

Editorial

Porous metals and metallic foams are presently the focus of very active research and development activities around the world, both at the academic and industrial levels. These materials are used when the combination of metal properties with the characteristics of porous structures provides significant advantages over other types of materials. Porous, cellular and foamed metals are now produced by various companies and used in numerous applications such as light-weight structures, biomedical implants, filters, heat exchangers, sound absorbers, mechanical damping devices, electrodes, sensors and catalyst substrates.

Since its creation at the turn of the 20th century, the biennial International Conference on Porous Metals and Metallic Foams (Metfoam) is the main forum for scientific and technological exchanges on metallic foams and porous metals. The conference covers material development, characterization and applications of porous, cellular and foamed metals. After the first two editions held in Bremen (1999 and 2001), the conference went to Berlin in 2003 and Kyoto in 2005.

The fifth edition of Metfoam was held for the first time in North America, in Montreal, Canada, in September 2007. This edition of the conference attracted its largest attendance, 247 participants from 27 countries. The 219 scientific communications were split into 76 % from academia/national laboratories and 24 % from the industry. The conference program and attendance confirmed that this field continues to grow in terms of both basic and applied researches and applications. Besides the developments on aluminum foam that have been well represented, the conference was marked by a significant increase in the number of communications about non-aluminum foams. The latest developments were presented on subjects such as porous titanium for biomedical applications, nickel and steel foams for energy-related applications (batteries, fuel-cells, and engines) and nano-porous gold. These new directions will hopefully trigger the development of new applications and/or the improvement of existing ones.

This special issue of Advanced Engineering Materials is a collection of articles selected from the Metfoam 2007, 5th International Conference Proceedings (Porous Metals and Metallic Foams, L. P. Lefebvre, J. Banhart, D. C. Dunand eds., 2007. DesTech Publications, Inc.). The first article presents the current status of research and development on metallic foams and porous metals and the selection of articles gives more specific examples of recent developments in this field. We hope this special issue will provide a good review for those who are already active in this field as well as for engineers and product designers looking for materials having unique combination of properties.

See you in Bratislava in 2009.

Montréal, Berlin, Evanston, July 2008

Louis-Philippe Lefebvre (Conference chairman)

John Banhart (Technical program co-chair)

David Dunand (Technical program co-chair)