References

1. Sumanth Shankar and Diran Apelian, "Die Soldering—Mechanism of the Interface Reaction between Molten Aluminum Alloy and Tool Steel," accepted for publication in *Metall. Trans.* (in press).
2. Sumanth Shankar and Diran Apelian, "Die Soldering—Effect of Process Parameters and Alloy Characteristics on Die Soldering," *Int. J. Cast Metals* (accepted and in press).
3. Sumanth Shankar and Diran Apelian, "Effect of the Die Material and Surface Treatment on the Soldering of Aluminum Alloys to Dies," *NADCA Transactions* (Rosemont, IL: NADCA, 2000).
4. Sumanth Shankar and Diran Apelian, "The Role of Aluminum Alloy Chemistry and Die Material in Die Soldering," *NADCA Transactions* (Rosemont, IL: NADCA, 1999), pp. 281–290.
5. Sumanth Shankar and Diran Apelian, "Effect of Variation of Aluminum Alloy Chemistry (Titanium and Strontium) on Die/Molten Metal Interface Interactions," Proceedings of the 5th Int. Molten Aluminum Processing Conf. (Des Plaines, IL: AFS, 1998), pp. 209–230.
6. Sumanth Shankar and Diran Apelian, "Die Soldering: A Metallurgical Analysis of the Die/Molten Metal Interface Reactions," *NADCA Transactions* (Rosemont, IL: NADCA, 1997), pp. 245–251.
7. R.W. Richards, *Int. Metals Reviews,* 39 (5) (1994) p. 191.
8. Sumanth Shankar, "A Study of the Interface Reaction Mechanism Between Molten Aluminum and Ferrous Die Materials" (Ph.D. Dissertation, WPI, Worcester, MA, April 2000).
9. James R. Woodruff, CMW, private communication (1999).
10. Susan M. Abkowitz, Dynamet Technologies, private communication (1999).
11. S.M. Abkowitz, A. Laitinen, and D. Apelian, "Shot Sleeve Life Extension with New MMC Material," *Light Metal Age,* 57 (1, 2) (1999), pp. 114–116.
12. D.N. Tsipas et al., "Degradation Behaviour of Boronized Carbon and High Alloy Steel in Molten Aluminum and Zinc," *Materials Letters,* 37 (Oct. 1998), pp. 128–131.

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News *(Continued from Page 16.)*

The 2002 Electronic Materials Conference (EMC), sponsored by the Electronic, Magnetic & Photonic Materials Division of TMS, grew both in the number of attendees and presenters over previous years. Showing an increase of 28 percent over last year's conference, the 2002 meeting featured 41 sessions and 305 individual presentations, while attendance increased by 30 percent over 2001, to 518 practicing professionals and students.

Conference abstracts were published in the July 2002 issue of the *Journal of Electronic Materials*. The Electronic Materials Conference and Device Research Conference will be held next year at the University of Utah June 25–27 and June 23–25, respectively.

CORRECTION

Due to editing gremlins, numerous roller coaster heights were incorrectly stated as "cm" rather than 'm" (!) in the article "Materials Give Roller Coaster Enthusiasts a Reason to Scream" (May 2002, pp 16–20). This does, to say the least, present a deceptively mild view of these scream machines. The correct heights are as follows: Superman The Escape, 126 meters; Tower of Terror, 115 meters; Steel Dragon 2000, 97 meters; *Millennium Force, 94 meters; Fujiyama, 79 meters; Titan, 75 meters; Goliath, 72 meters; Nitro, 70 meters; Speed, 68 meters; Mr. Freeze, Six Flags St. Louis, 66 meters; Mr. Freeze, Six Flags Over Texas, 66 meters; Son of Beast, 66 meters — ed.*

Washington News *(Continued from Page 14.)*

- Climate Change Science and Technology
- Education Research

In making funding decisions on these priorities, the Administration will apply the following tests:

- Relevance. "R&D programs must be able to articulate why this investment is important, relevant, and appropriate. Programs must have well-conceived plans that identify program goals and priorities and identify linkages to national and 'customer' needs."
- Quality. "R&D programs must justify how funds will be allocated to ensure quality R&D. Programs allocating funds through means other than a competitive, merit-based process must justify these exceptions and document how quality is maintained."
- Performance. "R&D programs must have the plans and management processes in place to monitor and document how well this investment is performing. Program managers must define appropriate outcome measurements and milestones that can be used to track progress towards goals, and assess whether funding should be enhanced or redirected."

The memo also makes it plain that "We encourage agencies to fund new, high-priority activities by reallocating resources from lower-priority or recently completed activities. Requests for funding above guidance levels will require a compelling rationale that the activity is important, that the agency is the best one to conduct the activity, and that funds from lower priority or recently completed programs cannot be substituted."

National Academy Calls for More Nanotechnology Investment

For nanotechnology to fulfill its promise of revolutionizing industry, the government-funded National Nanotechnology Initiative needs to increase its support of long-term research and promote more interdisciplinary effort, says a new report from the National Academies' National Research Council. Creative programs and long-term funding commitments are needed to encourage the development of interdisciplinary research. An independent advisory board composed of leaders from industry and academia should be established to provide guidance to federal agencies on important R&D opportunities in nanoscale science and technology, the report adds. Federal leaders of the initiative need to develop an overarching strategic plan and outline goals and objectives for the long term. Moreover, to move the science out of the laboratory and into society, continued investment is necessary in the development of nanotechnology instruments. The initiative will require continued collaboration at the local, national, and international level, the report emphasizes. Partnerships with industry should be stimulated and nurtured to make the science a commercial reality. The report is available at *national-academies.org.*