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EDITORIAL

Dr. Paul E. Krajewski

Dr. Peter A. Friedman

Dr. Mark R. Stoudt

Prof. Michael P. Miles

Innovations in Metal Forming

Converting raw metals into personal or commercial goods has been occurring since the onset of the Bronze Age. Since the Industrial Revolution metalworking has predominantly consisted of converting low-carbon steel into a variety of industrial products, largely using conventional stamping as the metalworking technique. More recently, emphasis on next generation materials such as aluminum, magnesium, high-strength steels, and titanium has led to the development of alternative forming processes which can convert these metals into a variety of useful shapes and products. This, combined with developments in robotics, advanced simulation and modeling methodologies and improved measurement techniques has led to the development of a variety of highly automated, metal-forming processes.

This issue captures a collection of papers that were presented at the 2006 Materials Science & Technology meeting in Cincinnati, Ohio as part of the Innovations in Metal Forming symposium. This symposium was sponsored by The American Ceramic Society (Acers), Association for Iron & Steel Technology (AIST), ASM International, and The Minerals, Metals & Materials Society (TMS). The symposia was held over three days and consisted of four sessions: ''Superplasticity and Hot Blow Forming,'' ''Warm Forming, Electromagnetic Forming, and Hydroforming,'' ''Springback and Formability,'' and ''Tooling, Tribology, and Bulk Forming.''

In ''Superplasticity and Hot Blow Forming,'' recent developments in hot blow forming were reviewed including a combination of application oriented papers as well as more fundamental research on deformation and formability at elevated temperatures. In ''Warm Forming, EMF, and Hydroforming,'' a number of developments were reviewed in these emerging technologies which show considerable promise for application to lightweight materials such as aluminum and magnesium. The ''Springback and Formability'' session focused on trying to improve both understanding and modeling of this complex phenomena, with a strong focus on ferrous materials such as high strength steel. Finally, the ''Tooling, Tribology, and Bulk Forming'' session reviewed new technologies for producing dies, understanding the complex tribological interactions during forming, and other bulk-forming processes. This edition of JMEP captures papers from a cross-section of these sessions and provides a glimpse into the future of metal working.

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Dr. Paul E. Krajewski
Laboratory Group Manager, Technical Fellow
General Motors R&D Center, Warren, MI.
e-mail: paul.e.krajewski@gm.com

Dr. Peter A. Friedman
Technical Leader, Ford Research and
Innovation Center, Dearborn, MI.
e-mail: pfriedma@ford.com

Dr. Mark R. Stoudt
Research Engineer, National Institute of Standards
and Technology (NIST), Gaithersburg, MD.
e-mail: Mark.stoudt@nist.gov

Prof. Michael P. Miles
Asst. Professor, Brigham Young University,
Provo, UT.
e-mail: mmiles@byu.edu