Preface

The International Conference on Superplasticity in Advanced Materials (ICSAM-2000) represents the seventh in the series of international conferences on this topic held every three years starting with San Diego, USA (1982), then Grenoble, France (1985), Blaine, Washington, USA (1988), Osaka, Japan (1991), Moscow, Former Soviet Union (1994), and Bangalore, India (1997). The interest in superplasticity was confined to the developed nations in the early 70's and mid 80's and has become a subject of intensive study throughout the world from the late 80's onwards. On a similar timeline superplastic forming with and without diffusion bonding has matured from a novel manufacturing process to a well-established advanced production process. Concomitant to that change funding in the area of fundamental aspects of superplasticity has declined significantly in the advanced countries, especially USA. This is very unfortunate since our knowledge even today is not comprehensive enough for us to *design* materials/processes capable of superplasticity in a cost-effective manner.

Once the exclusive domain of space and aeronautical industries, superplastic forming (SPF) has recently made inroads into automotive, rail, architectural, sports, dental and entertainment sectors. However, due to a number of technological issues ranging from die material selection, die design, surface finish (e.g. alpha casing), differential thinning, temperature-pressure-time cycle determination and the overall economy, the application of superplasticity is nowhere near its full potential. Hence in this conference special emphasis was placed on industrial applications. Contrary to the historical precedence, the conference was opened with this topic and ended with the same topic. In all there were six different topical symposiums within the conference.

The meeting returned to United States after 1988 and was well attended by delegation from 22 different countries. The entire meeting was coordinated on the emerging internet with a dedicated website http://icsam.eng.fsu.edu. Extended abstracts were submitted on the web; after a brief review they were compiled and distributed during the conference. The number of countries represents the maximum number of countries participating in the ICSAM series, and perhaps any superplasticity related event in history. This validates the previous observation that superplasticity is alive and thriving in many parts of the world. Scientific research in superplasticity has broadened to include many material systems like metals, intermetallics, ceramics, their composites, nanocrystalline materials and even metallic glasses.

With a total attendance of about 130, many international delegates requested oral presentations, which forced some parallel sessions for the first time. Also for the first time, the entire proceedings were very thoroughly reviewed by experts. Most of the papers were peer-reviewed by at least two referees. Sincere thanks to A.J. Barnes, T. Sakuma, T.G. Nieh, K. Higashi, R. Sadeghi, A.K. Ghosh, H. Iwasaki, T. McNelley, K.A. Padmanabhan, M. Mabuchi, C. Shet, S.C. Rama, J. Humphries, R. Rajagopal, R.S. Misra, O. Ruano, T. Aizawa, A.K. Mukerjee, N. Furushiro, D. Rodriguez, T.G. Langdon, B. Bai, R.Z. Valiev, F. Mohamed, N. Ridley, J. Pimenoff, J.J. Blandin, R. Todd, O.A. Kaibyshev and R. Grimes for their service. The quality of the book is reflected in their timely and careful review; and typically these books (series) remain one of the highly read and referred volumes in superplasticity. There are about 90 papers in this volume, which includes about 15 presented in poster sessions. Only papers presented (oral/poster) at the

conference were included in the review process. Most of the authors promptly responded to the corrections and returned the manuscripts in a timely manner. The process is time consuming, but in the interest of quality the whole exercise is worthwhile and should be continued in future meetings.

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Finally I would like to express my gratitude and appreciation for my wife Usha Chandra and daughters Alli and Kavita Chandra for their patience and encouragement during the long deliberations of the meeting.

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