

FRAUNHOFER INSTITUTE FOR PRODUCTION TECHNOLOGY IPT
LABORATORY FOR MACHINE TOOLS AND PRODUCTION ENGINEERING (WZL)
OF RWTH AACHEN UNIVERSITY

PRESS RELEASE

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30th Aachen Machine Tool Colloquium: Making Data Contribute to Value Creation in Today's Production

Reliable access to any kind of data, information and knowledge – at any time and any place – is considered to be one of the most important promises of the Industry 4.0. However, what benefits do manufacturing companies draw from the diversity of the recorded data? Which analysis tools and algorithms offer accurate predictions and thus enable a continuous control of production? These and other questions will be addressed by the Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University and the Fraunhofer Institute for Production Technology IPT during the 30th Aachen Machine Tool Colloquium in 2021, which will take place from June 10 to 11, 2021 at the Eurogress Aachen with around 1,200 guests and renowned speakers from industry and science.

The Internet of Production, as the organizers and initiators of the conference call the integrated digitization and linking of machines and systems within the production and value chain, is intended to help companies achieve a greater sustainability, efficiency, productivity, quality and competitiveness. This is also reflected in the key topic of the AWK'21, "Internet of Production – Turning Data into Value": it deals with how manufacturing companies can achieve rapid, error-free improvements in series production through a demand-driven collection of data and machine learning. Scientists, as well as speakers from renowned companies who have already taken this path, will present different success stories and point out the advantages of comprehensive production networking.

Due to the developments concerning the spread of the corona virus (SARS-CoV-2), the 30th AWK was postponed from 2020 to 2021 with regard to the safety and health of the participants and will therefore not take place in the usual three-year cycle. With the effects of the corona virus, which will affect many manufacturing companies and have a lasting impact on the global economy, new questions arise concerning the future of production technology. For this reason, the AWK'21 will also focus on strengthening the resilience of companies, thus enabling them to deal with drastic crises and to return to profitability within a short period of time.

Redaktion

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Information Hub for Trends in Production Technology

The Aachen Machine Tool Colloquium is held in Aachen every three years as a network meeting and an information hub alike: In exchange with more than 1,200 participants from various disciplines, with a top-class international lecture program and guided tours on specific topics through the hosting research institutions, the traditional conference once again offers a broad insight into the trends in applied research and development for specialists and executives from industry and science who aim to shape tomorrow's production.

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Four Lecture Sessions with Interdisciplinary Perspectives

Participants will be able to gain first-hand information about the results of our applied research and their practical implementation in production during two parallel lecture sessions. To this end, speakers from interdisciplinary science, development and management of leading companies from different industries were invited to work together in expert groups to elaborate the lecture topics. Each of the four sessions includes several lectures on the topics "Architecture of a Networked Adaptive Production", "The Digital Twin in Manufacturing", "Analytics in Production" and "Business Models in the Internet of Production". Within all lectures, the main focus is always on the event's motto and the question of how the values of the respective technological and economic innovations can be assessed and utilized.

Using Digitization to Quantify the True Costs of Production

Given the current debates on climate change, energy revolution and the threat of recession, the question of the value and true costs of a product – over its entire development and usage duration – is more relevant than ever.

"In many areas of production, we are reaching the limits of our knowledge with conventional methods, technologies and processes. However, digitization is now enabling us to exceed these limits", explains Professor Thomas Bergs, whose chair is responsible for the organization of the event this year – and adds: "The more we know about our complex processes and their boundary conditions, the better we can identify the true costs of our products and save valuable resources."

Digitization enables companies to save materials and energy, for example, to reduce abrasion on tools and machines and to make expensive high-tech products lighter, more robust and more efficient. Being able to answer the question of the value of a product as precisely as possible is therefore one of the goals of Bergs and his colleagues Christian Brecher, Robert Schmitt and Günther Schuh at the AWK'21.

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Historically Grown: Network Meeting for Business and Science

When Professor Herwart Opitz founded the first Aachen Machine Tool Colloquium in 1948, with around 250 participants, he laid the foundation for one of the most important congress events in production technology. His central goal, then as now, was to expand and strengthen the cooperation between research institutions and companies in the manufacturing industry. He and his successors at the chairs of the WZL achieved this with great results and increasing numbers of participants.

Already in 1971, Opitz stated in his opening speech: “The name Machine Tool Colloquium does not quite fit today as it did in earlier times. The integration of production technology is on the advance and thus we have to deal with the questions of economic planning, construction and manufacturing”.

In its 30th edition, the AWK'21 aims to reflect on the latest developments in production technology and its question on the value of data capturing, which goes far beyond anything Opitz, as the eponym of the event, could have dreamed of.

In order to keep up to date with the practical insights into the research activities at the WZL and Fraunhofer IPT, the AWK'21 offers thematically structured guided tours through the machinery facilities of both institutes and selected partners for the first time, illustrating the contents of the lectures by means of practical demonstrators and even developments that have already been implemented industrially. The organizers focus on current topics such as digitization, individualization, electrification and climate protection, Industry 4.0, Blockchain, Artificial Intelligence and 5G.

Production 4.0 in Practice – The AWK Industrial Exhibition

In addition to the plenary and expert lectures, leading European industrial companies will present their innovations on the subject of “Internet of Production – Turning Data into Value” in the foyer of the Aachen Eurogress at the AWK'21. The industrial exhibition of the AWK'21 covers more than 540 m² with more than 41 stands. Visitors can obtain information about concrete and future-oriented applications directly from the production companies during the generously dimensioned event breaks and thus experience the unique networking character of the Aachen Machine Tool Colloquium. As some companies, such as Ericsson, for example, will be taking part both in the industrial exhibition and in the plenary or expert lectures, questions can be discussed directly with the company representatives.

In order to keep up to date with the practical insights into the research work at WZL and Fraunhofer IPT, the AWK'21 will offer thematically structured tours through the machine halls of the institutes and selected partners for the first time, illustrating lecture contents by means of practical demonstrators and even developments that have already been implemented in industry.

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The organizers focus on current topics such as digitization, individualization, electrification and climate protection, Industry 4.0, Blockchain, Artificial Intelligence and 5G:

- Monetization of Manufacturing Data
- End-to-end Industry 4.0 – From Strategy to Finished Product
- 5G-Industry Campus Europe
- Digital Twin Using the Example of Turbomachinery
- Predictive Quality
- Component Analysis and Monitoring
- Digital Process Chains
- Robotic Assembly and Machining
- Innovative and Sustainable Tool and Process Design
- Innovations in Production Engineering

Concentrated pitches by trained and experienced experts at selected test stands and demonstrators offer a perfect introduction to applying the potential and challenges to your own production and business models in in-depth discussions.

The **Fraunhofer Institute for Production Technology IPT** combines many years of knowledge and experience in all areas of production technology. The Fraunhofer IPT offers its customers and project partners applied research and development for networked, adaptive production in the areas of process technology, production machines, production quality and measurement technology as well as technology management. The institute's range of services is geared to the individual tasks and challenges within specific industries, technologies and product areas, including automotive engineering and suppliers, energy, life sciences, aviation, mechanical and plant engineering, optics, precision and micro technology as well as tool and die making.

The **Laboratory for Machine Tools and Production Engineering (WZL) at RWTH Aachen University** supports the innovative strength and competitiveness of industry with trend-setting basic research, applied research and the resulting consulting and implementation projects in the field of production technology. In the research fields of manufacturing technology, machine tools, production systematics, gear technology, manufacturing metrology and quality management, practical solutions for rationalizing production are developed with industrial partners from a wide range of sectors.

Further Contact Persons

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