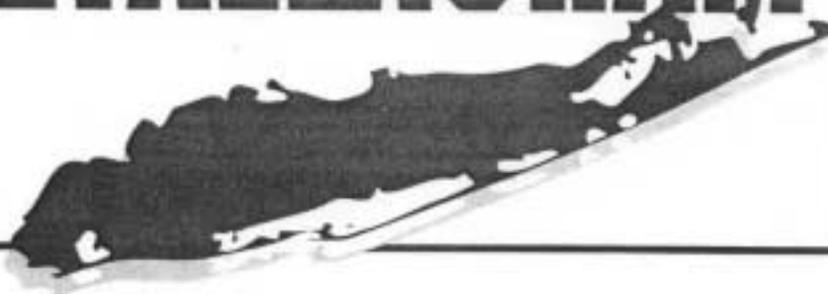




# METALLAGRAM

LONG ISLAND CHAPTER



Volume 45 Issue 6

Editor: Carl Czajkowski

## ***SUSTAINING MEMBERS NIGHT***

***Wednesday, March 17, 2004***

**Topic: Elastoplastic characterization of thermal spray coatings using instrumented indentation**

**Speaker: Dr. Andrew Gouldstone  
Stony Brook University**

**Location . . . *Burke & Shapiro Steakhouse, Smithtown, NY***

***Social hour ... 6:00 pm Dinner ... 7:00 pm Meeting ... 8:00 pm.***

***Members ... \$22 Guests ... \$25 ASM 25 years ... \$20 Students ... \$12***

***(New and recently transferred-in members free!)***

**Reservations - call Peter Indrigo (631-589-6666, ext. 2617)**

### **DIRECTIONS TO BURKE & SHAPIRO STEAKHOUSE (via the LIE)**

Take the LIE to the Sagtikos Parkway (Exit 53). Proceed onto the northbound Sagtikos Parkway, which eventually becomes the Sunken Meadow Parkway. Stay on the Sunken Meadow Parkway to Exit SM3E, Route 25 (Jericho Tpk.) East – Smithtown. Go east on Route 25 (Jericho Tpk.) for about 4 miles. You will pass under a LIRR trestle and a statue of the Smithtown Bull. Keep going on Route 25 (uphill), passing through two traffic signals. JUST BEFORE the second LIRR trestle, turn left on Elliot Place. Make an almost immediate first right into the restaurant parking lot. The full address of the restaurant is 155 West Main Street and Eliot Place. The phone number is (631) 265-3300.

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#### **THE TOPIC**

Instrumented indentation is a technique well-suited for probing the mechanical behavior of coatings. It requires minimal specimen preparation, can be performed multiple times on a single specimen, and can measure behavior over various length scales. However, the complex nature of the deformation fields under the tip, coupled with complex coating properties necessitates a robust means of interpretation in order to extract stress-strain behavior. In this talk, the speaker will present a simple method for converting coating indentation force-depth data to stress-strain curves. With this method, the results of indentation measurements can be used to quantify the mechanical behavior of coatings deposited by different processes and subjected to post-processing treatments. In addition, the anisotropic elasticity of coatings, as measured via indentation, can be used to identify qualitatively the existence of different microstructural features. The talk will conclude with an exploration of the use of sub-surface strain mapping as a technique for quantitatively comparing the elastoplastic behavior of coatings to that of bulk, isotropic materials.

#### **OUR SPEAKER**

Dr. Andrew Gouldstone did both his undergraduate and graduate studies in the Department of Materials Science and Engineering at the Massachusetts Institute of Technology, receiving his B.S in 1996 and Ph.D. in 2001. After two years as a Post-Doctoral Fellow in the Physiology Program at the Harvard School of Public Health, he moved to Stony Brook University to take up the post of Assistant Professor in the Center for Thermal Spray Research. Dr. Gouldstone has co-authored a dozen refereed publications and has given a similar number of technical presentations at various national and international meetings. He was a co-recipient of the First Prize in the 2001 BODYCOTE Prize Paper Competition in the UK. His group at SBU is presently studying the process-structure-properties of single splats, the fundamental building block of all sprayed coatings.

## WELCOME TO THE CHAPTER!

*Cornelius Cahill, Alro Machine Company*

All new members, including those who have transferred in from another Chapter, are invited to dine free at a regular meeting of their choice. Please take us up on this offer - come along to the meeting and introduce yourself.

## The Electronic Metallagram

The Metallagram is also available in PDF format. If you would like to have future issues emailed directly to you (thereby saving the Chapter the cost and effort of regular mailing), please contact Biays Bowerman (email [bowerman@bnl.gov](mailto:bowerman@bnl.gov) or phone (631) 344-2946).

## JOHN R. WEEKS SCHOLARSHIPS

Applications for the 2004 John R. Weeks college scholarship program have been mailed to all high school principals in Suffolk and Nassau counties. Two awards are available for students entering college with an intention of majoring in a materials science or engineering subject. Each award is worth \$500 per year, renewable for up to four years. If you know of any potential candidates, please bring this to their attention. For more information and additional application forms, please contact the Scholarship Chairman, Biays Bowerman.

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**CHAPTER MEETING SCHEDULE**

**Long Island Chapter**

4/21/04? Students Night/SBU/speaker Jason Trelewicz. Topic: tbd  
 5/19/04? Annual General Meeting/Plant tour of Sulzer Metco/speaker Andrew Nicoll

**Metro NY-NJ Chapter**  
 (contact Rich Lynch @ 201-891-8399)

3/17/04 San Carlo Restaurant, Lyndhurst, NJ.  
 Speaker Toni Bailey (Structural Testing Systems) and Ed Dukich (Level III Resources)  
 Topic: Nondestructive Testing of Aircraft Composite Materials  
 4/21/04 L'Affaire Restaurant, Springfield, NJ.  
 Speaker: Oleg Sherby  
 Topic: Ancient Blacksmiths, Damascus Swords, and Modern Metallurgy

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