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DAYS OF INDIA 2012 - 2013
60 Jahre Deutsch - Indische Zusammenarbeit

Leopoldina-Lecture

Venue:

German National Academy of Sciences Leopoldina
Banquet Room
Jägerberg 1 (former Moritzburging 10)
D-06108 Halle (Saale)

Challenges for the Engineering Sciences

Prof. Matthias Kleiner and
Prof. Narinder Kumar Gupta



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Tuesday, 6 November 2012
05.30 pm



Professor Dr. Narinder Kumar Gupta, Emeritus Professor IIT Delhi

Professor Gupta is an eminent scientist in the area of large deformation of metals and composites at low, medium and high rates of loading. Applications include problems of constitutive relations, crashworthiness of road and air vehicles and metal forming. He obtained his PhD at IIT Delhi, where he continues to be on the faculty of Applied Mechanics since 1971. He has academic associations with universities in Germany, Japan, New Zealand, South Africa, Russia and UK, and is/was on the editorial boards of a dozen scientific journals of repute. Prof. Gupta is a fellow of the Science and Engineering Academies of India, he was Vice President of the Indian National Science Academy, member of IUTAM bureau & congress committee and President of professional societies. He has received numerous honours which include the Padma Shri from the President of India, JC Bose award, Bhasin Award, AvH Research Award, DFG Mercator Professorship and Doctor Honoris Causa of the Russian Academy of Sciences.

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Prof. Dr.-Ing. Matthias Kleiner ML, TU Dortmund University

In 1991, Prof. Matthias Kleiner completed his habilitation in the field of forming technology. In 1994, he joined the faculty of the newly founded Brandenburg Technical University of Cottbus as Professor of Forming Technology in the Chair of Design and Manufacturing. In 1997, Professor Kleiner was awarded the DFG's Gottfried Wilhelm Leibniz Prize, the most prestigious prize in German research. In 1998, Professor Kleiner moved to the Technical University Dortmund, where he holds the Chair of Forming Technology. From 2004 to 2006, he served as managing director of the newly established Institute of Forming Technology and Lightweight Construction (IUL). He has played an instrumental role in a number of international and, above all, interdisciplinary research projects and research networks. Professor Kleiner was elected President of the German Research Foundation in 2007, is a member of numerous international professional committees and academies. In 2011, he co-chaired the German "*Ethics Commission for a Safe Energy Supply*".



Challenges for the Engineering Sciences

In a world in which the expectation on the academy to provide solutions for the future is growing, the engineering sciences have a particular role to play. They are expected to provide technological innovation that will underpin continued social development and economic growth.

In their lecture "Challenges for the Engineering Sciences", Prof. Matthias Kleiner and Prof. Narinder K. Gupta will reflect on developments in their discipline from a broad range of perspectives. Drawing on examples from their respective fields of research – forming technology and lightweight construction on the one hand, mechanics and materials on the other – they will illustrate the breadth and complexity of the engineering sciences. Moreover, they will explore the particular relationship between basic and applied research, for example the interplay between simulation theory and experimental practice.

Placing the engineering sciences in a broader context, they will also highlight the increasing importance of inter-disciplinarity and the potential for cooperation with, for example, scholars in mathematics and the physical and life sciences. The question of knowledge transfer and exchange between academic researchers and industry is also important in this regard. Finally, they will discuss the future direction of their discipline and the frameworks required for the continued flourishing of the engineering sciences in the modern world, not least the support structures needed to develop the next generation of engineers.

