

## High Honor for Hans Joachim Blaß

KIT Scientist Is Granted the 2010 Marcus Wallenberg Award



*Professor Dr.-Ing. Hans Joachim Blaß in his laboratory. (Photo: Judith van der Meulen)*

**On April 16, the Marcus Wallenberg Foundation will announce that the 2010 Marcus Wallenberg Award in the amount of 2 million Swedish Krona (about EUR 200,000) goes to Professor Dr.-Ing. Hans Joachim Blaß from Karlsruhe Institute of Technology (KIT). Professor Blaß is granted this award for his pioneer work in the field of innovative and reliable timber connections with a high force transmission capacity that can be applied efficiently on construction sites and in industrial processes. Representatives of the media are cordially invited to come to the proclamation of the award on April 16.**

This event on April 16 will take place at 11.00 hrs at the Altes Bauingenieurgebäude (building 10.81, room 318) on Campus South of Karlsruhe Institute of Technology. After the proclamation, an experiment will be performed at a laboratory of the institute in order to illustrate an important aspect of the scientific work of Professor Blaß. It will be demonstrated that wooden walls can absorb the loads dur-

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ing earthquakes rather well and, hence, are much more stable than conventional walls of bricks or reinforced concrete. The experiments are aimed at optimizing earthquake-proved constructions of wooden elements. This type of construction is also suited for disaster zones, as the buildings can be erected easily, rapidly, and without large machines. After the demonstration, there will be sufficient time for a conversation with Professor Blaß and the representatives of the Marcus Wallenberg Foundation.

As a construction material, wood has several important environmental advantages. It is renewable, it stores carbon sequestered from carbon dioxide in the atmosphere, it offers excellent possibilities of reuse, and, if recycled, it may be used as a carbon dioxide-neutral energy source.

Competitiveness of wood as a construction material depends on the properties of the wood components and also largely on the connections between the components. In wood constructions, the capacity of connections to transmit forces generally is a limiting factor. The anisotropic nature of wood, with much weaker mechanical properties laterally to the fiber than in fiber direction, aggravates the design and modeling of force transmission of connections. So far, this has limited the use of wood in general and in particular for larger buildings like bridges, big warehouses, sports arenas, agricultural buildings, industrial buildings, and sensational public buildings.

The extensive research activities of Professor Blaß resulted in fundamental construction knowledge on wooden connections. Based on mechanical principles, Blaß succeeded in transferring this knowledge into a usable format for practicing engineers. He also developed methods for the construction and calculation of connectors and connections and played a major role in the international standardization of these methods.

Professor Blaß paved the way for the use of self-drilling screws in wood constructions. He promoted the manufacture of very large screw dimensions and developed and introduced these connections for applications under high load. This work allowed for the erection of wood constructions and also resulted in strongly simplified methods for the repair of damaged and the reinforcement of new timber girders.

Due to the development and introduction of efficient connections that are easy to install, it has become possible to build large wooden constructions and to save wood material. Attractive logistic solutions have been conceived on the basis of the use of prefabricated components.

The developments made by Professor Blaß are relevant to an increasing use of large wood components, such as glue-laminated timber. In Europe, its use has increased by a factor of four compared to the mid 1990s. Work of Blaß has resulted in a significant increase in the market share of timber frames for the new construction of apartments. In the United Kingdom for example, this share increased by a factor of more than two in the past ten years.

### **Professor Dr.-Ing. Hans Joachim Blaß**

Professor Blaß, born in 1955, made his PhD at the Department of Civil Engineering and Surveying of the University of Karlsruhe. After employments with the University of Karlsruhe, the Canadian company of Forintek Canada Corp., and TNO Building Research in Delft, the Netherlands, he was appointed Professor for Wood Constructions at the Technical University of Delft. Since 1995, he has been Professor of Timber Construction at Karlsruhe Institute of Technology (KIT) that was founded by a merger of Forschungszentrum Karlsruhe and Universität Karlsruhe on October 01, 2009. He is heading the Research Center for Steel, Timber and Masonry. Apart from his academic career, Professor Blaß is active in the standardization of wood constructions as well as in knowledge transfer in the field of complex wood constructions inside and outside of Europe. Professor Blaß is partner of the Karlsruhe Engineering Office Blaß & Eberhart.

### **Award Ceremony and Symposium**

On September 27, 2010, the award will be handed over to Blaß by His Majesty the King of Sweden at Stockholm during a ceremony. On September 28, a symposium will take place on the research work of Professor Blaß and its impacts on forestry and forestry product industry.

## **The Marcus Wallenberg Award**

The Marcus Wallenberg Award is an international award commemorating Marcus Wallenberg, the deceased chief executive officer of Stora Kopparbergs Bergslags AB (now Stora Enso), and his achievements. Every year, the award is granted for pioneer research of a scientist or a small group of cooperating scientists. In the opinion of the election committee and the management of the foundation, this breakthrough will have significant impacts on industry. The award is also supposed to stimulate further worldwide research. This year, the award is granted for the 27<sup>th</sup> time. The prize value is SEK two million.

Further information on the Marcus Wallenberg Award may be obtained at [www.mwp.org](http://www.mwp.org) or from the Director of the Marcus Wallenberg Foundation, Per G. Broman (mobile phone +46-(0)70-5776993, fax +46-(0)23-711581).

**Karlsruhe Institute of Technology (KIT) is a public corporation and state institution of Baden-Württemberg, Germany. It fulfills the mission of a university and the mission of a national research center of the Helmholtz Association. KIT focuses on a knowledge triangle that links the tasks of research, teaching, and innovation.**

This press release is available on the internet at [www.kit.edu](http://www.kit.edu).