Dear Ladies and Gentlemen!

The aerospace industry has always been driven by challenges, which often result in innovation. Both, the products and the manufacturing processes are constantly evolving, leading to new standards and technologies, not only in aerospace industry. In the centuries of development, research and industry have always been faced with new challenges, and one of the main challenges in 2020 is the Covid-19 pandemic. The Covid-19 pandemic has hit not many industries as hard as the aerospace industry. Companies are faced with major challenges and have to rethink their business strategy. Especially in these uncertain times it is important to stay competitive.

Digitalization and new manufacturing technologies can help to satisfy the demands of cost efficiency, resource efficiency and sustainability. The best way to exploit the innovative power of the industry and expand the boundaries of manufacturing technologies, production machines and products is through exchange. This is offered by the Institute of Production Engineering and Machine Tools of the Leibniz University Hannover (IFW) and the Manufacturing Innovations Network e.V. (MIN) with the „Machining Innovations Conference for Aerospace Industry” for many years. The conference provides a platform for discussions and exchanges between experts and scientists at an international level in the field of manufacturing technology.

On behalf of the Organizing Committee, we welcome you to the 20th Machining Innovations Conference for Aerospace Industry - MIC 2020 on December 2nd. Renowned experts from industry and research will present the latest trends, newest know-how and research results in aerospace industry. Furthermore, the topics digital transformation, new strategy and intelligent processes are discussed in moderated workshops to enable a more intensive exchange and to support the development of specific ideas for the own company. The conference program is completed by an online tour through the IFW-laboratory.

The scientific session is sponsored by the International Academy for Production Engineering (CIRP). All Contributions to the scientific session are published in MIC Proceedings accessible via SSRN (https://www.ssrn.com/).

We proudly present the agenda of this year’s conference. For further information, please visit our website:

www.mic-conference.com

We are looking forward to welcome you to the MIC 2020.

Yours sincerely,

Olaf Lawrenz
Chairman of the Manufacturing Innovations Network e.V.
Head of Varel/Bremen site at Premium AEROTEC GmbH

Prof. Dr.-Ing. Berend Denkena
Member of the Board of the Manufacturing Innovations Network e.V.,
Head of the Institute of Production Engineering and Machine Tools, Leibniz Universität Hannover
Agenda December 02nd 2020

Welcoming Speech

08:45 a.m. Introduction speech for the Machining Innovations Conference 2020
Prof. Dr.-Ing. Berend Denkena, Leibniz Universität Hannover and Member of the Board of the Manufacturing Innovations Network e.V.

Keynote Speeches

09:00 a.m. New Strategy
Manfred Hader, Senior Partner, Roland Berger

09:20 a.m. Digital connectivity in aircraft manufacturing – easier said than done...
Jürgen Nolde, Vice President Siemens Vertical Aerospace

09:40 a.m. Optimization and digitalization of the metallic additive manufacturing process chain at Airbus Helicopters
Luis Diaz, Vice President Head of Industrial Service Centers Germany, Airbus Helicopters

10:00 a.m. SFB 871 – Regeneration of Complex Capital Goods
Nicolas Nübel, Research Assistant, Leibniz Universität Hannover

10:30 a.m. Coffee Break

Session 1: 10:50 a.m. – 12:10 p.m.: New Technologies in Machining

10:50 a.m. Influence of the crystallographic orientation of a directionally solidified nickel-based superalloy on macroscopic grinding forces
Adina Grimmer, Research Assistant, MTU Aero Engines AG

11:10 a.m. A new flank face design leading to an improved process performance when drilling high-temperature nickel-base alloys
Milan Bücker, Research Assistant, Technische Universität Dortmund

11:30 a.m. Machining technology and PVD coatings for milling thin structural parts of Inconel 718
Dr.-Ing. Heiko Frank, Business Area Manager, GFE – Gesellschaft für Fertigungstechnik und Entwicklung Schmalkalden e.V.

11:50 a.m. Voltage- and current-measurement based force estimation in broaching using synchronous motor drive
Ph. D. Kazumasa Miura, Post Doc, RWTH Aachen University

12:10 p.m. Lunch Break and online Technology Demonstration of the IFW Laboratory

Session 1: 01:00 p.m. – 02:50 p.m.: New Technologies in Machining

01:00 p.m. Machining–based thermal error analysis of CFRP-structured machine tool
Makoto Kato, Visiting Lecturer, Keio University, Yokohama

01:20 p.m. Present status and future directions of high performance cutting in aerospace manufacturing
Ahmad Sadek, Research Officer, National Research Council Canada, Montreal

01:40 p.m. Influence of the supplying technique of a sub–zero metalworking fluid on the performance of face turning of Ti-6Al–4V titanium alloy
Stephan Basten, Research Assistant, Technische Universität Kaiserslautern

02:00 p.m. Coffee Break
# Agenda December 02nd 2020

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| 02:10 p.m. | Investigation of the influence of different hard coatings on chip formation and process forces when machining duplex steel 1.4462  
Ante Glavas, Research Assistant, Rheinische Fachhochschule Köln |
| 02:30 p.m. | Development of a process-oriented tribological test rig for the performance assessment of tool coatings in turning of titanium Ti6Al4V  
Petter Ploog, Research Assistant, Technische Universität Hamburg |
| 02:50 p.m. | Break and preparation for Online Workshop                                                    |

### Session 2: 10:50 a.m. – 12:10 p.m.: Additive Manufacturing & Machining Innovations

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| 10:50 a.m. | Challenges and innovative solutions in additive multi-material processing in the fields of powder, sensor integration and powder application systems  
Julia Förster, Research Assistant, Fraunhofer IGCV |
| 11:10 a.m. | Cryogenically additive applied support structures and damping elements for chatter suppression in the machining of thin-walled components  
Eva Jaeger, Research Assistant, Technische Universität Dortmund |
| 11:30 a.m. | Optimized support structures for postprocessing of additively manufactured parts  
Clemens Maucher, Research Assistant, Universität Stuttgart |
| 11:50 a.m. | Near-net-shape trimming process by abrasive water jet cutting of high-performance workpieces for the aerospace industry  
Robert Jaczkowski, Research Assistant, Technische Universität Berlin |

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### Session 2: 01:00 p.m. – 02:50 p.m.: Machine Tools & Additive Manufacturing

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| 01:00 p.m. | Fundamental study on cutting temperature in high speed cutting of difficult-to-cut materials  
Takashi Ueda, Professor, Nagoya University, Japan |
| 01:20 p.m. | In-process virtual quality monitoring  
Shashwat Kushwaha, Research Assistant, Katholieke Universiteit Leuven, Belgium |
| 01:40 p.m. | Design and manufacturing strategy of a back-to-back test rig for investigation of ultra high cycle fatigue strength regarding tooth root strength in aerospace applications  
Johannes Lövenich, Research Assistant, RWTH Aachen University |

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<td>02:00 p.m.</td>
<td>Coffee Break</td>
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| 02:10 p.m. | In-process quality monitoring during turning based on high frequency machine data  
Alexander Fertig, Research Assistant, Technische Universität Darmstadt |
| 02:30 p.m. | Innovative processes and machine tool components for aerospace industry  
Dr.-Ing. Alexander Krödel, Head of Department Manufacturing Processes, Leibniz Universität Hannover |
| 02:50 p.m. | Break and preparation for Online Workshop                                                    |

**Workshop:** 03:00 p.m. – 04:00 p.m.  
**New Strategy**  
Manfred Hader, Senior Partner, Roland Berger
Agenda December 02nd 2020

Farewell Speech

04:00 p.m.  Farewell speech of the MIC 2020
Prof. Dr.-Ing. Berend Denkena, Leibniz Universität Hannover and Member of the Board of the Manufacturing Innovations Network e.V.

December 03rd  Two more online workshops will be offered
Organisation by the Manufacturing Innovations Network e.V. (MIN)
More information on mic-conference.com
Tour through the IFW-laboratory

1. Regeneration complex
   investment goods

   1a. SFB 871 - System demonstrator

2. Innovative processes

   2a. Localization and communication system for the accompanying production planning and control

   2b. Hybrid tool for manufacturing friction-reduced cylinder barrel sockets

   2c. Oxygen-free machining of Ti-6Al-4V

Please note:

- The videos can be watched during lunch break
- All the presentations will be held in German.
- The presentations will be available online during the conference
MIC App 2020

Please register in the App to get access to all features

Here you get the possibility to ask questions or comment the presentations

QR-Code to Google Play and Apple Store