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**Aachen, 20.11.2017**

**Werkzeugmaschinenlabor WZL der RWTH Aachen University**

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# New Research Project launched

## Automatic, Multicopter-based Indoor-Inspection of large surfaces (AMIIGO)

In the context of quality management, the non-destructive inspection of very large components poses a major challenge if they exceed the range of a robot arm or the working area of a measuring station. Against this background, the project "Automatic, Multicopter-based Indoor Inspection of Large Surfaces" (AMIIGO) was launched in Aachen in October. The aim is to significantly reduce the cost of non-destructive inspection. This is to be made possible by the use of indoor flying, cooperating measuring equipment. In the future, optical measurement technology will be automatically moved over the surface of aircraft, for example, using a multicopter, in order to identify defects. Detected defects will then be stored in a "defect map".

The AiF, the German Research Association for Measurement, Control and Systems Engineering (DFMRS), supports the project. For two years, the Institute for Automatic Control IRT and the Chair for Production Metrology and Quality Management at the Laboratory for Machine Tools and Production Engineering (WZL) at RWTH Aachen University will work closely together to develop a location algorithm for defects that will integrate, implement and validate the data. IRT will also focus its research on multicopter automation, while the machine tool laboratory will be responsible for measurement technology, project management, networking and communication of the interfaces. In addition to DFMRS, the Laboratory for Machine Tools and Production Engineering (WZL) and the Institute for Automatic Control (IRT) of RWTH, APODIUS GmbH, Automated Precision Europe GmbH, Faserinstitut Bremen e.V., Five Robots GmbH, Interdisciplinary Imaging & Vision Institute Aachen e.V., Lufthansa Technik AG, Nikon GmbH, SCI-SYS Deutschland GmbH and SPECTAIR Group GmbH are also represented on the project committee.

During the kick-off meeting on October 18, 2017, the upper fuselage structure of aircraft and the tail unit (both horizontal and vertical stabilizer) were identified as the preferred object of investigation. During the project, the research team will focus mainly on aircraft maintenance, in particular on aircraft damage assessment after lightning strikes. In addition to aircraft maintenance, the automated investigation of coatings and weld seams inside large oil tanks, which only allow limited accessibility for employees, was discussed.

### Laboratory for Machine Tools and Production Engineering (WZL) (veraltet)

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 Christian Brecher, Fritz Klocke, Robert Schmitt und 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

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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.

## Attachments


BU: The Research Team (from left) S. Mehler (Lufthansa Technik AG), D. Fauk (Apodius GmbH), Dr. S. Recher (SCISYS Deutschland GmbH), R. Zweigel (Institute for Automatic Control IRT), A. Buckhorst (WZL), C. Storm (WZL), Herrn. M. Sorg (DFMRS), M. Lange (SPECTAIR GmbH & Co. KG) and B. Montavon (Interdisciplinary Imaging & Vision Institute Aachen e.V. i3ac) met on October 18,2017 at the first Kick-Off meeting © WZL der RWTH Aachen

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