

FRAUNHOFER INSTITUTE FOR ELECTRONIC NANO SYSTEMS ENAS

PRESS RELEASE

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Scientist of Fraunhofer ENAS has been appointed Associate Professor at WPI-Advanced Institute for Materials Research of the Tohoku University Sendai, Japan.

As from 1 August 2015 Dr. Jörg Frömel, former deputy head of the department System Packaging of Fraunhofer ENAS, was appointed Associate Professor at WPI-Advanced Institute for Materials Research of the Tohoku University Sendai, Japan. He received the certificate of appointment on 4 August 2015 from the hands of the director of WPI-AIMR, Prof. Mrs. Motoko Kotani.

The Tohoku University in the megacity of Sendai belongs to the nine "World Premier International Research Centers" (abbr. WPI) chosen in Japan. The WPI is a project similar to the German Universities of Excellence program, and it is supported by the Japanese Ministry of Education, Culture, Sports, Science and Technology.

Prof. Frömel is employed at the Gessner Laboratory of the WPI-Advanced Institute for Materials Research. Furthermore, since 1 September 2015 he is Adjunct Associate Professor at the Graduate School of Engineering of the Tohoku University. The Gessner Laboratory is coexisting with the Fraunhofer Project Center MEMS/NEMS Devices and Manufacturing Technologies at the Tohoku University. By order of Prof. Gessner he will take over the local organization and direction of the Gessner Group. (For further information see: http://www.wpi-aimr.tohoku.ac.jp/gessner_lab/)

Since the Gessner Group does not dispose of an own building or equipment structure, the two entities mentioned above have been organizationally arranged as one group within the Shuji Tanaka Laboratory (http://www.mems.mech.tohoku.ac.jp/index_e.html). Prof. Frömel informed us of the following: "Prof. Tanaka, Department of Bioengineering and Robotics, Graduate School of Engineering of the Tohoku University, allows us to use his laboratory and his equipment. Likewise we may use the infrastructure of the Micro Integration Center of Prof. Esashi. Thus, the two professors are our hosts. They are helping us with words and deed."

In May 2015, Prof. Esashi, who is honorary doctor of the Faculty of Electrical Engineering and Information Technology of the Chemnitz University of Technology, visited the Technische Universität Chemnitz and Fraunhofer ENAS on the occasion of the graduation of Mr. Frömel. The graduation of Mr. Frömel is based upon the results of joint research works with the Tohoku University Sendai. Several times he has been traveling to Sendai for research stays; he also has been there during the 2011 earth quake.

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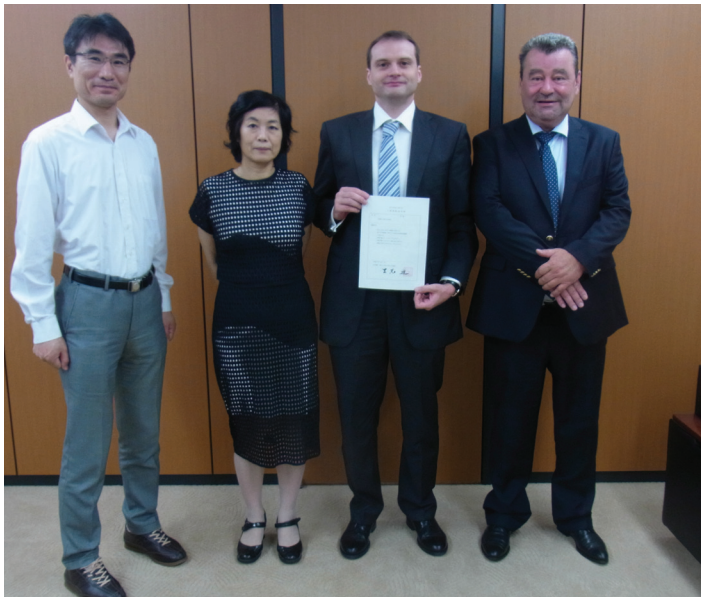


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Presentation of the certificate to Associate Professor Frömel (2nd from right) by Prof. Mrs. Kotani (2nd from left) in the presence of Prof. Tanaka (left) and Prof. Gessner (right) (photograph: © Tohoku University)

As from October, Prof. Frömel will supervise students during their master's thesis and in project works, and on behalf of the Japanese partner he will organize the student exchange between Fraunhofer ENAS and the Tanaka Laboratory.

The research themes pursued by Prof. Frömel himself and by assistants and students supervised by him are the following:

- Acoustic micro actuators - electromagnetically driven micro speakers that are cheaper and more energy-efficient than those produced by means of precision engineering
- Thermoelectric power generators - increase of efficiency by improving thermoelectric materials by exploiting nano effects
- Magnetic materials - deposition and structuring of magnetically hard and soft materials for use in MEMS

Gessner-Group in WPI-AIMR:

Since 2007, Prof. Dr. Thomas Gessner has been working as Principal Investigator within the WPI-AIMR of the Tohoku University. He has been invited to establish a research group in the field of "NEMS/MEMS devices and micro/nano manufacturing technologies" at the Tohoku University in the Esashi laboratory.

At present his research team at the Tohoku University consists of three assistants and one exchange student of the Technische Universität Chemnitz University of Technology. It focuses on the joining technology of bonding by means of nano structures and

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metallic glass, and on micro-electro-mechanical systems (MEMS) with new functional materials. The scientists studied for example possible applications of metallic glass in micro systems.

In 2005, 2010 and 2013 the Fraunhofer-Gesellschaft concluded cooperation contracts with the city of Sendai. In order to strengthen the cooperation between Fraunhofer ENAS and WPI-AIMR of the Tohoku University, a research and development center was established supporting the joint strategic research. The Fraunhofer project center "NEMS/MEMS Devices and Manufacturing Technologies" at the Tohoku University started its work on 1 April 2012. It is directed by Prof. Dr. Masayoshi Esashi and Prof. Dr. Thomas Gessner, together with Prof. Dr. Shuji Tanaka.

About Jörg Frömel

Jörg Frömel studied microsystem technology at the Technische Universität Chemnitz until 2002. After his course of studies he initially worked for 2 years as scientific assistant at the Fraunhofer Institute for Reliability and Microintegration in the department Micro Devices and Equipment in Chemnitz. After that he was working for 3 years at the Center for Microtechnologies of the Technische Universität Chemnitz.

From 2007 until the end of July 2015 Mr. Frömel had first been working as scientific assistant at the Chemnitz branch of the Fraunhofer Institute for Reliability and Microintegration, and after the integration of that branch of the institute into Fraunhofer Institute for Electronic Nano Systems ENAS in Chemnitz he continued his work there. From 2009 to 2015 he was deputy head of the department System Packaging at Fraunhofer ENAS.

In May 2015 Mr. Frömel concluded his research works for his graduate thesis with the title "Gallium-based Solid Liquid Interdiffusion Bonding of Semiconductor Substrates near room temperature". He obtained essential results for it during his 3 six-months stays as visiting scientist at WPI-AIMR of the Tohoku University.

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