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Cover Photo Description: Comparisons of observed microstructures with the predicted microstructure patterns in the (001)/[100] orientation for (a) P=200 W, V_b=4 mm/s and (b) P=375 W, V_b=30 mm/s. From paper on Effect of Melt Pool Geometry on Crystal Growth and Microstructure Development in Laser Surface-Melted Superalloy Single Crystals by Weiping Liu and John N. DuPont (Department of Materials Science and Engineering, Lehigh University, 5 East Packer Avenue, Bethlehem, PA 18015, USA.)
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Preface

The International Conference on Joining of Advanced and Specialty Materials (JASM) VII was held at the 2004 ASM Materials Solutions Conference in Columbus, OH (October 18–20, 2004). The conference highlighted advances in joining technologies for both established and emerging engineering materials. Several focused sessions were held to address the joining needs of key industries. Session topics included: Brazing, Microjoining (2), Joining and Sealing in Fuel Cell Applications, Pb-Free Solders (2), Repair of Engine Components, Fusion Welding and Practical Aspects of Joining. A special session honoring the achievements of Prof. Glenn Edwards who has recently retired from the Colorado School of Mines was also held.

The JASM VII Conference again set records for participation with over 50 presentations and over 30 manuscripts in these proceedings. The conference was truly international in flavor with about half of the papers being given by our colleagues from outside the US. The success for the conference derived from the hard work of many people. The program organizers wish to thank the rest of the organizing committee as well as the session chairs for their time and effort. Appreciation is also extended to the proceedings editors. Most importantly, we would like to express our gratitude to the presenters for participating.

This year, for the first time, best paper/presentation awards were given in the following three categories for participants in JASM VII: Best Research Paper, Best Student Paper, and Best Commercial Presentation. We are delighted to recognize the awardees for the following papers:


**Best Graduate Student Paper:** Microstructural Characterization of Eutectic Tin-Gold Solder as a Lead-Free Solution by W.D. Hunting.


**Program Organizers:**
Dr. T.J. Lienert (LANL)
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