

PRESS RELEASE

PRESS RELEASEApril 17, 2019 || Page 1 | 4

BMBF research project IDAM: Network puts metallic 3D printing on track for automotive series production

It was a start with far-reaching appeal: On March 27, 2019, the joint project IDAM held its kick-off meeting in Munich, which was intended to pave the way for Additive Manufacturing to enter automotive series production. Specifically, the project partners – consisting of SMEs, large companies and research institutions – will transfer metallic 3D printing into an industrialized and highly automated series process in the automotive industry for the first time. The Fraunhofer Institute for Laser Technology ILT in Aachen and the Chair for Digital Additive Production DAP of RWTH Aachen University are supporting the project through their many years of experience in the field of additive manufacturing technologies.

The goal of IDAM is to promote the “Industrialization and Digitization of Additive Manufacturing (AM) for Automotive Series Processes”. In this project, twelve project partners are laying an important cornerstone to sustainably strengthen Germany's technological pioneering role and the country itself as a manufacturing location. By integrating metallic 3D printing into the conventional production lines of the automotive industry, IDAM will enable them to replace cost and time consuming processes, such as the production of molds, and to meet the desire for product customization at no extra cost.

Additive manufacturing of at least 50,000 serial parts per year

Metallic 3D printing is being implemented at two locations: the BMW Group's Additive Manufacturing Center in Munich and automotive supplier GKN Powder Metallurgy's factory of in Bonn. There, the IDAM team is qualifying the AM technology for the specific requirements to produce identical parts as well as individual and spare parts on the basis of specific components. The targeted quantities speak for the signal character of the joint project: In the future, it should be possible to produce at least 50,000 components per year in mass production and over 10,000 individual and spare parts – at the highest quality and under extreme cost pressure – with the AM production lines.

One part for the whole: modular setup of the production lines

Two modular and almost completely automated AM production lines are being set up in Bonn and Munich. They cover the entire process, from digital to physical component manufacturing all the way to post-processing. Individual modules can be adapted to

Editorial Notes

Petra Nolis M.A. | Group Leader for Communication | Telephone +49 241 8906-662 | petra.nolis@ilt.fraunhofer.de
Fraunhofer Institute for Laser Technology ILT | Steinbachstraße 15 | 52074 Aachen, Germany | www.ilt.fraunhofer.de

FRAUNHOFER INSTITUTE FOR LASER TECHNOLOGY ILT

the different production requirements thanks to the modular construction of the line and, if necessary, replaced. In addition, their process steps can be controlled and utilized flexibly. By taking an integrated view of the automotive production line into account, the project partners plan on reducing the manual share of activities along the process chain from currently around 35 percent to less than 5 percent. In addition, the unit costs of 3D-printed metal components should be more than halved.

PRESS RELEASEApril 17, 2019 || Page 2 | 4

Interdisciplinary cooperation as a technology enabler

The expertise of the SMEs within the project consortium comes to the forefront in designing, providing and connecting the modules for the AM production line. Among other things, they take over the automation of the interfaces between the individual process steps or, as part of the project, develop a series-ready and modular production facility for metallic 3D printing. The other modular process components, such as powder handling, monitoring and automated post-processing, are also being developed by the SMEs. The research institutions are assuming tasks for process control, the digital twin and the preventive increase in quality, among others. Since large industrial companies are involved, these linked modules can be used in the AM production lines under real conditions and on a large scale. In addition, industrial standards can be set and industry-relevant quality characteristics elaborated. Only through this interdisciplinary cooperation does the IDAM project make it possible to holistically examine metallic 3D printing for automotive series processes and to establish it sustainably in production.

Research Project “Industrialization and Digitization of Additive Manufacturing (AM) for Automobile Series Processes – IDAM”

Coordinator: BMW Group

Project partners:

- Aconity GmbH, Herzogenrath
 - Concept Reply GmbH, Munich
 - Fraunhofer Institute for Laser Technology ILT, Aachen
 - GKN Powder Metallurgy, Radevormwald
 - Myrenne GmbH, Roetgen
 - Intec GmbH – Ingenieurbüro für Automatisierungstechnik, Bad Neuenahr-Ahrweiler
 - Kinexon Industries GmbH, Munich
 - Chair for Digital Additive Production DAP, RWTH Aachen, Aachen
 - Technical University of Munich, Chair of Metal Forming and Casting, Munich
 - Schmitz Spezialmaschinenbau GmbH, Rheinbreitbach
 - Volkmann GmbH, Soest
-

FRAUNHOFER INSTITUTE FOR LASER TECHNOLOGY ILT

Sponsored by the German Federal Ministry of Education and Research (BMBF) under the call "Line integration of additive manufacturing processes"

Acronym: IDAM

Period: 1.3.2019 - 28.2.2022

www.photonikforschung.de

PRESS RELEASE

April 17, 2019 || Page 3 | 4



Image 1:
Consortium of the BMBF project IDAM at the kick-off in Munich on March 27, 2019.

© BMW Group.



Image 2:
This structural optimized differential housing, jointly developed by GKN Powder Metallurgy and Porsche Engineering, is one of the growing new e-drive powertrain applications for Metal AM.

© GKN Powder Metallurgy.



Image 3:
**Additive series production at
the BMW Group.**
© BMW Group.

PRESS RELEASE

April 17, 2019 || Page 4 | 4

The **Fraunhofer-Gesellschaft** is the leading organization for applied research in Europe. Its research activities are conducted by 72 institutes and research facilities at different locations throughout Germany. Its more than 26,600 employees achieve work with an annual research budget totaling more than 2.6 billion euros. Of this, about 2.2 billion euros are allotted to the division 'contract research.' The Fraunhofer-Gesellschaft generates over 70 percent of this division's turnover from orders for the industry and from publicly funded research projects. Its international cooperation with excellent research partners and innovative companies all over the world ensures it has direct access to the most important present and future scientific and economic sectors.

Contact

Dr. Lucas Jauer | Group Laser Powder Bed Fusion | Telephone +49 241 8906-360 | lucas.jauer@ilt.fraunhofer.de
Fraunhofer Institute for Laser Technology ILT | Steinbachstraße 15 | 52074 Aachen, Germany | www.ilt.fraunhofer.de

Dr. Florian Höfler | Additive Manufacturing Center | Telephone +49 89 382-76899 | florian.hoefler@bmw.de
BMW Group | Hufelandstr. 5 | 80937 Munich, Germany | www.bmwgroup.com