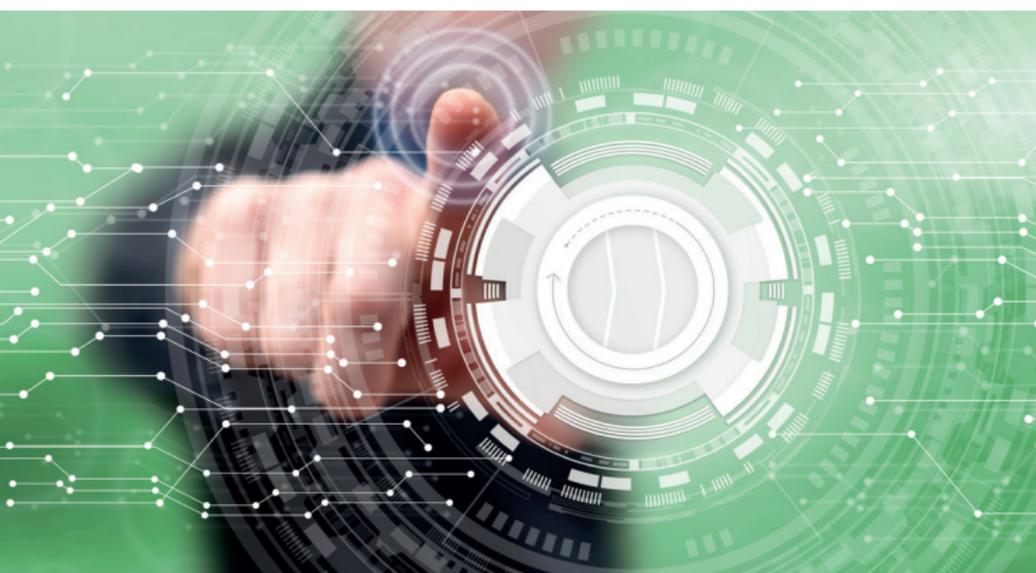


Conference

AWK'21

INTERNET OF PRODUCTION
TURNING DATA INTO
SUSTAINABILITY

September 22–23, 2021



WZL | **RWTHAACHEN**
UNIVERSITY

 **Fraunhofer**
IPT

The Conference

Aachen Machine Tool Colloquium 2021

With the effects of the Corona pandemic hitting many manufacturing companies and changing the global economy in the long term, once again trend-setting questions are arising around the future of production technology:

How can algorithms and data analysis be utilized to make reliable forecasts in order to produce more efficiently and sustainably in the future? How can data acquisition and machine learning lead to rapid, error-free improvements in (series) production in order to become more resilient in the face of crises? How do successful companies manage to emerge stronger from the crisis and quickly return to profitability?

With the motto

Internet of Production – Turning Data into Sustainability

the 30th Aachen Machine Tool Colloquium, which will take place on September 22–23, 2021 at the Eurogress in Aachen and online, will show the added value of an overall networked production on the example of proven success stories. Speakers from leading companies of different industries will talk in jointly compiled expert lectures about how the value of technological and economic innovations can be measured, exploited and implemented in the sense of a more sustainable production in the future with the help of the Internet of Production.

We will show you unexplored potentials for a successful path into the future: Be part of it!



Prof. Dr.-Ing.
Thomas Bergs MBA



Prof. Dr.-Ing.
Christian Brecher



Prof. Dr.-Ing.
Robert Schmitt



Prof. Dr.-Ing. Dipl.-Wirt. Ing.
Günther Schuh

The AWK'21 is presented by the four directors of the Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University and the Fraunhofer Institute for Production Technology IPT:



**Prof. Dr.-Ing.
Thomas Bergs MBA**

Holder of the Chair of Manufacturing Technology at the WZL and Head of the Process Technology department at the Fraunhofer IPT



**Prof. Dr.-Ing.
Christian Brecher**

Holder of the Chair for Machine Tools at the WZL and Head of the Production Machines department at the Fraunhofer IPT



**Prof. Dr.-Ing.
Robert Schmitt**

Holder of the Chair of Production Metrology and Quality Management at the WZL and Head of the Production Quality and Metrology department at the Fraunhofer IPT



**Prof. Dr.-Ing. Dipl.-Wirt. Ing.
Günther Schuh**

Holder of the Chair for Production Engineering at the WZL and Head of the Technology Management department at the Fraunhofer IPT

The AWK'21

The highly renowned conference, with the aim of reflecting the latest developments in production technology, is both a network event and an information hub: in exchange with more than 1,000 participants from various disciplines and with a highly qualified program of lectures as well as guided tours to the hosting research institutions, the AWK'21 offers a globally unique insight into the trends in applied research and development for specialists and executives from industry and science who want to shape the production of tomorrow.

Hybrid all-rounder for the trends in production technology

In addition to the usual face-to-face event, there will be a premiere at the 30th AWK: Besides to the event at the Eurogress in Aachen, there will also be a digital broadcast of large parts of the event program for the first time.

Take the chance and be there with us live – regardless of your location. Look forward to lectures in the large plenum as well as exciting interviews, be part of an on-site or virtual 3D tour through our institutions and ask your questions in our expert sessions.

The digital AWK offers many interactive possibilities: The event platform brings the trade show experience of the live event to your home and allows access independently of time and location. True to the motto "Digital that feels (almost) like physical", you can get in touch with the participants and other exhibitors.



Plenary Speakers

Our lecture program with twelve expert lectures and four keynotes is complemented by plenary lectures given by renowned leaders of globally operating companies. As the first plenary speakers, we would like to introduce to you:



Saori Dubourg

Member of the Board of
Executive Directors,
BASF SE



Dr.-Ing. Stefan Spindler

Member of the Executive Board,
Schaeffler AG



Lars Wagner

Member of the Executive Board,
MTU Aero Engines AG

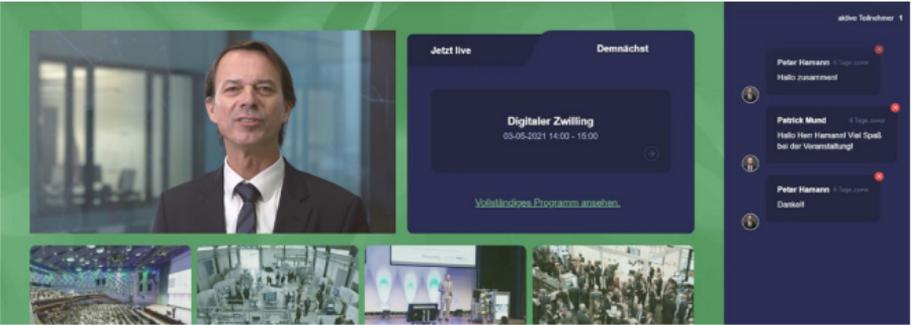


Prof. Dr.-Ing. Katja Windt

Member of the Managing Board,
SMS group GmbH

Program

Thursday, September 22, 2021



Welcome and Introduction

Plenum 1

Session 1

Architecture of a Networked Adaptive Production

- Linked Data – from Shop-Floor to Top-Floor
- Value Capture – How to Successfully Implement Data-driven Business Models in Sustainable Manufacturing Companies
- Individual Manufacturing Process Chains in Tooling by Data-Driven and Model-based Forecast Methods

Session 2

The Digital Twin in the Production Cycle

- The Digital Economy of Things
- Biological Transformation in Production
- Future Assembly – Automation beyond Mass Production

**Guided Tours to the Institutes /
Virtual Tours on RWTH Aachen Campus**

Evening Reception

Friday, September 23, 2021



Welcome

Plenum 2

Session 3

Data Sciences in Production

- Functional and Ecological Backtracing of Process Chains – A Model- and Data-based Approach
- Predictive Quality – Data Analytics for Increasing Corporate Sustainability
- Worldwide Lab – Sustainable Productivity Increase through Networked Learning

Session 4

Sustainable Productivity

- Industrial Employability: Sustainable People Empowerment with the Smart Expert MOOC
- Monetization of Manufacturing Data to Increase Ecological Efficiency
- New Business Models for Machine Tools

Plenum 3

Outlook

Guided Tours to the Institutes /
Virtual Tours on RWTH Aachen Campus

The Sessions



Session 1: **Architecture of a Networked Adaptive Production**

An efficient infrastructure is the key to a networked, adaptive production. The Internet of Production provides the framework for this consistent, secure and efficient architecture, which is based on the sovereignty of the collected data. It helps us in answering the questions: What are the performance features of such an infrastructure and what does a scalable implementation look like within the production environment? Which components enable a real-time supply of information along the entire process chain? And how can these components be integrated into production without significant additional costs?

Session 2: **The Digital Twin in the Production Cycle**

In manufacturing companies, context-based data models and digitized value chains have been discussed for some time. Still, there are many open questions left, such as what defines the additional value generated with the help of data beyond the physical product. When is the effort for data preparation and storage worthwhile and are product life cycles, which are subject to constant change, still manageable and economical? And how can digital transformation support sustainable, resource-efficient production? In this session, these questions will be presented and discussed using the example of demanding but concrete manufacturing scenarios.



Session 3: Data Sciences in Production

Model-based data analyses contextualize live recorded manufacturing data by merging it with specific machine models, thus enriching it with manufacturing domain knowledge. In this way, a digital image of the component, machine and process is created, which can be used, among other things, for process-parallel quality prediction, to increase productivity and for intelligent data feedback. This balances higher-level issues of energy and resource efficiency of the machine(s) as well as process optimization of individually produced pieces, and by using AI methods suitable for production.

Session 4: Sustainable Productivity

In the future, data-based business models will decide the competition due to the converging performance of competing products. In mechanical and plant engineering, sustainability is a particular focus – both in the value proposition for the customer and in value creation. The central technological enabler here is the Internet of Production, which facilitates sustainably efficient and trouble-free operation with correct billing. Both the platform-driven data economy and future ways of working represent interface topics for shaping value creation.

Attendance

Venue

Eurogress Aachen
Monheimsallee 48
52062 Aachen
Germany

Participation Fee

Tickets purchased for the AWK'20 remain valid.

On-site € 1350 (plus statutory VAT)

Included are: Lecture program, industrial exhibition, visits to the institutes, conference documents, bus transfer, catering on both days and the evening event. Please note that the conference participation on-site can only be booked including the evening event.

Online € 590 (plus statutory VAT)

Included are: Lecture program, industrial exhibition, tour of the institutes, conference documents as well as further offers on the digital event platform.

Registration

Please register on our website www.awk-aachen.com. Alternatively, you can also register by filling out the attached registration form, which you can send to us by post.

WZLforum gGmbH
Steinbachstr. 25
52074 Aachen
Germany

Phone +49 241 80-23614
info@awk-aachen.de
www.awk-aachen.com

Registration Form

- I hereby register bindingly for participating in AWK'21 at a participation fee of € 1350**.

Favorite Lecture Series on September 22, 2021*

- Architecture of a Networked Adaptive Production
 The Digital Twin in the Production Cycle

Favorite Lecture Series on September 23, 2021*

- Data Sciences in Production
 Sustainable Productivity

- I hereby register bindingly for participating digitally in AWK'21 at a participation fee of € 590**.

Last Name*

First Name*

Title

Company/Institute*

Street/Post Office Box*

Zip Code/Town*

Phone*

E-mail*

*Data required, ** All prices are exclusive of VAT.

I agree that my name and business address will be included in the list of participants and stored in computerized form for the purpose of organizing the event. Data protection information: Your data will be used for the postal submission of similar offers (see General Terms and Conditions). We will be happy to send you our event information:

- also by E-Mail just by E-Mail

You can object to the use of your data for advertising purposes at any time.

Signature*

Date*

AWK'21

Organizer

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