



Fraunhofer

A detailed 3D rendering of a turbine blade, showing its curved, aerodynamic shape. The blade is rendered with a complex, multi-colored stress analysis overlay, transitioning from blue (low stress) to yellow and green (higher stress). The blade is set against a dark blue background. In the foreground, a large, metallic, circular turbine component is visible, partially obscuring the blade. The overall image conveys a sense of advanced engineering and simulation.

# ICTM Conference

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March 12–13, 2025 | Aachen

<https://www.ictm-aachen.com/conference>

## Foreword

### Welcome to the 7<sup>th</sup> Conference of the ICTM – International Center for Turbomachinery Manufacturing Aachen

The market for aircraft engines and stationary turbomachinery has changed in the last years significantly. Development cycles and time to market have become shorter due to new engine concepts as well as new applications for stationary turbomachinery.

New solutions are strongly driven by achieving an overall improvement in sustainability like reducing emissions and resource use, during operation phase as well as during manufacturing. Improving sustainability has become a key beside the traditional performance indicators of quality, costs and time for turbomachinery manufacturing to bring new developments into the market.

The ICTM Conference brings together experts and decision makers from both industry and research. High-profile keynote speakers will provide insight into the aforementioned challenges and discuss approaches to solutions and paths forward.

In addition, experts from industry and research will shed light, for example, on how digitized manufacturing environments and innovative process designs for both conventional and additive manufacturing can lead to increases in quality and efficiency while taking technological, economic and ecological constraints into account.

As an additional highlight of the conference, we will be proud to share insights into new developments in manufacturing technology in Aachen during a tour through our R&D shop floors.

We are looking forward to meeting you at the ICTM Conference 2025 in Aachen.

## The Topics

### The Topics at a Glance

- Market overview and trends in aviation and stationary turbomachinery
- Design trends
- Digitalization
- Advanced machining
- Additive manufacturing
- Quality and surface integrity
- Sustainable production
- Shop-floor tour at the Fraunhofer facilities

### Speakers

- Design and manufacturing experts of turbomachinery OEM
- Specialists of machine tool and equipment suppliers
- Experts for digitalization and Industrie 4.0
- Experts for Additive Manufacturing
- Representatives of Fraunhofer institutes

### Adressee

- Specialists and managers of turbomachine manufacturers, aeronautics and power generation, machine tool and equipment suppliers
- Design and manufacturing engineers
- Stakeholders for laser and machining technologies

### Language

Lectures are presented in English.

### Early Bird Registration!



Those bookings by February 3, 2025 will be able to take advantage of 100 euros Early Bird discount on the conference fee.

# PROGRAM 1<sup>ST</sup> DAY

**Developments and trends to meet the future challenges in manufacturing aero-engines and stationary turbines**

Wednesday, March 12, 2025

## Session 1 – Keynotes

- 9:00 Welcome and introduction**  
Prof. Thomas Bergs, Fraunhofer IPT
- 9:15 Critical aero engine components – Maturing manufacturing processes under "Burning Platform" conditions**  
Mattis Lieder, Rolls-Royce Deutschland Ltd & Co KG
- 9:45 Transformation of turbomachinery manufacturing towards decarbonization solutions**  
Michael Kleinhenz, MAN Energy Solutions SE

## Coffee break

## Session 2 – Design trends

- 10:45 Production challenges for the next generation of aircraft engines**  
Dr. Christoph Ader, MTU Aero Engines AG
- 11:15 To be announced soon**  
Siemens Energy Global GmbH & Co. KG

## Lunch break



Wednesday, March 12, 2025

## Session 3 – Digitized machining

- 13:15 Digitization as enabler to face future challenges**  
Prof. Thomas Bergs, Fraunhofer IPT
- 13:45 Digital thread for machining process optimization**  
Davide Lazzarrato, GE Avio Aero
- 14:15 Visualization of tool wear during machining of turbomachinery components**  
Takumi Bono, Mitsubishi Heavy Industries, Ltd.
- 14:45 Digital twin from a machine manufacturer's perspective**  
Fabian Keller, Maschinenfabrik Berthold HERMLE AG

## Session 4 – Live presentations at Fraunhofer Institutes

- 14:45 Highlights - Live Presentations at Fraunhofer Institutes**
- Dr. Thomas Schopphoven, Fraunhofer ILT
  - Pascal Kienast, Fraunhofer IPT
- 15:30 Transfer to Fraunhofer Facilities by Shuttle Bus**
- 18:30 End of Live Presentations**  
Transfer back to Eurogress Conference Center

## Networking Event

- 20:00 Networking Event with Dinner**  
"Coronation Hall" of Aachen, doors open at 19:30 h
- 23:30 End of Evening Event**

# PROGRAM 2<sup>nd</sup> DAY

**Developments and trends to meet the future challenges in manufacturing aero-engines and stationary turbines**

Thursday, March 13, 2025

**9:00 Introduction**  
Prof. Thomas Bergs, Fraunhofer IPT

## **Session 5 – Panel discussion on surface integrity and certification**

**9:05 Introductory presentation**  
**9:30 Panel discussion**  
Panelists from engine OEMs and authorities

Coffee break

## **Session 6 – Additive Manufacturing**

**11:00 Increasing LPBF machines availability by using machine tool design principles**  
Dr. Christian Tenbrock, DMG Mori Additive GmbH

**11:30 Industrializing AM: Opportunities and current obstacles in digital process automation**  
Dr. Stefan Leuders, voestalpine Additive Manufacturing Center GmbH

**12:00 Innovative functionalities with sensor integration and controlled porosity: Advancing turbomachinery components through Additive Manufacturing**  
Dr. Wilhelm Meiners, Fraunhofer ILT

Lunch break



## **Session 7 – Sustainable production**

**14:00 EcoDesign and LCA deployment in the industry: perspective from an aircraft engine OEM**  
Eric de Vulpillières, Safran Aircraft Engines

**14:30 Digitalization supported sustainability**  
Dr. Stefan Cedergren, GKN Aerospace

**15:00 Fully automated data acquisition of sustainability data for manufacturing**  
Viktor Rudel, Fraunhofer IPT

## **Session 8 – Closing**

**15:30 How close are we to the electrification of air transport?**  
Christopher Chahine, Cosmic Aerospace, Inc.

**16:00 End of the Conference**





# International Center for Turbomachinery Manufacturing

## Joint platform of Aachen institutes to cooperate with industry and collaborative developments

### Industrial Exhibition

At the accompanying industrial exhibition in the foyer of the ICTM Conference, various suppliers will present new products and latest trends. Benefit from the exchange of information and know-how and discuss innovative solutions for your specific problems face-to-face with the worldwide recognized companies.

### Live Presentations

Fraunhofer ILT and Fraunhofer IPT have gained a huge expertise in manufacturing and repair processes in turbomachinery. In Live Presentations they will demonstrate their latest laser and machining technology developments as well as digitalization approaches. Use the opportunity to exchange information with our experts.

### Networking Event

The "Coronation Hall" of the Town Hall Aachen will be the location of the Networking Event on Wednesday, March 12, 2025. Take the opportunity for networking after the conference in a relaxed atmosphere. Please see: [www.aachen.de/rathaus](http://www.aachen.de/rathaus).

## Become a Partner!

The industrial exhibition offers an ideal platform to get in personal contact with the ICTM Conference participants. Take the opportunity to present your company with your innovative products and services at the ICTM Conference 2025. Please contact us for further information.

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The ICTM Aachen is a joint initiative of the Fraunhofer IPT, the Fraunhofer ILT, the DAP, MTI and WZL of RWTH Aachen University. It offers an integrated and interdisciplinary platform focusing on production and repair technologies primarily, providing R&D solutions in the full range of competencies of the participating research institutes. As turbomachinery manufacturing is a highly interdisciplinary market the ICTM Aachen also pursues R&D approaches eared to design trends and the use of advanced materials. Aim of the ICTM Aachen is to speed up technological innovations and to transfer them into industrial applications.

### ICTM Community

The ICTM Partner Community is the workgroup of industry partners and R&D institutions of the ICTM Aachen. It conducts collaborative R&D regarding manufacturing and repair of turbomachinery in the context of advanced machining, additive manufacturing and digitalization.

### Collaborative R&D

Based on the fixed annual contributions of each of the ICTM industry partners a set of collaborative R&D projects is conducted. These projects allow high synergies and significant benefits of cooperation in particular for pre-competitive issues. All of the collaborative R&D projects are defined and conducted integrating all partners to input their particular demands and participate in the results. The Projects are selected by the ICTM Community on the annual R&D meeting.



# Terms and Conditions

The ICTM Conference is organized by the Fraunhofer Institutes ILT and IPT and focuses on current and future trends as well as developments for the manufacturing and repair of aero engine and stationary turbomachinery components.

## Registration Fee

The registration fee for the ICTM Conference 2025 is 1250 € per person. This includes the conference participation (1125 € free of tax under § 4 UStG) and the Networking Event (125 € incl. VAT), the conference proceedings, lunch, light refreshments and coffee breaks on both conference days. It also covers the shuttle service to the Live Presentations at the Fraunhofer facilities on March 12, 2025.

Please note that the conference participation cannot be booked without the Networking Event.

## Cancellation

In case of cancellation before March 3, 2025 the fee will be refunded less 200 euros handling charges. Otherwise the full fee will be charged and we will send the proceedings to you or welcome a substitute participant instead.

## Registration Deadline

Please register by March 3, 2025 at the latest.

## Registration

Please register online at:  
<https://www.ictm-aachen.com/conference>



## Early Bird Registration

Those bookings by February 3, 2025, will be able to take advantage of 100 euros early bird discount on the conference fee.



## Location

The imperial city of Aachen, located in the heart of Europe, offers a variety of sights, elegant stores as well as numerous bars in the picturesque, historic city center. Aachen's immense scientific potential, its future-looking economic structures and conveniently situated location, where three countries – Germany, Belgium and the Netherlands – meet, offer the ideal context for a successful conference. We are looking forward to welcoming you at the ICTM Conference 2025!

## Hotels

A certain contingent of hotel rooms with special negotiated rates has been reserved for the participants of the ICTM Conference 2025. We recommend early reservations. For further information please visit:  
<https://www.ictm-aachen.com/conference>

## Fraunhofer ILT

With more than 550 employees and over 40 spin-offs, the Fraunhofer Institute for Laser Technology ILT in Aachen is one of the leading contract research and development institutes in its field. For more than 35 years, the Fraunhofer ILT experts have been developing and optimizing laser beam sources and laser processes for production and metrology, energy and mobility, medical and environmental technology, as well as quantum technology.

## Fraunhofer IPT

The Fraunhofer IPT combines knowledge and experience from all areas of production technology. Our expertise is geared towards the current challenges of particular industries, technologies and product areas, with a strong focus on aerospace and stationary turbomachinery. Our R&D services range from process design and prototype manufacturing to the development of comprehensive manufacturing concepts. We develop processes, products and concepts up to high Technology Readiness Levels (TRL).

## Contact

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