

Preface

The 4th edition of the increasingly successful annual conference series WGP-Jahreskongress takes place in 2014. Again the Department of Mechanical Engineering of the Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) has the honour and pleasure to host the conference. Like last year the the Institute of Manufacturing Technology (LFT) and the Institute for Factory Automation and Production Systems (FAPS) are willing to be the host again.

The Department of Mechanical Engineering is the youngest Department of the Faculty of Engineering. It is little more than 30 years of age but has used this time to come to maturity and reach its position within the field of research in Production Engineering in Germany. Roughly 250 researchers are working in 8 institutes that build the department. Covering different bachelor and master courses round about 3.500 students are taking classes taught by the Department. The Department is well connected to the other four faculties of the FAU, one of the very few universities integrating technology into a fully developed classical university providing all subjects from law and business, medicine, philosophy to science and, as the youngest faculty, engineering. This faculty and especially the Department of Mechanical Engineering is well connected to partners in Germany, Europe and the world in order to do research in all fields of interest, may it be fundamental research or application oriented development. Both organising institutes belong to the first group created in Erlangen in 1982 and are now headed by the 2nd generation of Professors. Prof. Marion Merklein is directing the LFT and her colleague Prof. Jörg Franke is head of FAPS.

Due to the success of the new face of the WGP-Jahreskongress created by the organisers in Erlangen last year, there are no major changes in 2014. The vision to organise a meeting of young researchers presenting their own results under their own name is still the primary goal. However, due to a constant development in research, the advisors can be a little more present this year. Nevertheless, we want to provide a floor for the next generation of researchers to start networking within WGP, the German Academic Society for Production Engineering, in order to be prepared and connected to shape the future. To accomplish this, the program does hold scientific sessions but is also giving sufficient breaks for discussions and exchange and does hold an informal meeting to get to know each other. Due to the increasing interest in this conference and the connected chances and opportunities the conference will last 1.5 days this year. Of course we welcome all current members of the WGP and hope that they enrich the discussions with their experience and wisdom, guiding the younger and young researchers. We will have the pleasure to have listen to 75 presentations of young scientists that have been organised in 5 parallel sessions covering forming, cutting, assembly, machines and organisation. We will have 3 plenary presentations on prominent, up to date topics. We hope these keynotes, the presentations and the discussions will foster new research ideas and cooperation. As additional highlights 2 rewards will be presented. The Otto Kienzle-Gedenkmünze is awarded to a young researcher, indicating that noticeable success can be reached within a few years of scientific working. The Kurt-Lange-Medaille is awarded by the Arbeitsgemeinschaft Umformtechnik. It is given to a person that has provided significant additions to the fundamentals of forming technologies by basic research.

Please enjoy your stay in Erlangen and your visit to this year's WGP-Jahreskongress!

Prof. Dr.-Ing. habil. Marion Merklein

Prof. Dr.-Ing. Jörg Franke

Organisation of the 2014 WGP

Editors

Prof. Marion Merklein	Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany
Prof. Jörg Franke	Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany
PD Dr.-Ing. Hinnerk Hagenah	Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

Conference Scientific Committee

Prof. E. Abele	Prof. J. Hesselbach	Prof. V. Schulze
Prof. W. Adam	Prof. G. Hirt	Prof. G. Seliger
Prof. J. Aurich	Prof. H. Hoffmann	Prof. D. Spath
Prof. A. Behrens	Prof. B. Karpuschewski	Prof. E. Tekkaya
Prof. B.-A. Behrens	Prof. M. Kleiner	Prof. H. Tönshoff
Prof. H. Bley	Prof. F. Klocke	Prof. E. Uhlmann
Prof. D. Biermann	Prof. R. Kopp	Prof. A. Verl
Prof. C. Brecher	Prof. J. Krüger	Prof. W. Volk
Prof. E. Brinksmeier	Prof. F. Lierath	Prof. F. Vollertsen
Prof. L. Cronjäger	Prof. M. Liewald	Prof. G. Warnecke
Prof. B. Denkena	Prof. W. Maßberg	Prof. H.-J. Warnecke
Prof. W. Eversheim	Prof. H. Meier	Prof. M. Weck
Prof. K. Feldmann	Prof. M. Merklein	Prof. K. Weinert
Prof. J. Fleischer	Prof. J. Milberg	Prof. E. Westkämper
Prof. J. Franke	Prof. R. Neugebauer	Prof. H. Weule
Prof. M. Geiger	Prof. P. Nyhuis	Prof. H.-P. Wiendahl
Prof. G. Goch	Prof. G. Reinhard	Prof. J. Wulfsberg
Prof. P. Groche	Prof. R. Schmitt	Prof. M. Zäh
Prof. K. Großmann	Prof. B. Scholz-Reiter	PD H. Hagenah
Prof. U. Heisel	Prof. G. Schuh	

Local Organising Committee

Prof. Dr.-Ing. habil. Marion Merklein	LFT, FAU Erlangen-Nürnberg, Germany
Prof. Dr.-Ing. Jörg Franke	FAPS, FAU Erlangen-Nürnberg, Germany
PD Dr.-Ing. Hinnerk Hagenah	LFT, FAU Erlangen-Nürnberg, Germany

Acknowledgements

The organisers of the WGP Jahreskongress 2014 wish to thank the following companies and institutions for their sponsorship and support



BOSCH

Invented for life

Robert Bosch GmbH

brose
Technik für Automobile

Brose



Hirschvogel
Automotive Group

Hirschvogel Holding GmbH

SCHAEFFLER



FAG

Schaeffler AG



FRIEDRICH-ALEXANDER
UNIVERSITÄT
ERLANGEN-NÜRNBERG

Friedrich-Alexander Universität
Erlangen-Nürnberg