

SESSION OVERVIEW

	Tuesday 17.06.2025		Wednesday 18.06.2025		Thursday 19.06.2025
Time	ML H44	ML F36	ML H44	ML F36	ML H44
08:00	Registration and Coffee		Welcome and Coffee		
09:00	Opening		Keynote 3		Keynote 6
	Keynote 1		Keynote 4		Keynote 7
10:00	Coffee Break				
11:00	Keynote 2		PROC	SIM	COMP
	COMP	PROC			
12:00	Lunch				
13:00	EXP	PROC	AI	SIM	COMP
14:00	SIM				
15:00	Coffee Break				Keynote 8
					Closing Remarks
16:00	SIM	EXP	AI	PROC	Coffee & Farewell
			Keynote 5		
17:00					
18:00	Barbeque Dinner		Conference Dinner		

AI	AI and Data-Driven Thermal Analysis
COMP	Thermal Error Compensation in Machine Tools
EXP	Experimental Methods and Measurement Techniques in Machine Tools
PROC	Process Integrated Thermal Behaviour in Manufacturing
SIM	Simulation Strategies and Digital Twins of Machine Tools

Tuesday 09:45 – 11:30: Opening and Keynote Sessions in ML H44

08:45 – 09:15 Konrad Wegener Opening Remarks and Welcome
Markus Bambach

09:15 – 10:00 Lars Penter Advancing Thermal Control in Machine Tools:
Steffen Ihlenfeldt The Role of Digital Twins

Tuesday 10:00 – 10:30: Coffee Break

Tuesday 10:30 – 11:15: Opening and Keynote Sessions in ML H44

10:30 – 11:15 Michael Klotz Investigation and influencing of the thermal
Frank Fiebelkorn behavior of grinding machines from a
manufacturer's perspective

Tuesday Sessions 11:15 – 11:45**Session Process Integrated Thermal Behavior in Manufacturing in ML F36**

11:15 – 11:45 Ayato Ishigaki, Estimation of thermal boundary conditions in
Daisuke Kono rotating bearing by data assimilation

Session Thermal Error Compensation in Machine Tools in ML H44

11:15 – 11:45 Angelo Cescato, Thermal Effects and Compensation in EDM
Filippo Monti Machines

Tuesday 11:45 – 13:00: Lunch at Clausiusbar

Tuesday Sessions 13:00 – 15:00

Session Process Integrated Thermal Behavior in Manufacturing in ML F36

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|---------------|--|---|
| 13:00 – 13:30 | Eckart Uhlmann,
Mitchel Polte,
Florian Triebel,
Thomas Pache,
Roland Binniger | Influence of thermoelectrically controlled temperature of spindle front bearings on the warm-up time after a spindle stop |
| 13:30 – 14:00 | Takumi Nagashima,
Masaya Yokota,
Shiho Takemura,
Takanori Mori,
Yoko Hirono,
Yuji Imamiya,
Teppey Maki,
Yasuhiro Kakinuma | Liquid cooling system for tool steel coating on gears by directed energy deposition |
| 14:00 – 14:30 | Hui Liu,
Markus Meurer,
Thomas Bergs | Empirical and Simulation-Based Analysis of Heat Partition in Orthogonal Milling |
| 14:30 – 15:00 | Amirhossein Ranjbar,
Mohammad
Amirshirzad,
Behzad Jabbaripour,
Munish Gupta | Studies on Surface Integrity Parameters in the Turning of Hardened 1.6580 Steel under different cooling condition |

Session Experimental Methods and Measurement Techniques in Machine Tools in ML H44

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|---------------|---|---|
| 13:00 – 13:30 | Álvaro Sáinz de la Maza
García,
Leonardo Sastoque
Pinilla,
Luis Norberto López de
Lacalle Marcaide | Thermally induced volumetric error modelling on large-scale machining centre |
| 13:30 – 14:00 | Eri Tsuchiya,
Shunsuke Ohmae,
Daisuke Kono | Necessary Camera Calibration Accuracy for Vision-Based Thermal Error Measurement in Machine Tools |

Session Simulation Strategies and Digital Twins of Machine Tools in ML F36

14:00 – 14:30	Sebastian Lang, Marco Schneider, Lenny Rhiner, Markus Bambach	Overcoming Uncertainty with an Ensemble of Physical Models and Real-Time Measurements: Thermal Error Compensation Using Kalman Filters In a Digital Twin
14:30 – 15:00	Daniel Spescha, Nino Ceresa, Mayra Hoppstädter	Model-Reduction-Based Temperature Field Reconstruction for Volumetric Error Compensation

Tuesday 15:00 – 15:30: Coffee Break

Tuesday Sessions 15:30 – 17:00

Session Experimental Methods and Measurement Techniques in Machine Tools in ML F36

15:30 – 16:00	Michal Straka, Martin Mareš, Hyeok Kim, Otakar Horejš	Utility of radio transmission probes for identifying non-stationary thermal errors of high-performance spindle units
16:00 – 16:30	Morteza Dashtizadeh, Andrew Longstaff, Simon Fletcher	Effect of thermal changes on the squareness error between linear axes of machines tools
16:30 – 17:00	Gaurav Abhay Kulkarni, Rajeev Rajampeta, Steffen Strauss, Malte Langmack	Enhancing Thermal Precession of Coordinate Measuring Machine (CMM) through Feed Forward Correction for Shopfloor Metrology

Session Simulation Strategies and Digital Twins of Machine Tools in ML H44

15:30 – 16:00	Roland Binninger, Hans-Fridtjof Pernau, Florian Triebel, Katrin Schmitt, Jürgen Wöllenstein	Simulation-based design of a thermoelectrically temperature-controlled motorized milling spindle
16:00 – 16:30	Immanuel Voigt, Welf-Guntram Drossel	Mixed-dimensional finite element modelling of passive thermal error compensation systems in machine tools
16:30 – 17:00	Meng Bai, Tao Tao, Hu Shi, Yingqiang Zheng	Modeling for thermal error of slant bed lathe based on error decomposition and differential equations

Wednesday 08:30 – 10:00: Keynote Sessions in ML H44

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|---------------|--|---|
| 08:30 – 09:15 | Matej Sulitka,
Martin Mareš,
Otakar Horejš | The ways towards applications of Thermal Digital Twins |
| 09:15 – 10:00 | Philipp Klimant,
Christian Naumann,
Alexander Geist,
Janine Glänzel | Ambient influences on thermal errors in machine tools: challenges, modelling and compensation |

Wednesday 10:00 – 10:30: Coffee Break

Wednesday Sessions 10:30 – 11:45

Session Simulation Strategies and Digital Twins of Machine Tools in ML F36

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|---------------|--|--|
| 10:30 – 11:00 | Janine Glänzel,
Alexander Geist,
Christian Naumann,
Steffen Ihlenfeldt,
Steffen Brier,
Joachim Regel,
Martin Dix,
Marc-André Dittrich,
Matthias Brand,
Denis Ulrich | Simulation-Based Approach of Thermal Effects Considering Coolant Application and Axis Movements in the Working Area Through a Coupled CFD Mode |
| 11:00 – 11:30 | Lars Penter,
Steffen Schroeder,
Matthias Brand,
Steffen Ihlenfeldt | Hybrid thermal modeling approach for the early stages of the machine tool design process |

Session Process Integrated Thermal Behavior in Manufacturing in ML H44

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|---------------|---|---|
| 10:30 – 11:00 | Simon Winter,
Tim Göttlich,
Hui Liu,
Thomas Bergs,
Reinhold Kneer | Investigation of the influence of temporally and spatially resolved heat fluxes at the cutting edge on the maximum tool temperature during side milling |
| 11:00 – 11:30 | Anna Kibireva,
Hui Liu,
Markus Meurer,
Thomas Bergs | Experimental and Simulative Investigation of Cutting Edge Geometry Effects on Surface Integrity in Turning of Inconel 718 |

Wednesday 11:45 – 13:00: Lunch at Clausiusbar

Wednesday Sessions 13:00 – 15:00

Session Simulation Strategies and Digital Twins of Machine Tools in ML F36

13:00 – 13:30	Satsuma Ando, Shun Tanaka Yuta Teshima Toru Kizaki Jun Morishita	Strategy for sensor placement to estimate thermal errors using temperature-sensitivity distribution based on a reduced-order model of machine tools
13:30 – 14:00	Pritam Bari, Holger Rudolph, Lars Penter, Steffen Ihlenfeldt	Comparisons of model order reduction techniques for efficient thermal simulations
14:00 – 14:30	Michelle Engert, Kim Torben Werkle, Hans-Christian Möhring	Finite element analysis of residual stress variations in prestressed fiber-reinforced polymer concrete induced by temperature changes
14:30 – 15:00	Darío Fernández Holger Rudolph Lars Penter Steffen Ihlenfeldt	Modeling and simulation of the thermal behavior of an electromechanical compact axle

Session AI and Data-Driven Thermal Analysis in ML H44

13:00 – 13:30	Sebastian Lang, Mario Zorzini, Markus Sprecher, Stephan Scholze, Markus Bambach	No Warm-Up Required: Initializing Time-Dependent Thermal Error Compensation Models for Machine Tools
13:30 – 14:00	Sergio G. Ferreira, Gorka Aguirre	Temperature field prediction and convection coefficient estimation from temperature data using PINNs
14:00 – 14:30	Yue Zheng, Guoqiang Fu, J.R.R. Mayer, Sen Mu, Sipei Zhu	Thermal Error Modeling in CNC Machine Tool Spindles Using Transfer Learning with GRU
14:30 – 15:00	Weiguo Gao, Junyan Xing, Lingtao Weng, Dawei Zhang, Yingjie Zheng, Kai Shi, Zheng Guo	Dynamic active temperature control method based on structure-specific heat dissipation-to-generation ratio matching

Wednesday 15:00 – 15:30: Coffee Break

Wednesday Sessions 15:30 – 16:30

Session Process Integrated Thermal Behavior in Manufacturing in ML F36

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|---------------|--|--|
| 15:30 – 16:00 | Lucas Brause,
Sebastian Michel,
Robert Schmidt,
Dirk Biermann | Measurement and analysis of the thermal load during BTA deep hole drilling |
| 16:00 – 16:30 | Leonie Christine Kilian
Patrick Fehn,
Matthias Weigold | Design Measures for Enhancing Heat Conduction in CFRP Motor Spindle Components |

Session AI and Data-Driven Thermal Analysis in ML H44

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|---------------|--|--|
| 15:30 – 16:00 | Guangyan Ge,
Xuetao Wang
Zhilin Zeng,
Zhengchun Du | A Permutation Test-Based Method for Identifying Thermal Hysteresis Characteristics and Modeling Thermal Errors in Machine Tools |
| 16:00 – 16:30 | Sen Mu,
Guoqiang Fu,
Yue Zheng,
Sipei Zhu,
Long Yang,
Kunlong Lin | Thermal Mechanism-Guided Deep Temporal Convolutional Neural Network For Thermal Error Modeling Of Precision Machine Tool Spindle |

Wednesday 16:30 – 17:15: Keynote Session in ML H44

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|---------------|---|---|
| 16:30 – 17:15 | Josef Mayr,
Konrad Wegener,
Petr Kaftan | Thermal aspects toward the fully compensated machine tool |
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Thursday 08:30 – 10:00: Keynote Sessions in ML H44

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| 08:30 – 09:15 | René Mayer | Indirect metrology of machine tool kinematic errors and application to thermal errors |
| 09:15 – 10:00 | Soichi Ibaraki | Self-calibration for on-machine probing |

Thursday 10:00 – 10:30: Coffee Break

Thursday Sessions 10:30 – 11:45

Session Thermal Error Compensation in Machine Tools in ML H44

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|---------------|--|--|
| 10:30 – 11:00 | Christian Naumann,
Philipp Klimant,
Sebastian Lang,
Lenny Rhiner,
Josef Mayr,
Markus Bambach,
Konrad Wegener,
Christoph Habersohn,
Christoph Einspieler,
Friedrich Bleicher | Geometric thermal error compensation using assembly submodels enhanced by adaptive learning control |
| 11:00 – 11:30 | Christoph Habersohn,
Christoph Einspieler,
Nikita Nobel,
Friedrich Bleicher | Development and Integration of Temperature Measurement on a Machining Center for Precision Machining Used for a Data Driven Thermal Distortion Compensation Considering Real Production Conditions |

Thursday 11:45 – 13:00: Lunch at Clausiusbar

Thursday Sessions 13:00 – 14:30

Session Thermal Error Compensation in Machine Tools in ML H44

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| 13:00 – 13:30 | Fabian Axel Tripkewitz,
Matthias Fritz,
Matthias Weigold | Reducing thermally induced position and orientation errors of a precision machine tool's rotary axis due to rotation by using hydrostatic bearings |
| 13:30 – 14:00 | Tim Boye,
Florian Sellmann | Practical Implementation of Complex Thermal Models on NC-Controls |
| 14:00 – 14:30 | Daniel Divisek,
Petr Kaftan,
Josef Mayr,
Markus Bambach,
Konrad Wegener | Extension of the Torque Limit Skip Method for Thermal Error Measurement |

Thursday 14:30 – 15:45: Keynote and Closing Session in ML H44

14:30 – 15:15	Christian Brecher, Stephan Neus, Ralph Klimaschka, Janis Schäfer Alexander Steinert	Advancing Sustainable Manufacturing: Multidimensional Optimization of the Thermal Behavior of Machine Tools
15:15 – 15:45	Konrad Wegener Markus Bambach	Closing Remarks

Thursday 15:45 – 17:00: Coffee and Farewell