

Preface

Metal forming, has for many years, been a vitally important branch of industry. It encompasses some of the most efficient methods of shaping metals and alloys. Metal forming products are used in almost all areas of our life, from ships and aircraft, to washing machines and computers, hip prosthesis and needles. Therefore, metal forming attracts the interest of scientists, academics and researchers all around the world. This provides a great motivation for organising the conference as a forum for discussion and dissemination of recent developments, innovations and advances in this field of science and technology.



The special edition of the journal “steel research international” contains papers presented at the 14th Metal Forming International Conference, which was held in Kraków, Poland on September 16–19, 2012. Metal Forming 2012 was the 14th in a series of International Conferences, organized since 1974 by Akademia Górniczo-Hutnicza in Kraków, Poland. From 1994 to 2010 the Conference was organised biennially, jointly with the University of Birmingham, UK. The latter was replaced, as a co-organiser, by the University of Toyohashi, when the conference was held in Japan for the first time in 2010. Metal Forming 2012 was organised in Kraków, Poland, by the Akademia Górniczo-Hutnicza, together with the University of Toyohashi and, for the first time, by the University of Palermo, which has joined the organisation team. The next Metal Forming conference will take place in Palermo, Italy in 2014.

The papers published in this volume represent the state-of-the-art in the field of metal forming science and technology. The contents of 353 contributions from authors representing universities, research institutes and industry from 29 countries around the world demonstrate the results of a very wide spectrum of research, from micro- and nano- forming, to the digital materials modelling. The largest number of papers tries to answer the vital question of how to obtain the advanced properties required of final products by way of the proper choice of the metal forming process parameters. Scientists examine material behaviour during deformation and properties of the final products after deformation. The dominant topic of sheet forming reflects the current demands of the world market. Other important problems of the forming of new and special materials, such as magnesium, semi-solid metals, powders or high strength steels are also covered by several articles. Testing of materials and identification of the parameters of constitutive models and contact problems are the main concern of some papers. A large group of articles focus on deformation mechanics and modelling of metals, as well as the forming technologies and processes.

We would like to express our gratitude to the reviewers of the papers submitted, principally to the Members of the Scientific and Steering Committees of the Conference, for their hard work and critical, but constructive remarks, which were helpful in maintaining the high scientific level of the Conference. We hope that the proceedings will become a source of valuable information and inspiration in the scientific work for academics, researchers, engineers and students, and we were pleased to welcome in Kraków every participant of the 14th Metal Forming Conference.

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