FLASHPOINTS

Newsletter, Vol. 2.1 Mar. 2006

Center for Lasers and Plasmas for Advanced Manufacturing

2006 June IAB Takes Place in Dallas Tx.

Attendees include, Directors, Dr. Rado Kovacevic (SMU), Dr. Mool C. Gupta (UVA) and Dr. Jyoti Mazumder (UM), as well as, Industry members. This is the IAB's first meeting in Dallas, and SMU looks forward to hosting the event. WELCOME!

SMU | CLAM
CENTER FOR LASER AIDED MANUFACTURING

FEATURED SITE: SMU Center

On June 1st and 2nd the Center for Laser Aided Manufacturing (CLAM) at Southern Methodist University (SMU) will host the first IAB of 2006. Southern Methodist University. Dallas, TX joined the University of Virginia and the University of Michigan as the third university site of the Industry/University Cooperative Research Center for Lasers and Plasmas for Advanced Manufacturing, in September of 2005. SMU is a doctoral research institution of more than 11,000 students with two extended campus centers. SMU brings to the I/UCRC for Lasers and Plasmas for Advanced Manufacturing national leadership in advanced manufacturing, photonics, computer science, and signal processing and control. (continued on page 2)

IN THIS ISSUE:

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Around the Sites (UVA, U of M, SMU)

NEW people--the UVA site welcomes administrative assistant, Shelly Kim Crowe. Some of you may already have had the opportunity to encounter Shelly via e-mail or telephone and appreciate her dedication, efficiency and cheerful attitude. The U of M site welcomes Magdi Azer and Marshall Jones, representatives of new IAB member GE Global Research and anticipates eagerly the addition of two new researchers to the U of M team.

NEW projects--With the approval of the SMU site membership, in Fall of 2005, the I/UCRC for Lasers and Plasmas adds a new dimension to the scope of its research projects. A few examples include 'hybrid processes based on laser/plasma assistance..., friction stir welding...,and thermo-mechanical modeling.

NEW events--Teleconferences are now a regularly scheduled event for both directors and IAB members. The decision was made at the Nov. 2005 IAB for more efficient communications between members. Chairperson, Bruce Craig of Spectra-Physics is investigating tradeshow attendance as a source for new members. A bulletin is in the works for distribution at the tradeshows.

NEW things to watch for--Look for updated websites from UVA and U of M with secure pages for MEMBERS ONLY and revised contact lists.

The SMU Crew

The SMU Research Team (from left to right: Mike Valant, Dr. Wei Tong, Peter Skarzenski, Dr. Gary Evans, Dr. Radovan Kovacevic, Dr. David Willis, Dr. David Johnson, Dr. Gemunu Happawana, Vijay Soundararajan, Eswar Yaraparedddy, Dr. Dechao Lin, Yang Shanglu, Srdja Zekovic, Rajeev Dwivedi

The SMU Center for Lasers Aided Manufacturing has been developing the concept of a multi-fabrication (MultiFab) system where a number of additive operations based on laser cladding, electron beam cladding in air, the micro-plasma powder cladding are combined with high-speed multi-axis machining using a single PC-based, CNC-controlled production platform. The same set-up could be used to perform scanning for reverse engineering, as well as for in-process and post-process inspection. Four U.S. patents related to the concept of multi-fabrication have been issued or approved in the last six months. Currently this project has been supported by NASA, Lockheed Martin Missiles and Fire Control, General Motors, Halliburton Energy Services, the Army Research Laboratory and

NSF. (continued on page 3)

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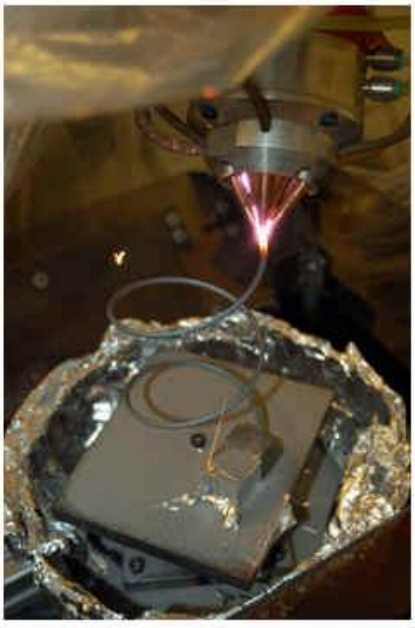
Samples from SMU Projects

Prototype of the MultiFab system

A number of R & D issues related to laser/plasma aided manufacturing processes have been addressed by the SMU research team including: thermo-mechanical modeling, sensing and control, heat-management, laser-based cladding, micro plasma-based powder cladding, cladding in air by electron beam assisted with a plasma arc window, micromachining, surface modification, welding, development of high power diode lasers, application of lasers in medicine, and hybrid processes based on laser/plasma assistance such as electrical arc welding processes assisted by laser beam and friction stir welding assisted by laser beam.



An example of multiaxial deposition on the MultiFab system

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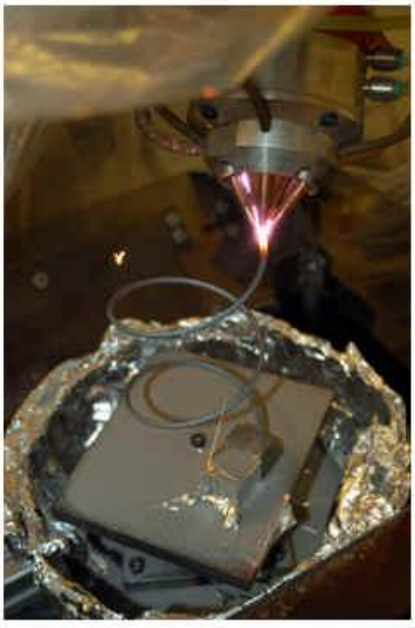

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