

## Experience Note

2012 International Internship in RWTH Aachen University, Aachen, Germany

Supported by: Tohoku University Global COE Program

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Doctor Student, Grade 3

Supervisor: Wei GAO

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Accepting University:

RWTH Aachen University

Supervisor in Accepting University:

Prof. Dr.-Ing. Robert Schmitt

Period of Internship:

Dec. 4, 2012 ~ Jan. 20, 2013

Location:

Aachen, Germany

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With the great support from the Tohoku University Global COE Program, I have visited the Institute for Production Technology (IPT) of RWTH Aachen University of Germany from Dec. 4, 2012 to Jan. 20, 2013.

RWTH Aachen University is a research university of technology (comparable to an institute of technology in the American system) located in Aachen, North Rhine-Westphalia, Germany with roughly 35,000 students enrolled in 126 study programs.



City logo of Aachen



Copper statue in the street corner



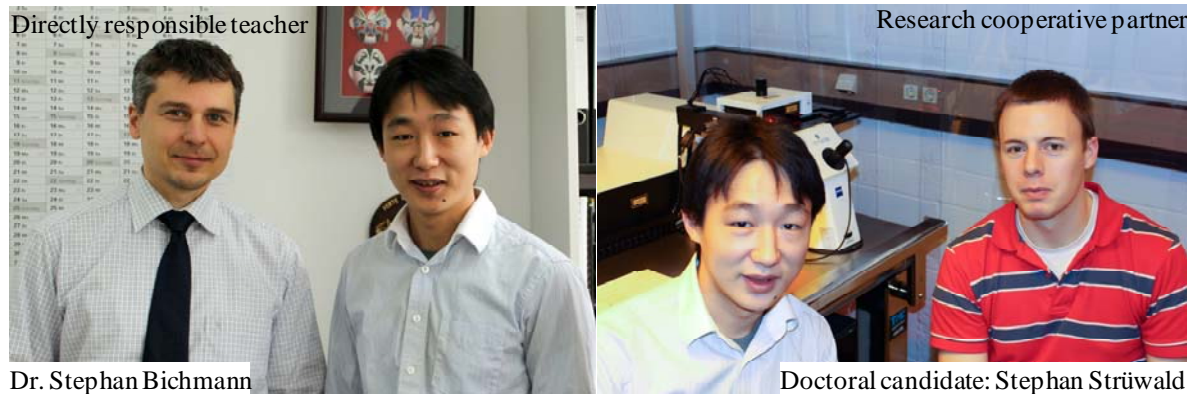
Streetscape of Aachen 1



Streetscape of Aachen 2

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The accepting institute of RWTH Aachen University is Institute for Production Technology (IPT). IPT focus on the topics of process technology, production machines, mechatronics, production quality and metrology as well as technology management. Prof. Robert Schmitt has hosted my visiting. Prof. Schmitt is in charge of the department of Production quality and metrology which consists of two working unites. One is the production quality and the other one is the production metrology. I have jointed the cooperative research in the working unite of the production metrology. The partners are Dr. Stephan Bichmann and a doctoral candidate Stephan Strüwald.



Cooperative partners in IPT of RWTH Aachen University

The jointed research has two parts. One is about the profile measurement of nano- and micro-structures. The other one is the fabrication of nano- and micro-structures. Regarding the profile measurement, we have employed a nanopositioning stage with different profile sensing head to make up a new measurement system. Due to the large positioning range (25 mm x 25 mm x 5 mm), small positioning resolution (0.1 nm) and good dynamic performance, the working performance and measurement capacity of the constructed measurement system were greatly improved. About the fabrication of nano- and micro-structures, it was based on the laser lithography technology. A precision positioning stage was employed to adjust the exposure position of the photoresist, arbitrary structure could be fabricated. The feature size is 100 nm.

The daily life in Aachen is agreeable. I walk to the IPT taking about 40 min every day and the working time is from the 09:00 AM to 05:00 PM. I have jointed two or three coffee time every day; and I could make a conversation with the IPT members regarding the academic activity and something about German, Japanese and Chinese cultures. In the weekend, I usually visit some historical sites and go to different restaurants for testing the many delicious foods.

The stay in Aachen is very memorable. Even if it was only 46 day, the cooperation with the scientists of RWTH Aachen University and the influence of German culture are valuable experience for me. I would like to express my great appreciation to the Tohoku University Global COE Program for giving me a chance for the international internship. And also I would like to thanks Prof. Schmitt and their team members for the enthusiastic treat. Finally, I would like to thanks Prof. Wei Gao and the members of Gao Lab. for the supports so far.