

Preface

The S2P International Conferences are dedicated to the science and technology of semi-solid processing of metal alloys and composites. Since the discovery of the specific flow behaviour of metals in semi-solid state during the early seventies, this fascinating technology has experienced a dynamic and turbulent development history which has led to a whole family of new production processes, new equipment and industrial applications. In order to fully exploit the technical and economic potential of these new ideas it is important to achieve a better understanding of the microstructure development, flow behaviour, improved material and process modelling as well as process control. The S2P International Conferences have contributed to achieve this goal by providing a forum for scientists from various disciplines as well as for engineers and production specialists to learn from each other, to share the common knowledge and to develop a common sense on fundamental topics and industrial requirements.

The first S2P Conference was held in 1990 at the Ecole des Mines de Paris in Sophia Antipolis, France. Other conferences followed in 1992, Cambridge, MA, USA; 1994, Tokyo, Japan; 1996, Sheffield, England; 1998, Denver, CO, USA; 2000, Torino, Italy; 2002, Tsukuba, Japan; 2004, Limassol, Cyprus; 2006, Busan, South Korea; 2008, Aachen and Liege, Germany and Belgium; 2010, Beijing, China and 2012, Cape Town, South Africa.

The 13th S2P Conference, organized by the German University of Technology in Oman (GUtech), took place from September 15th - 17th 2014 on the university's premises in Muscat, Sultanate of Oman.

To ensure a high quality of the conference contributions the submitted papers have been individually reviewed. We definitely want to thank both, the reviewers and the authors for their valuable work and effort to achieve the best possible results. The conference concentrates on the advancement of fundamental knowledge and development of materials and industrial processes for semi-solid manufacturing of high performance metal components. The conference and proceedings are organized in four distinct sections: Material Development and Characterisation; Rheology, Modelling and Simulation; Process Development and Industrial Application.

A special thanks to all who were involved in organizing the conference and in editing these proceedings.

M Modigell

Chairman of the 13th S2P

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S2P 2014

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R. Gadow, M. Silber and M. Wenzelburger

SSM Provides Important Advantages; So why Has SSM Failed to Achieve Greater Market Share?

J. Jorstad

Industrial Applications for Aluminum Semi-Solid Castings

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Simulation of Thixoforming Processes – Rheological and Modelling Aspects

A. Alexandrou and M. Modigell