

# Preface

ICSAM 2012, the 11<sup>th</sup> International Conference on Superplasticity in Advanced Materials, was held in Ecole des Mines Albi, France, from the 3<sup>rd</sup> to 5<sup>th</sup> July 2012. More than 120 scientists from universities, research centers and industry from 17<sup>th</sup> countries came together to report and discuss on recent advances in the field of superplastic forming. 71 oral contributions and 14 posters were presented in 21 sessions over the 3 days. Within these, 62 full papers were submitted and peer reviewed and are published in this book as a special edition of Material Science Forum Journal, by Trans. Tech. Publications.

History of ICSAM series goes back to the first conference held in 1982 in San Diego. The following editions, on an triennial basis, take place successively in Grenoble, Blaine, Osaka, Moscow, Bangalore, Oxford, Chengdu and Seattle. Ecole des Mines d'Albi, that has at Institut Clément ADER an intensive activity in research focused on Materials and Processes, was honored to have been selected for the organization of the 2012 edition of ICSAM. Moreover Albi town, recently elected as a new UNESCO World Heritage Site due to his Episcopal City, was proud to host the distinguished ICSAM scientific community.

Numerous topics were covered during this conference dealing with

- more fundamental aspects of the mechanisms of superplasticity, grain boundary sliding, deformation and cavitation, microstructures and textures,
- superplasticity in various families of materials, like ceramics, light alloys, titanium alloys, intermetallics,
- superplastic processing, including grain refinement and processing, high strain rate and low temperature superplasticity, superplastic forging and rolling,
- numerical modeling of materials, forming process and SPF structure simulation,
- material testing, forming dies, post SPF processes and properties,
- industrial applications mostly in aeronautics and automotive.

There is nowadays a general trend to lower the processing costs mainly for high temperature titanium alloys, and one of the main route followed to reach this goal is to develop new fine grain alloys that can be formed at lower temperature (700°C versus 900°C) and, as a consequence, may reduce production costs related to die investments and energy consumption. This topic was discussed during a dedicated panel discussion entitled “Fine grain titanium alloys : Superplastic Forming versus Hot forming”.

During the conference the best poster Award, sponsored by AIRBUS, was attributed to Toshiaki Manaka, a young researcher from the Graduate School of Science and Engineering, Ibaraki University, Japan.

This conference was supported by Albi City, Conseil Général du Tarn, Région Midi Pyrénées, AIRBUS France, SCHULER GmbH, ESI and Saint-Gobain-SEVA, Ecole des Mines d'Albi and Institut Clément ADER.

ICSAM 2015 will be organized in Tokyo, under the hospice of the Japan Society for Research on Superplasticity

Prof. Gerard Bernhart  
Chairman of ICSAM 2012,  
Albi, France

## **ICSAM 2012-09-14**

### **11th International Conference on Superplasticity in Advanced Materials**

3-5 july 2012  
Ecole des Mines Albi, Albi, France

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Institut Clément Ader  
Ecole des Mines Albi, Albi, France

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