euspen SIC Micro/Nano Manufacturing and AET Symposium in ACSM and Digital Manufacturing 17th -19th September 2025
École Normale Supérieure Paris-Saclay, France, FR

Day 1: Wednesday 17th September 2025

Time (CET)	Programme
08:30-09:00	**Registration**
09:00-09:10	**Welcome address by meeting chairs**: Prof. Nabil Anwer, Paris-Saclay University, FR and Dr Oltmann Riemer from LFM (Bremen)
09:10-09:20	**Welcome address by AET Vice-President**, Prof Lihui Wang, KTH Royal Institute of Technology
09:20–09:50	**Keynote 1**: **Current Status and Future Outlook in Atomic-Scale Processing** Prof. Dr Fred Roozeboom, Faculty of Science & Technology, University of Twente, NL
	Session 1: ACSM
09:50-10:10	**Session Keynote:** Preliminary introduction to atomic and close-to atomic scale manufacturing, *Xichun Luo, University of Strathclyde (MNAET25190)*
10:10-10:25	**Oral 1**: Two-Photon Laser Oxidation as a Promising Technique for Area-Selective ALD on Graphene: A Review of Surface Modification Approaches *Atiye Khosravi, Strathclyde University (MNAET25126)*
10:25-10:40	**Oral 2**: Deformation behaviour of monocrystalline silicon under AFM dynamic lithography *Yang He, University College Dublin (MNAET25128)*
10:40-10:55	**Discussion**
10:55-11:10	**Coffee and networking**
11:10-11:25	**Oral 3**: Atomic Features Characterisation using Conductive Atomic Force Microscopy under Ambient Condition at Atomic and Close-to-atomic Scale *Wenhao Zhang, University College Dublin (MNAET25142)*
11:25-11:40	**Oral 4**: Coherent Diffraction Lithography Based on Fourier Holography *Zhang Zhenyang, Huazhong University of Science and Technology, China (MNAET25147)*
11:40-11:55	**Oral 5**: Atomic Layer Etching: A Review *Hifza Hafeez, University of Strathclyde (MNAET25173)*
11:55-12:10	**Oral 6**: Manufacturing of silicon dioxide nanodots using rolling nanoelectrode lithography *Zhengjian Wang, University of Strathclyde (MNAET25187)*
12:10-12:30	**Discussion**
12:30-13:30	**Lunch**

13:30-14:00	**Keynote 2: Achieving atomically smooth diamond substrates by plasma-assisted polishing** Prof. Kazuya Yamamura, Research Center for Precision Engineering, Graduate School of Engineering, The University of Osaka, Japan
	Session 2: Micro and Nano Machining
14:00-14:20	**Session Keynote**: Effect of near-surface gas flow on surface roughness in atmospheric plasma chemical vaporization machining *Xinyang Wei, University of Osaka (MNAET25130)*
14:20-14:35	**Oral 1:** Investigation of Ultrasonic Vibration-assisted Polishing of Reaction-Sintered Silicon Carbide *Zhichao Geng, University College Dublin (MNAET25127)*
14:35-14:50	**Oral 2**: Reactive Ion Beam Figuring of optical materials *Thomas Arnold, Leibniz-Institut für Oberflächenmodifizierung (MNAET25165)*
14:50-15:05	**Oral 3**: Atomic-Level Stress-Free Precision Machining of Fused Silica via Electrochemically Induced Chemical Etching *Sizhou Chen, Dalian University of Technology (MNAET25167)*
15:05-15:25	**Discussion**
15:25-15:40	**Coffee and networking**
	Session 3: Metrology
15:40-15:55	**Oral 1:** Advancements in Scanning Probe Microscopy for Characterizing Solar Cell Materials *Chuanxiao Xiao, Ningbo Institute of Materials Technology and Engineering (MNAET25131)*
15:55-16:10	**Oral 2:** High-speed lateral-scanning white-light interferometry with vertical off-axis compensation *Hang Zhao, Huazhong University of Science and Technology (MNAET25135)*
16:10-16:25	**Oral 3**: The Molecular Dynamics Simulation of the Damage Mechanism of Ni/Graphene Composite Dynamic Sealing Layer *Yongbo Guo, Harbin Institute of Technology (MNAET25150)*
16:25-16:40	**Oral 4:** Design of Triaxial Robust Repetitive Control for Fast Atomic Force Microscopy Imaging *Qi Yu, Shanghai Jiaotong University (MNAET25152)*
16:40-17:00	**Discussion**
17:00-17:15	**Oral 5**: A Point Cloud Analysis-Based Surface Characteristic Method for Directed Energy Deposition (DED) Additive Manufacturing *Hao Xue, University of Edinburgh (MNAET25162)*
17:15-17:30	**Oral 6**: Mating Surface Contact Behavior Analysis and Assembly Accuracy Prediction for Precision Mechanical Products *Nan Shao, Paris-Saclay Universite (MNAET25175)*

17:30-17:45	**Oral 7**: Design of an Abbe Error Free Three-Dimensional Coordinate Measuring Machine *Ali Rugbani, Cape Peninsula University of Technology, CPUT (MNAET25178)*
17:45-18:00	**Oral 8:** On the use of B-spline reconstruction for roughness evaluation of complex profiles *Ahmed Bachir, LNE (MNAET25185)*
18:00-18:20	**Discussion**
	Close Day 1 – free evening

Day 2: Thursday 18th September 2025

Time (CET)	Programme
08:30-09:00	**Keynote 3:** Adaptive laser writing for three-dimensional precision fabrication of functional devices Prof. Martin Booth, University of Oxford, UK
09:00-09:30	**Keynote 4**: **Electrospinning of Intelligent and Sustainable Materials** Prof Seeram Ramakrishna, National University of Singapore, Singapore
	Session 4: Ultra Precision Manufacturing
09:30-09:50	**Session Keynote**: Pattern transfer by atmospheric pressure plasma jet etching for manufacturing hybrid optical elements *Thomas Arnold, Leibniz-Institut für Oberflächenmodifizierung (MNAET25166)*
09:50-10:05	**Oral 1**: Exploring nano/atomic scale removal mechanism of semiconductor materials in energy field assisted ultra-precision machining, *Benny C.F. Cheung, The Hong Kong Polytechnic University (MNAET25183)*
10:05-10:20	**Oral 2**: Optimal Model-Free Iterative Learning Control of Fast Tool Servo for Real-Time Turning Toolpath Tracking of Freeform Surfaces *Wei-Wei Huang, Shanghai Jiao Tong University (MNAET25132)*
10:20-10:35	**Oral 3**: Temperature-Dependent Machinability of Optical Polymers in Diamond Turning *Wei Wang, Leibniz Institute for Materials Engineering IWT (MNAET25188)*
10:35-10:55	**Discussion**
10:55-11:10	**Coffee and networking**
11:10-11:25	**Oral 4**: Insights into the atomic-scale removal mechanism of SiC in plasma-assisted polishing *Congyue Luo, Zhejiang University of Technology (MNAET25148)*
11:25-11:40	**Oral 5**: High-Efficiency Force Rheological Polishing of Hemispherical Resonator Inner Stem *Tao Zhou, Zhejiang University of Technology (MNAET25153)*
11:40-11:55	**Oral 6**: Research on high-efficiency ultra-precision polishing technology of resonant oscillator lip edge *Feng Yingchao, Zhejiang University of Technology (MNAET25156)*

11:55-12:10	**Oral 7**: Achieving ultra-smooth and damage-free surface on deep structure through understanding the material removal mechanism of the modification layer, *Haixiang Hu, Changchun Institute of Optics (MNAET25192)*
12:10-12:30	**Discussion**
12:30-13:30	**Lunch**
13:30-13:45	**Oral 8**: Compact piezo-driven inchworm rotary mechanism for LISA Space mission *Narendra Mahavar, KU Leuven (MNAET25174)*
13:45-14:00	**Oral 9:** Ultra-precision Fly Cutting and Nano-imprinting of Sub-Micron Gratings for AR/VR Applications *Vinod Mishra, CSIO-CSIR (MNAET25180)*
14:00-14:15	**Oral 10**: **Thermal stability analysis and optimization of field-assisted diamond turning,** *Kaiyuan You, University of Electronic Science and Technology of China (MNAET25125)*
14:15-14:30	**Discussion**
	Session 5: Digital Technology for Precision Manufacturing
14:30-14:45	**Oral 1**: Fabrication of Micro-Structured Ceramic Artificial Hip Joints via Digital Twin-Enhanced Ultra-Precision Grinding *Zhenfei Guo, Harbin Institute of Technology & University College Dublin (MNAET25129)*
14:45-15:00	***Oral 2***: Characterization and experimental study of electromechanical coupling of ball screw servo feeding system *Haitao Liu, Harbin Institute of Technology (MNAET25145)*
15:00-15:15	**Oral 3**: Electrode shape wear prediction in micro-edm with machine learning *Jia Ge, University College Dublin (MNAET25170)*
15:15-15:30	**Discussion**
15:30-15:45	**Coffee and networking**
15:45-16:00	**Oral 4**: Comparing state-of-the-art 2PP to competing processes – a take on precision, accuracy and throughput *Georg Winkler, UpNano GmbH (MNAET25176)*
16:00-16:15	**Oral 5**: Simulation-Driven Design of Ultrasonic Horns for Precision Micro-Grinding Applications *Rajeshkumar Madarkar, Buckinghamshire New University, UK (MNAET25177)*
16:15-16:30	**Oral 6**: On the use of Virtual Image Correlation methods to enhance accuracy in contour identification using X-ray computed tomography data *Filippo Mioli, University of Padova (MNAET25179)*
16:30-16:45	**Oral 7:** Robust Salvinia-inspired superhydrophobic surfaces on hydrophilic materials via two photon polymerization *Kai Liu, University of Padova, IT (MNAET25155)*
16:45 -17:05	**Discussion**

	Session 6: Poster session for poster pitch verbal presentations *1 minute / 1 slide*
17:05-17:25	1. *Molecular dynamics study of 4H-SiC indentation deformation mechanism* *Zhongwei Hu, Huaqiao University (MNAET25143)* 2. *The effect of grinding speed on the deformation mechanism of single crystal gallium nitride studied by nanoscratching* *Yueqin Wu, Huaqiao University (MNAET25144)* 3. *Unveiling the Anisotropic Deformation Mechanisms of β-phase Gallium Oxide* *Xipeng Xu, Huaqiao University (MNAET25149)* 4. *Theoretical Study on High-Precision Optical Manipulation Based on a Novel Optical Force Device* *Chunyang Gu, Chinese Academy of Sciences (MNAET25151)* 5. *Enhancement of Irradiation Performance in Fast Atom Beam Source with Internal Electrode* *Taichi Hino, Nagoya University (MNAET25154)* 6. *Multi-channel wide spectrum high resolution spectrometer for thin film thickness measurement* *Bosong Duan, Zhejiang University (MNAET25157)* 7. *Challenges in Manufacturing and Measuring Microstructures with Re-Entrant Features Using Two-Photon Polymerization and Micro-CT* *Tomasz Bartkowiak, Poznan University of Technology (MNAET25158)* 8. *Nano-cutting fluids based on graphene nanoparticles for deep hole drilling under MQL conditions* *Roberto Teti, Franhofer, University of Naples Federico II (MNAET25159)* 9. *Off-axis Wavefront Measurement for Defocus Lens Design* *Chenhua Zhang, University College Dublin (MNAET25161)* 10. *Nanoscale Film Formation via Dilute Solution Spin Coating: Exploring the Thickness Limit and Uniformity* *Qiuyu Liu, Dalian University of Technology (MNAET25163)* 11. *Holographic mask fabrication by photoelectrochemical etching* *Pan Peng, Huazhong University of Science and Technology, China (MNAET25133)*

12. *Constant pressure polishing deterministic surface form correction and parameter optimization*
Yang Zhao, Northeastern University (MNAET25164)

13. *Generation of robust algorithms for dense image matching in dimensional metrology*
Ladji Fofana, LNE (MNAET25172)

14. *A polishing process simulated using molecular dynamics to explain atomic-level origins in machine tool processing*
Baozhen Li, GENERTEC Machine Tool Engineering Research Institute CO., LTD. Beijing (MNAET25184)

15. *Deep learning-assisted measurement system for the 3D profiles of inner surfaces of components*
Xiangyu Zhao, Huazhong University of Science and Technology (MNAET25124)

16. *Selective Laser Melted Porous CuSn20-Bonded Diamond Grinding Tool: Functional Cellular Structures Design, Service Performance Evaluations and Properties Tailoring Database Establishment*
Yangli Xu, Huaqiao University (MNAET25136)

17. *Enhanced Interferometric Measurement of Discontinuous Surfaces: Improved Morphology - based Phase Unwrapping Algorithm*
Shuai Wang, Zhejiang University (MNAET25137)

18. *Synergistic modulation of corrosion and tribological performance of MoS2 coatings based on chemical annealing and Ti doping*
Congming Ke, Huaqiao University, China (MNAET25139)

19. *Investigation of the Effects of LaB6 Microparticles on the Laser Powder Bed Fusion of Copper: Printability, microstructure and properties*
Yanlong Cao, Zhejiang University (MNAET25146)

20. *A Concept for Making Molds for the Replication of Parts with Combined Micro- and Submicro-Structured Surface*
Holger Ruehl, (IFM), University of Stuttgart (MNAET25171)

21. *Development and Application of Large-Scale and High-Precision Gratings,*
Wenhao Li, Changchun Institute of Optics (MNAET25191)

22. *In-process monitoring and servo control with cost-effective radio frequency (RF) signal in micro-EDM,* Zequan Yao, KU Leuven *(MNAET25193)*

23. *Dimensional nanometrology and sub-nanometre positioning using X-ray interferometry, Andrew Yacoot, NPL (MNAET25194)*

17:25-17:45	**Free time with Posters**
17:45-18:00	**Close Day 2 - Coaches depart for networking dinner** **Transport provided one way to restaurant**
19:00-22:00	**Dinner at Bouillon Racine**

Day 3: Friday 19th September 2025

Time (CET)	Programme
08:30-09:00	**Keynote 5**: Advanced fabrication technologies for scaling optical micro- and nano-structures to application relevant areas Professor Dr. U.D. Zeitner, Senior Director, Opto-Mechanical Systems, Fraunhofer
	Session 7: Micro-manufacturing
09:00-09:20	**Session Keynote:** Micro-Injection Molding of TPU for medical devices: Material influence on dimensional accuracy and surface quality. *Maria del Angel Guerrero, ITESM (MNAET25123)*
09:20-09:35	**Oral 1:** Modular Assembly and Mechanical Validation of Hollow Polymeric 3D Microneedle Array Devices (3DMA) for Scalable Transdermal Drug Delivery *Lorcan O'Toole, MNMT-Dublin (MNAET25134)*
09:35-09:50	**Oral 2**: Improvement of irradiation performance in fast atom beam source with bidirectional magnetic field for surface activated bonding *Yuki Miyoshi, Nagoya University (MNAET25138)*
09:50-10:05	**Oral 3:** Evaluating the Impact of Internal Structural Defects on Fatigue Performance in Polylactic Acid Components Manufactured via Fused Deposition Modeling *Liang Wang, Beijing Institute of Technology (MNAET25140)*
10:05-10:20	**Oral 4:** Two-Photon Polymerization for Advanced Calibration Artefacts in Optical Areal Metrology *Julian Hering-Stratemeier, University of Kaiserslautern-Landau (MNAET25141)*
10:20-10:45	**Discussion**
10:45-11:00	**Coffee and networking**
11:00-11:15	**Oral 5**: Enhanced Hot-Embossing of Submicrometric Structures in Polymers for Optofluidic Applications *Thomas Guenther, (IFM), University of Stuttgart (MNAET25168)*
11:15-11:30	**Oral 6**: Defect-free replication of polymeric micro structures using novel Ni-PTFE nanocomposite moulds *Tianyu Guan, University College Dublin (MNAET25169)*
11:30-11:45	**Oral 7**: High-resolution master fabrication for tool-based manufacturing using two photon lithography *Manuel Luitz, UpNano GmbH (MNAET25181)*
11:45-12:00	**Discussion**

12:00-12:15	**Oral 8**: Femtosecond-laser-fabricated interfacial microrobots for versatile non-contact applications *Bowen Chen, University of Science and Technology of China (MNAET25182)*
12:15-12:30	**Oral 9**: Investigation on Mechanism of Starch-based Ultra Stable Foam for Potential Application of Sprayable Mulch Film *Huifang Xie, Henan Academy of Sciences, Institute of Chemistry (MNAET25186)*
12:30-12:45	**Oral 10**: New challenges faced by high-precision laser manufacturing of 3D components with complex shape: up-scaling inspection methodologies for control dimensions, a real case study *Eva Rodriguez, Tekniker (MNAET25189)*
12:45-13:00	**Discussion**
13:00-14:00	**Lunch**
14:00-15:00	**Universite Paris-Saclay laboratory tour**
15:00:15:20	**Closing remarks** Prof Kornel Ehmann AET President, Northwestern University Announcement of next AET event: Prof. Kazuya Yamamura, Research Center for Precision Engineering, Graduate School of Engineering, The University of Osaka, Japan Dr. Oltmann Reimer (eu**spen**) and Prof. Nabil Anwar (local host)
15:30	**CONFERENCE ENDS**