
Preface

This book is dedicated to the 60th birthday of Matthias Kleiner by his friends from the international forming community. The title and content of this book “60 Excellent Inventions in Metal Forming” corresponds to the essence of the scientific and technical contribution of Matthias Kleiner, who is very well known for his creativity, out-of-the-box thinking, and innovations. He is not an engineer who is only interested in his specialist area and deals with the optimization of individual technical details. Instead, he is steadily interested in distinct topics and open to new ideas and opportunities. Matthias Kleiner is not a scientist who is doing research behind closed doors. Rather, he seeks contact and exchange with engineers, scientists from other disciplines, and every other people. By this, he defines the notion ‘open minded’ in a new and personal way. He appreciates the inspirations and the opportunities that arise from this contact and exchange and understands how to collate them to create something fundamentally new. He always understands be the multiplier as well as the catalyzer in one person and motivates other scientists and his own team in a participating and enjoyable way. Thus, he created many innovative, unconventional ideas, which were often ahead of their time. Numerous patents, publications, and doctoral theses are clear indicators for his success.

The scientific career in academia offered him the necessary environment for developing and trying out unconventional ideas. He initiated several new research activities that achieved international recognition such as Curved Profile Extrusion, Flexible Manufacturing Chains for Lightweight Structures, Hydroforming, Bending, Advancement and Modelling of Electromagnetic Forming Processes, and others. Besides his engineering work, Matthias Kleiner has been involved for many years with the system of academic research. He has developed clear-sighted visions for the improvement of the frame conditions for research while never losing sight of solutions to obvious problems. Matthias Kleiner is a member of numerous local and foreign academies and scientific institutions, including the German Academy of Natural Sciences Leopoldina, the Berlin-Brandenburg Academy of Sciences, the Academia Europaea, the German Academy of Engineering Sciences (acatech), the International Academy for Production Engineering and the Scientific Society of Production Technology (WGP), and the International Academy for Production Engineering (CIRP).

The 60th birthday of Matthias Kleiner is a wonderful opportunity to recognize his impressed and unique national and international contributions to the metal forming community and the research community in general. As the editors, we are very much impressed about the spontaneous and sincere readiness of all colleagues worldwide to accept our invitation to contribute to this book. This is obviously another clear indicator of the international and national recognition of Matthias Kleiner as a scientist, a colleague, and friend.

We would like to thank all colleagues of the CIRP, the colleagues of the Japanese Society for Technology of Plasticity (JSTP) – especially Professor Kozo Osakada for organizing and editing the Japanese contributions –, the colleagues of the German Association of Metal Forming (AGU), Mr. Thomas Lehnert (Springer-Verlag) and his team for supporting our idea and accepting to print this unique book through the distinguished publisher Springer-Verlag, Dr. Nooman Ben Khalifa (Chief Engineer for Research, IUL) for organizing the structure of the book, Dr. Frauke Maevus (IUL) and Dr. Ramona Hölker (IUL) for their contribution to the preface and introduction, Mr. Lars Hiegemann (research assistant at the IUL) for preparing the print of the book and keeping the contact with all authors and the publisher, and all research assistants at the IUL for reviewing the contributions.

The Editors, January 2015

A. Erman Tekkaya
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Alexander Brosius

Matthias Kleiner wrote his doctoral dissertation at Dortmund University in 1987 on the topic “Multiprocessor Control in Metal Forming”. He habilitated in 1991 on the topic “Process Simulation in Metal Forming”. From 1994 to 1998, Matthias Kleiner built the Chair of Design and Manufacturing at the newly founded Brandenburg Technical University of Cottbus (BTU Cottbus) as a full professor. In 1997 Matthias Kleiner was awarded the Gottfried Wilhelm Leibniz Prize by the DFG (Deutsche Forschungsgemeinschaft – German Research Funding Organization). He was appointed as the Head of the Chair of Forming Technology of Dortmund University in 1998. In 2004 he transformed the chair into today’s Institute of Forming Technology and Lightweight Construction (IUL – Institut für Umformtechnik und Leichtbau). 2007 he was elected, as the first engineer in history, as president of the DFG for a term of 6 years. Since 2014 Matthias Kleiner has been the president of the Leibniz association, where he can contribute with his excellent skills to lead a large and successful research association, his understanding of the problems of the scientific research in Germany, and his visions towards a European research landscape.

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