

PRESS RELEASE
Aachen, September 23, 2019

Laboratory for Machine Tools and
Production Engineering (WZL) of
RWTH Aachen University

Stefanie Strigl
Head of Press and Public Relations

Adaptive Remanufacturing for life cycle optimization of networked capital goods

Campus-Boulevard 30
52074 Aachen
GERMANY

Kick-off of the ReziProK joint research project "ReLIFE" funded by the Federal Ministry of Education and Research

Phone: +49 241 80-27554
Fax: +49 241 80-22293
s.strigl@wzl.rwth-aachen.de
www.wzl.rwth-aachen.de

On Friday, September 20, 2019, the kick-off of the joint research project "ReLIFE - Adaptive Remanufacturing for the Life Cycle Optimization of Networked Capital Goods" took place in Aachen with representatives of the consortium partners and the networking and transfer project "RessWInn". ReLIFE is one of a total of 25 collaborative research projects of the funding measure "Resource-efficient environmental service branch – innovative product cycles (ReziProk)" of the Federal Ministry of Education and Research (BMBF). The Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University is involved in the project as consortium leader in cooperation with the Chair for International Production Engineering and Management (IPEM) of the University of Siegen and Achenbach Buschhütten GmbH & Co.KG.

The ReziProK research projects pursue different approaches to close product cycles by developing resource-saving business models, design concepts and digital technologies and thus contribute to the implementation of a resource-efficient recycling economy. Against the background of globally increasing resource consumption, ReLIFE is pursuing the goal of Adaptive Remanufacturing with the aim of increasing resource efficiency by extending the life cycle of capital goods. Adaptive Remanufacturing describes an intelligent maintenance strategy based on sensor data for the technical, economic and ecological optimization of the timing and scope of maintenance measures. Based on the sensor-monitored wear condition of components, preventive measures are proposed via a decision model.

Adaptive Remanufacturing for increased resource efficiency and long-term productivity

Based on the performance of capital goods ensured by Adaptive Remanufacturing, innovative business models are developed to ensure long-term productivity. This creates the economic prerequisites for the successful implementation of the approach in industry.

For the prototypical application of Adaptive Remanufacturing, a production machine with digitally networked sensors will be upgraded to a demonstrator. The decision model to be developed is implemented in a software application. The combination of physical demonstrator and software application enables comprehensive validation. The business models are developed in parallel and documented in a business model canvas.

The results will be developed jointly by the consortium partners: The WZL focuses on the development of intelligent remanufacturing approaches as well as the conception of the decision model for the application of these measures. The IPEM of the University of Siegen focuses on the development of remanufacturing-

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based business models and Achenbach Buschhütten GmbH & Co. KG is significantly involved in the development of a demonstrator with integrated sensor technology.

The results of the ReLIFE joint research project are to be used in research, but in particular also by small and medium-sized enterprises, in order to raise the economic potential of their capital goods through proactive life cycle optimization.

The ReLIFE research project will run from July 1, 2019 to June 30, 2022.

Laboratory for Machine Tools and Production Engineering (WZL)

The Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University has stood worldwide for more than 100 years for future-oriented research and successful innovations in the field of production technology.

Under the leadership of four professors, Thomas Bergs, Christian Brecher, Robert Schmitt and Günther Schuh, the WZL is conducting research in six areas - production technology, machine tools, production systems, transmission technology, production metrology and quality management - on the future-oriented design of production in high-wage countries. Together with industry partners from various sectors, the WZL develops solutions for a wide variety of production scenarios in both publicly funded and bilateral projects. These activities are being consolidated on the RWTH Aachen Campus in the Cluster Production Engineering.

Contact:

Carsten Fölling, M.Sc. RWTH

Tel: +49 151 43173826

c.foelling@wzl.rwth-aachen.de

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Attachments:



The project partner of the research project "ReLIFE - Adaptive Remanufacturing for the Life Cycle Optimization of Networked Capital Goods" © WZL

f.l.t.r.: Henning Schlabach (Achenbach Buschhütten GmbH & Co.KG), Katja Wendler, Lea König (DECHEMA e.V.), Peter Wolfmeyer (N³ Nachhaltigkeitsberatung Dr. Friege & Partner), Thomas Kusche (Achenbach Buschhütten GmbH & Co.KG), Dennis Ohrndorf, Till Saßmannshausen (IPEM of Universität Siegen) and Carsten Fölling (WZL of RWTH Aachen).

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Target image of Adaptive Remanufacturing © WZL