15 July 2026 | |
|---|---|
| 4:00 pm to 6:00 pm | **Early registration** |

| Thursday 16 July 2026 | |
|---|---|
| 9:00 am to 9:05 am | **Opening address**: **Professor Magd Abdel Wahab**, Ghent University, Belgium |
| 9:05 am to 9:45 am | **Keynote lecture 1**: Identification of Ideal Adhesive Strength Using an Adhesive Specimen without Singular Stress Field, **Professor Kazuhiro Oda**, Division of Mechanical Engineering, Faculty of Science and Technology, Oita University, Japan |
| 9:45 am to 10:25 am | **Keynote lecture 2**: Effect of Adhesive Geometry on Nominal Lap Joint Strength Defined as Average Stress in JIS, **Professor Nao-Aki Noda**, Kyushu Institute of Technology, Mechanical Engineering Department, Kitakyushu 804-8550, Japan |
| 10:25 am to 10:45 am | **Group Photo** |
| 10:45 am to 11:00 am | **Coffee Break** |
| | **Oral Session 1- Chair: Professor Kazuhiro Oda** |
| 11:00 pm to 11:15 pm | NME1605: Evaluating the Seismic Performance of RC Frames: From Nonlinear Time-History Analysis to Stacked-Ensemble Surrogate Models, **Ionut-Ovidiu Toma (Online)** |
| 11:15 am to 11:30 am | FFW1532: Systematization of Data Processing Aimed at Integrating Various Cyclic Loading Mode Fatigue Strength Diagrams of Smooth and Notched Specimens and Practical Applications, **Hiroshi Matsuno** |
| 11:30 am to 11:45 am | NME1597: Shell Finite Elements for Smart Memory Alloys, **Boštjan Brank** |
| 11:45 pm to 12:00 pm | FFW1518: Bone Drilling Simulation: Effects of Drill Bit Material on Bone Temperature, **Mohd Faizal Ali Akhbar** |
| 12:00 pm to 12:15 pm | FFW1539: Fatigue Lifetime Prediction of Dovetail Joints Using Frictional Dissipation Energy under Temperature Effects, **Qiqi Xiao** |
| 12:20 pm to 2:00 pm | **Lunch Break** |
| | **Oral Session 2 - Chair: Dr Yong Ling** |
| 2:00 pm to 2:15 pm | FFW1556: Wear Analysis of Crankshaft Journal Bearings Considering Spiral Oil Groove Design, **Zhaonan Liu** |
| 2:15 pm to 2:30 pm | NME1634: Influence of Modeling Assumptions on the Dynamic Response of a Pedestrian Bridge, **Amirhosein Shabani** |
| 2:30 pm to 2:45 pm | FFW1558: Rigidity-Induced Toughening Mechanism and Fracture Toughness Triangle Framework, **Lei Peidong (Online)** |
| 2:45 pm to 3:30 pm | **Posters session + Coffee Break** |
| | FFW1511: Towards Sustainable Modular Tires: Experimental Validation of a Mechanically Interlocked Removable Tread System, **Juana Abenojar** |
| | FFW1512: Evaluation of Normal and Tangential Forces in Single-Lap Adhesive Joint Tests Using Optical Extensometry, **Miguel-Angel Martinez** |
| | NME1593: In-droplet concentration of magnetic beads and droplet cutting on one-plate device, **Chun-Hong Chen** |
| | NME1606: Electromagnetic resonance and sensing of metamaterials consisting of nanoplates with nanorings, **Chia-Yi Huang** |
| | NME1617: Numerical Modelling of Elastic-Plastic Behavior of Timber-Steel Composite Beam based on Experiment, **Mng-Ting Tsai** |
| | FFW1526: Investigation on Guided Wave Detection and Signal Modulation Mechanism for Rail Defects under Complex Boundary Constraints, **Peicheng Li** |
| | NME1620: A Physics Guided Two Stage Neural Network Framework for Lifetime Prediction of Fretting Fatigue in Dovetail Joints, **Qiqi Xiao** |
| | NME1615: Physics Informed Neural Network for Iterative Free Constitutive Integration of a Modified Chaboche Model for EUROFER97 at 250 °C, **Jianxin Liu** |
| | FFW1519: Assessment of Strength Improvement in Functionally Graded Adhesive Single-Lap Joints with Different Adherend Combinations, **Yanan Zhang** |
| | FFW1527: Residual Stress and Microstructure Analysis by FEA Tool on A laser Weld, **Yong Ling** |

| Thursday 16 July 2026 | |
|---|---|
| | **Oral Session 3 - Chair: Professor Nao-Aki Noda** |
| 3:30 pm to 3:45 pm | FFW1542: Low Cycle Fatigue Behavior of Inconel 718: Insights from Stress Decomposition and Crystal Plasticity Modeling, **Ludhwani Mohit Murlidhar** |
| 3:45 pm to 4:00 pm | NME1603: A constrained gappy proper orthogonal decomposition to fuse experimental and CFD data, **Michael Mifsud** |
| 4:00 pm to 4:15 pm | NME1602: Numerical Investigation on Parameter-Oriented Optimization of Functionally Graded Adhesive Layouts in Multi-Material Single-Lap Joints, **Yanan Zhang** |
| 4:15 pm to 4:30 pm | FFW1521: Inverse Design and Optimisation of Lug-Pin Interfaces using Deep Learning Surrogate Model, **Dhanush Jayaraju** |
| 4:30 pm to 4:45 pm | FFW1510: Near-threshold Behaviors of Fatigue Cracks Emanating from Artificial Defects in As-cast and Precipitation-hardened Cast Aluminum Alloys under Rotating Bending and Reversed Torsion, **Tohru Hashimoto** |
| 4:45 pm to 5:00 pm | FFW1509: Fatigue crack growth behavior of gray and ductile cast irons under continuous hydrogen charging, **Kenji Tanaka** |
| 5:00 pm to 5:15 pm | NME1594: Fractional soliton structures and chaotic dynamics in nonlinear Jaulent-Miodek hierarchy, **Fatemah Mofarreh** |
| 5:15 pm to 5:30 pm | FFW1531: Relationship between plastic flow and crack closure by numerical analysis, **Kenichi Masuda** |
| 5:30 pm to 5:45 pm | NME1608: Guided wave method for detecting damage to rail, **Peicheng Li** |

| Friday 17 July 2026 | |
|---|---|
| | **Keynote Lecture 3 - Chair: Professor Magd Abdel Wahab** |
| 09:00 am to 09:40 am | Artificial Intelligence in Structural Engineering: From Physics-Informed Learning to Agentic Design Automation, **Professor Jaehong Lee**, Sejong University, Department of Architectural Engineering, Seoul, Korea |
| | **Oral Session 3**<br>**Chair: Professor Jaehong Lee** |
| 09:45 am to 10:00 am | FFW1534: A Unified Viscoplastic Damage Model for Predicting Low Cycle Fatigue Life of Eurofer97 under Coupled Temperature, Size and Neutron Irradiation Effects, **Jianxin Liu** |
| 10:00 am to 10:15 am | FFW1507: Drill Bit Wear Monitoring via Wavelet-Based Multiaxial Vibration Energy Characterizations, **Chuin Hao Chin** |
| 10:15 am to 10:30 am | FFW1557: Vision-Based Autonomous Detection and Monitoring of Load-Induced Crack Propagation in Warehouse Concrete Floor Slabs, **Seunghye Lee** |
| 10:30 am to 10:50 am | **Coffee Break** |
| | **Online Session 1 - Chair: Dr Seunghye Lee** |
| 10:50 am to 11:05 am | FFW1503: Tribological Properties of the Selected Binary Ti-Fe Alloys Produced with Vacuum Arc Remelting, **Ishu Yadav** |
| 11:05 am to 11:20 am | FFW1505: High-cycle fatigue behaviour of Ni-based superalloy at 850°C, **Arpit Gupta (In Person)** |
| 11:20 am to 11:35 am | FFW1549: Fretting fatigue cracking mechanisms of additively manufactured superalloys with gradient grains based on in situ SEM, **Zhengyu Jiang** |
| 11:35 am to 11:50 am | FFW1520: Wear characteristics and residual bending fatigue life of wire ropes in acidic corrosive environments containing sulfates, **Gaofang Wang** |
| 11:50 am to 12:05 pm | NME1627: A highly accurate and efficient meshfree method for elastoplastic analysis, **Zhiyuan Xue** |
| 12:05 pm to 12:20 pm | FFW1559: Effect of sub-crack in cohesive zone on mode i fracture toughness of a strength mismatched bimetallic body in SSY (LEFM) regime: a theoretical assessment, **Sunil Bhat** |
| 12:20 pm to 2:00 pm | **Lunch Break** |

| Friday 17 July 2026 | |
|---|---|
| | **Chair: Professor Kenichi Masuda**<br>**Online Session 2** |
| 2:00 pm to 2:15 pm | FFW1525: Novel exact solutions of the Duffing equation: stability analysis and application to real non-linear deformation tests, **Arseniy Berezner** |
| 2:15 pm to 2:30 pm | NME1618: An Energy-based Physics-Informed Neural Networks Approach for Nonlinear Analysis of Bio-inspired TPMS Plates via Higher-order Shear Deformation Theory, **Kim Q. Tran** |
| 2:30 pm to 2:45 pm | NME1614: Optimization of Chiral Auxetic Core for Morphing Aircraft Wing Structures, **Usama Hamid** |
| 2:45 pm to 3:00 pm | NME1611: A Symbolic Regression Network-based constitutive model, **Yingjian Guo** |
| 3:00 pm to 3:15 pm | FFW1529: Total fretting fatigue life prediction of Ti-6Al-4V at 260°C using cohesive zone modelling, **Bilal Ahmed** |
| 3:15 pm to 3:30 pm | NME1626: Prediction of Crack Path in Fretting Fatigue Using Large Language Models, **Yuxuan Wu** |
| 3:30 pm to 3:45 pm | **Coffee Break** |
| | **Chair: Professor Magd Abdel Wahab**<br>**Online Session 3** |
| 3:45 pm to 4:00 pm | FFW1540: 1D-CNN-Based Crack Localization and Depth Estimation in Stepped Beams with Elastic Supports, **Sebahat Şimşek** |
| 4:00 pm to 4:15 pm | NME1632: Dynamic impact analysis of composite laminated plates using the stabilized collocation method, **Suwan Cheng** |
| 4:15 pm to 4:30 pm | FFW1530: Modeling Shield-Ground Interaction in Heterogeneous Ground: A Finite Element Framework and Validation, **Yangkai Gong** |
| 4:30 pm to 4:45 pm | NME1616: U-Net Based Quantification of Fretting Fatigue Damage and Crack Propagation in Shot-Peened Ti-6Al-4V Dovetail Joints, **Zhiguo Wang** |
| 4:45 pm to 5:00 pm | NME1625: Fretting Damage Evolution of Steam Generator Tubes Under Coupled Clamping Force and Clearance Conditions, **Ruiyu Han** |
| 5:30 pm to 8:30 pm | **AWARDING BANQUET @YUUSHIEN Garden in Daikonshima** |

## AWARDING BANQUET

5:30 pm Gathering at the entrance of Kunibiki Messe

5:40 pm Departure from the entrance of Kunibiki Messe by bus

6:15-6:45 pm Classical Garden Exploring

6:45-7:00 pm Awarding Ceremony

7:00-8:30 pm Japanese Traditional Performances & Cuisine

| Saturday 18 July 2026 | |
|---|---|
| | **ONE DAY TOUR IN MATSUE** |
| 9:00 am | Departure from entrance of Kunibiki Messe |
| 9:30 am to 10:30 am | Visit Matsue Castle |
| 10:40 am to 11:40 am | Horikawa Sightseeing Boat Ride |
| 11:50 am to 12:40 pm | Lunch Break |
| 1:00 pm to 3:00 pm | Matsue Vogel Park |
| 3:45 pm | Arrival at JR Matsue Station at 15:45 (Subject to no traffic delays) |

**Note:** Please note that the itinerary, including the schedule and duration of each activity, is subject to change depending on actual circumstances.

| | Online Posters |
|---|---|
| FFW1554 | Dwell Time-Induced Microstructure Evolution in an Fe-Ni-Based Superalloy, **Kaifa Fan** |
| FFW1553 | Coupled Abrasive and Fatigue Wear Modeling of Blanking Punches for Prediction of Wear Using Linear and Nonlinear Wear Models, **Dongwook Kim** |
| FFW1543 | Investigation on Fretting Fatigue Failure Mechanism of Steam Generator Tubes Coupled with Fretting Wear Morphological Evolution, **Ruiyu Han** |
| NME1621 | 3D Elasticity-Based Free Vibration Analysis of FGM Sandwich Plates on Kerr Foundation Using State Space–DQM, , **Sebahat Şimşek** |
| FFW1535 | Unveiling the Synergistic Mechanisms of Hybrid LSP and SP in Mitigating Fretting Fatigue of Ti-6Al-4V, **Zhiguo Wang** |
| NME1613 | A High-fidelity Finite Element Model for Earth Pressure Balance Shield Tunneling under Complex Geological Conditions, **Yangkai Gong** |
| FFW1537 | Elastoplastic Bending Behaviors of Steel Plates via 2D Isogeometric Analysis Solution with Higher-Order Shear Deformation Theory, **Kim Q. Tran** |
| NME1622 | Numerical Investigation of Ball Stress Distribution in Linear Rolling Guide Rails under Preload and External Loading, **Wentao Chen** |
| FFW1544 | Prediction of Fretting Fatigue Lifetime Using Neural Networks and Experimental Data, **Yuxuan Wu** |
| FFW1533 | Topology-Optimized Auxetic Core for Blunt Trauma Mitigation in Ballistic Armor, **Usama Hamid** |
| FFW1523 | Physics-Informed Learning of Return-Mapping Operators for Anisotropic Elastoplastic Constitutive Integration, **Yingjian Guo** |
| FFW1526 | Investigation on Guided Wave Detection and Signal Modulation Mechanism for Rail Defects under Complex Boundary Constraints, **Peicheng Li** |
| FFW1552 | A Gaussian-Integrated Stabilized Collocation Method for High-Fidelity Analysis of Laminated Composite Plates, **Suwan Cheng** |
| NME1612 | A finite element study of temperature dependent contact conditions in Ti-6Al-4V under fretting fatigue, **Bilal Ahmed** |
| FFW1541 | Effect of Wear in Linear Rolling Guide Rails on Motion Accuracy of CNC Machine Tool Feed Systems, **Wentao Chen** |

## FFW & NME 2026

## INSTRUCTIONS TO SPEAKERS

- Your oral presentation should not exceed 12 minutes. If your presentation stretches over 12 minutes, you must end your presentation to ensure strict adherence to the programme.
- Your presentation will be followed by a Question and Answer (Q/A) session not exceeding 3 minutes.
- Please submit your presentation file(s) as PDF or Microsoft Powerpoint to the section helper at the end of the preceding session, or at least 5 minutes before the start of your session at the respective venue.
- Please also meet up with the Chairperson of your session to inform him of your presence.
- All presentation will be streamed through the MS link: Click here to join the meeting
- For physical poster presentation, please upload your poster size 120 cm (height) ×80 cm (width) in your submission system or send it to the conference chairman. The conference organizer will print it for you, send it to the conference venue and make it ready for your presentation.