



METALLAGRAM

LONG ISLAND CHAPTER



Volume 58 Issue 2

Chapter website: <http://www.matscieng.sunysb.edu/asm/>

Next Meeting Wednesday, October 19, 2016

Where Pollo Rico Latin Bistro, Centereach, NY

Topic: Materials Science and Engineering of Sputtering Targets

Speaker: Dr. Paul S. Gilman, Praxair Surface Technologies

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

Members ... \$25 Guests ... \$27 Students ... \$15

(New and recently transferred-in members free)

Reservations appreciated – call Peter Indrigo at 631-589-6666

Directions to Pollo Rico Latin Bistro

Pollo Rico is located at 2435 Middle Country Road (Rte. 25), Centereach. Probably the simplest way to get there from the LIE is to take Exit 62 (Nicolls Road) and go north on CR 97 (towards Stony Brook). Continue north for about 3 miles then take the exit to Rte. 25. At the traffic signals at the end of the ramp go left and head west (Smithtown). The restaurant will appear after about 1.5 miles, on the right side of the highway. Their telephone number is 631-471-0585. Their website is: <http://www.polloricolatinbistro.com/>

The Topic

The sophistication of the processing of leading edge semiconductors has advanced to the point that subtle variations in the microstructures, crystallographic textures and even backing plate alloy chemistry of required sputtering targets can cause quantifiable changes to thin film properties and overall product throughput. A sputtering target is the source material for thin film deposition, i.e. sputtering. Examples of recent challenges in the materials science and engineering of sputtering targets will be described. Tantalum is the material of choice as a barrier for copper metallization. To achieve optimum performance, precise control of the tantalum target crystallographic texture is required. Control of bulk target texture in tantalum, a refractory metal is challenging; however this can be accomplished by creative manufacturing techniques. Also described will be how understanding basic materials science improves the bonding integrity of tantalum targets. Finally, the application of materials science and engineering with non-conventional manufacturing methods allows aluminum sputtering targets to be engineered with superior performance and throughput.

Our Speaker

Dr. Gilman is Vice President Technology for the Electronic Materials Unit of Praxair Surface Technologies, Inc., Orangeburg, NY with worldwide responsibility for Electronic Materials technology, product development and intellectual property. Dr. Gilman received his BS in Metallurgy and Materials Science from the University of Pennsylvania, and prior to starting his graduate work spent a summer at the Los Alamos Scientific Laboratory, Los Alamos, New Mexico. He received his MS and PhD in Materials Science and Engineering from Stanford University. Following a post-doctoral year at the Brown Boveri Research Center in Baden, Switzerland, he joined the INCO Research and Development Center, Sterling Forest, NY and later at the INCO subsidiary Novamet, Wyckoff, NJ. From INCO Dr. Gilman joined AlliedSignal, Morristown, NJ. At BBC, INCO and AlliedSignal, Dr. Gilman was involved in the development of high performance aluminum, nickel and titanium alloys using high energy powder metallurgy processing techniques for aerospace applications. After joining Praxair, Dr. Gilman led successful development activities for a wide range of electronic materials including high purity tantalum, copper, aluminum, cobalt, nickel and their alloys fabricated into precision sputtering targets for leading edge semiconductor, flat panel display and photovoltaic applications. Dr. Gilman's research has generated over 45 technical publications, 66 issued US patents; and he has contributed to two ASM Handbooks. Dr. Gilman is an ASM Fellow and will be awarded ASM's 2016 William Hunt Eisenman Award at the upcoming Materials Science & Technology 2016 meeting in Salt Lake City.



Chief Operating Officer

10 Technology Drive, Unit 3
East Setauket, NY
11733-4063, USA

Tel: (631) 739-8818
Fax: (631) 675-2533
brian.choi@reliacoat.com
www.reliacoat.com

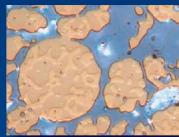
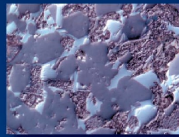


3-D PRINTED SENSORS AND ANTENNAS

CEO

100 North Country Road, Suite #4
East Setauket, NY 11733
WWW.MESOSCRIBE.COM TEL: 631 686 5710 EXT. 1#
JBROGAN@MESOSCRIBE.COM CELL: 631 335 8991

Carl Zeiss... for all your state-of-the-art Microscopy & Digital Imaging needs



Offering features such as Image Archiving, Grain Size analysis, Dendritic Arm Spacing measurement, Non-Metallic Inclusion, Graphite and more...

Carl Zeiss MicroImaging, Inc.
Thornwood, NY
1.800.233.2343
micro@zeiss.com
zeiss.com/materials



We make it visible.



LAWRENCE RIPAK CO., INC.

NDT • METAL FINISHING

LAWRENCE RIPAK, JR.
President, CEO



Lawrence Ripak Co., Inc.
165 Field Street
West Babylon, NY 11704-1299

Office: (631) 694-1818
Fax: (631) 694-1818
Email: lripak@ripak.com

NONDESTRUCTIVE TESTING

- Magnetic Particle
- Fluorescent Penetrant
- Visible Dye Penetrant
- Contact Ultrasonic
- Immersion Ultrasonic with data acquisition
- X-Ray
- Nital Etch
- Eddy Current

CLEANING

- Passivation
- Abrasive Blasting
- Glass Bead Blasting
- Plastic Media Blasting
- Acid Pickle Cleaning
- Alkaline Cleaning
- Parts up to 20' Long

ANODIZING

- Boric-Sulfuric
- Chromic
- Sulfuric
- Parts up to 18' Long

PLATING

- Titanium-Cadmium
- Cadmium
- Brush Plating

PAINTING

- Primers
- Top Coats
- Dry Film Lubricants
- Fuel Tank Coating
- Teflon
- High Temp Primers
- Masking

SHOT PEENING

- Automatic and Manual
- Regular & Hard Cast Steel
- Glass Bead
- Ceramic
- Parts up to 8 Feet Long
- Post-Peen Cleaning

CONVERSION COATINGS

- Alodine 1200
- Phosphate Fluoride
- Sol-Gel

OTHER PROCESSING

- Stress Relieving
- Conductivity Testing
- Hardness Testing
- High Humidity Testing
- Salt Spray Testing

**C M S Clad Metal
Specialties Inc.**

CLAD METAL SPECIALTIES

www.cladmetal.com
1516 Fifth Industrial Court
Bayshore, New York 11706

"Your Need Time is our Lead Time"

Denise Marcoccia
Vice President

ph 631/666-7750
fax 631/666-5347
dmarcoccia@cladmetal.com

A World of
Engineering & Testing
Under One Roof™



www.dtb.com

ATUL GOKHALE PHD

Chief Metallurgist
Engineering & Test Division

1195 Church St.
Bohemia, NY 11716

Direct: (631) 589-6300 x614
Mobile: (631) 926-0209
Fax: (631) 589-3648
E-mail: agokhale@dtb.com

FORMISANO & ASSOCIATES, INC.

Welding Engineers • Consultants
Expert Witness • Litigation Support
QA/QC • Certified Inspection

BARRY FORMISANO, PRESIDENT

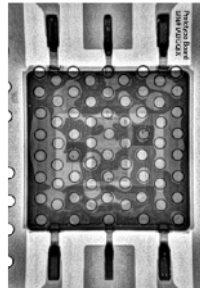
Cell: (914) 388-0155
Email: formisano.assoc@att.net

P.O. Box 324
Gardiner, NY 12525
Phone/Fax: (845) 255-8225

125 Wolf Road
Albany, NY 12205
Phone: (518) 925-8306

WALDVOGEL METALLURGICAL, INC.

MATERIALS ANALYSIS - FAILURE ANALYSIS - MATERIALS TESTING



ELECTRONIC DEVICE FAILURE ANALYSIS
PRECISION METALLOGRAPHIC ANALYSIS
IMMEDIATE TURNAROUND

TELEPHONE: 516-564-7839
FAX: 516-485-2039
CELLULAR: 516-967-8576
E-MAIL: waldvogelmet@verizon.net

L. I. T. Labs, Inc.

Metallurgists/Analysts



Chemical Analysis Mechanical Testing
Metallography Metallurgical Failure Analysis
Expert Testimonies Welder's Qualifications
Weldability Evaluations

T. Rao Tipirneni, President

97 Marcus Boulevard P: 631-643-6792
Hauppauge, NY 11788 F: 631-643-5628
www.litlab.com rao@litlab.com

Specialists in Aerospace Materials Testing Since 1985

STONY BROOK

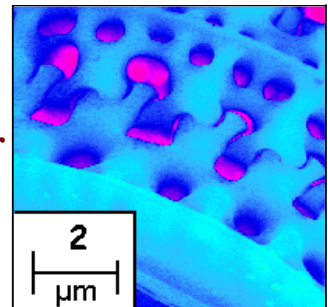
STATE UNIVERSITY OF NEW YORK

**University/Industry
Partnering Together**

Your samples-Our SEM

We also have OM, XRD,
RP, and much more.....

Dr. Jim Quinn
631-632-6663 or 8495
james.quinn@stonybrook.edu



MetLab
Corporation

FREE SHIPPING & 10% OFF

call 1-800-828-6866 for more information



FOR ALL YOUR METALLOGRAPHIC NEEDS SINCE 1968

www.metlabcorp.com

1-800-828-6866



**Solutions for
Materials Preparation,
Testing & Analysis**

**For more information,
contact:**
Scott Prenovitz
(508) 361-8451
scott.prenovitz@buehler.com

An ITW Company
41 Waukegan Road • Lake Bluff, IL 60044
(847) 295-6500 • www.buehler.com



Struers Inc.
24766 Detroit Road
Westlake, OH 44145-2525

Direct/fax 203.380.0563
Telephone 440.871.0071 ext 867
Fax 440.871.8188
www.struers.com • lservino@struers.com

Luca A. Servino
Account Representative
New England

Long Island Chapter Meeting Schedule

Nov. 16, 2016 Topic: Student Night
Posters and oral presentations
Location: Pollo Rico, Centereach, NY

Dec. 14, 2016 Companions Night
Topic: tbd
Speaker: tbd
Location: Pollo Rico, Centereach, NY

Jan. ??, 2017 Joint Meeting with LIANS
Topic, Speaker: tbd
Location: Pollo Rico, Centereach, NY

Metro NY-NJ Chapter

<http://www.asminternational.org/web/metro-ny-nj-chapter/home>

Sept. 20, 2016 Topic: Graduate Student Research
Speakers: Fei Chen, NYU Tandon School of Eng., and Ambar Deshkar, Rutgers Univ.
Location: Meson Madrid, Palisades Park, NJ

American Nuclear Society – Long Island Section

<http://local.ans.org/longisland>

2016-2017 CHAPTER OFFICERS

Chairman
Jim Quinn - (631) 632-6663, Stony Brook University

Vice Chairman
Ken Trelewicz - (631) 244-6238, Dayton T. Brown Inc

Secretary
Mike Guggenheim – (631) 643-6792
Long Island Testing Lab., Inc.

Treasurer
Peter Indrigo - (631) 589-6666. Unitron Ltd.

Executive Committee Members

Atul Gokhale, Dayton T. Brown
(631) 926-0209 x614

Dan Migliorino, ReliaCoat Technologies
(631) 739-8818

Collin Olson, D'Addario
631-439-3335

Jake Ranneklev, Curtiss-Wright Corp.
(631) 756-4740

Rao Tipirneni, Long Island Testing Laboratories Inc.
(631) 643-6792,

James Waldvogel, Waldvogel Metallurgical Inc.
(516) 564-7839

ADVISORY
Biays Bowerman - (631) 344-2946
Brookhaven National Laboratory



UNITRON®
Excellence by Design

Peter D. Indrigo
Senior Vice President
peterd@unitronusa.com

73 Mall Drive, Commack, New York 11725
www.unitronusa.com
Phone: 631-543-2000
FAX: 631-589-6975