

ASM International  
Philadelphia "Liberty Bell" Chapter

# Newsletter



www.asm-philadelphia.com

Thursday, January 16, 2003

## National Officers Night



*Spouses and guests are invited and welcome.  
Williamson Restaurant, Easton Road, Horsham, PA*

**Speaker:**  
DR. DONALD MUZYKA  
ASMI President

**Topic:**  
Nickel-Based Alloy Development &  
Innovation is Alive and Well

Dr. Donald R. Muzyka is retired president and CEO, Special Metals Corporation, New Hartford, N.Y. Dr. Muzyka earned his B.S. in mechanical engineering from the University of Massachusetts in 1960. He received his M.S. in metallurgy from Rensselaer Polytechnic Institute in 1966 and his Ph.D. in materials science from Dartmouth College in 1967.

Dr. Muzyka has devoted his entire career, spanning over 40 years, to the specialty metals industry, beginning as a metallurgist with Pratt Whitney Aircraft in 1960. After completing his graduate studies in 1966, he joined Carpenter Technology Corporation where he held numerous positions. He was appointed division vice president technical in 1979. In 1982 he joined Cabot Corporation as director of technology and operations planning for the engineered products group. In 1985 he became general manager of Cabot Refractory Metals. He finished his career at Cabot as vice president, corporate research and development.

Dr. Muzyka joined Special Metals as president and chief operating officer in 1990. As a result of his significant accomplishments during the ensuing years, he was appointed by the board of directors as president and chief executive officer in 1996, the position that he retained until his retirement on September 1, 2000.

Widely recognized as an expert in the field of high performance alloy metallurgy, Dr. Muzyka has published more than 25 articles and papers in a variety of professional metals journals. He also received seven patents that are directly attributed to his significant work and advancement of the development of high performance alloys.

Dr. Muzyka joined ASM in 1963 and was elected a Fellow in 1977. He has been active in a number of chapter activities including Chairman of the Lehigh Valley Chapter in 1976-77. He has also been active in the ASM organization at the national level. Dr.

**TOPIC: *Nickel-Based Alloy Development and Innovation is Alive and Well!***

The high output of new nickel-based alloys and processes developed during the period 1940-1990 has led many to believe that the technology life-cycle for specialty alloys was well into its mature phase and that the potential for innovation was low. For many, the next materials frontier had moved on from conventional alloys to composites and inter-metallic compositions. While these alternate materials continue to offer unique mechanical properties, they are severely handicapped by the high cost to produce them and to maintain them in service.

The past "heyday" of innovation was fueled by large government subsidies and a defense industry that was driven by performance instead of costs. The research and development was based heavily on empirical research methods that successfully came up with many alloys by using essentially parametric methods. The development of nickel-based alloy products has entered into a new phase. Today, the government subsidies are gone and our customers now demand annual cost reductions. Research and development now has new research tools such as numerical simulations, which model our processes, predict alloy phases and choose heat treatments. Traditional tools have had significant capability improvements such as computer integration that now allow us to determine statistical distributions of grain sizes, grain orientations and phases. Cause-and-effect experiments are now done on our computers which are very capable of showing what changes in ingot size, chemistry and heat treatment will do to our product. The development cycle for innovations has been greatly shortened and experimental costs have been significantly reduced.

**Technical Chairperson**

Don Jordan  
Solar Atmospheres, Inc.

**Dinner Menu**

French Onion Soup  
Fresh Garden Salad  
Roasted Top Sirloin of Beef  
Baked Stuffed Potato  
String Beans Almondine  
Chocolate Mousse

**Social Hour**

6:00-7:00 p.m.

**Dinner**

7:00 p.m. Price: Members: \$20.00

Retirees: \$12.00

Student: \$10.00



Reservations are  
Necessary - Call:  
(215) 643-3369  
(OH-DE-FOX)

Please don't call if you  
have already reserved via  
our web site link at

[www.asm-philadelphia.com](http://www.asm-philadelphia.com)

**Meeting Cancellation Notification**

## Chapter Officers 83rd Year

**Don Jordan, Chairperson**  
Solar Atmospheres, Inc.

**Jim Watters, Vice Chairperson**  
Delaware Valley Utility Advisors

**Ron Smith, Secretary**  
Materials Resources International

**Joel Muzik, Treasurer**  
Ramball Test Laboratories

**Robert DeKalb, Executive Secretary**  
Robert Wooler Co.

**Fred Klock, Exec. Treasurer**  
SPS Technologies

## Advertisers in the 2002-2003 ASM Yearbook

Air Products	L&L Special Furnace Co., Inc.
Allied High Tech Products, Inc.	Laboratory Testing, Inc.
Apollo Designs	Leco Corporation
Athena Controls, Inc.	Materials Resources International
B & G Manufacturing Co.	Micron, Inc.
Bennett Heat Treating & Brazing Co., Inc.	Newage Industries, Inc.
Buehler Ltd.	Penn Stainless Products
Carpenter Specialty Alloys	Pressure Technology, Inc.
Consarc	Ramball Test Lab, Inc.
Consulting Engineers	Rex Heat Treat
Drexel Univ., Dept. of Mat. Eng.	A.L. Singmaster Personnel Svcs.
Duane, Morris & Heckscher	Solar Atmospheres, Inc.
Electron Energy Corp.	SPS Technologies, Inc.
Evans Heat Treating Co.	Struers, Inc.
Forensic Sciences, Inc.	Superior Tube Company
Hoeganaes Corporation	Tinius Olsen Testing Mach. Co., Inc.
Houghton International Inc.	Vacuum Furnace Systems, Corp.
Inductotherm Corporation	Westmoreland Mech. Testing Machine
Industrial Metal Treating	Williamson Restaurant
Kosempel Mfg. Co.	Robert Wooler Company

## Welcome New Members...

Mark T. Burton	Stork MMA Laboratories
Dennis P. Buttleman	
Nicholas R. Lang	
Thomas C. Leister	B & G Manufacturing Co., Inc.
Chris Mance	Lockheed Martin Corp.
Kenneth Schrenkel	SKE USA Inc.



## Chairperson's Message

January, 2003

I hope you and your families had a happy, safe and healthy holiday season. There is nothing like spending quality time with your family. Now that we are starting a New Year, I hope you think about spending some quality time with "Your Chapter". The first meeting of the year is our traditional National Officers

Night, featuring our ASM International President, Dr. Donald Muzyka. Needless to say, it is an honor and privilege to have our National President as our guest speaker. Come and find out the latest news from National headquarters, and listen to an encouraging and exciting talk: Nickel-Based Alloy Development & Innovation is Alive and Well. This topic shows the great diversity we get from ASMI, for just at the last meeting we had Dr. Michele Marcolongo enlighten us on the properties and function of non-metallic hydrogel polymers, and now Dr. Muzyka's talk will focus on metallic materials. Our society truly is a materials community.

Students please read the notice on scholarship applications; we award four scholarships each year. Also remember that we offer free bus transportation from Philadelphia to our monthly meetings. Contact Jonathan Thomas at [jthomas@drexel.edu](mailto:jthomas@drexel.edu) for details. We had a great student turnout last meeting, and we want all students to know that interacting with young minds is extremely rewarding to us. Please continue the fellowship.

Looking at the calendar, April is Big! We have our annual Sustaining Member appreciation luncheon and Sustaining Member Night. The latter includes exhibition booths for Sustaining Members, and a poster contest for area college graduate students. Also in April is our "Spring Fling" dinner dance on April 12 at the beautiful Old York Road Country Club in Spring House, PA. This is always the best-attended social event of the year because it is loads of fun and has loads of door prizes.

It is important for all to note that January means selection of next year's committees begins. I encourage anyone who is interested in chairing or serving on a committee to contact myself (215-721-1502 x 206) or Jim Watters (215-699-0690). Jim Watters, our current Vice Chairperson, needs and deserves your support for next year. Jim has not only traveled to Metals Park on his own time to inform us of National's focus, but has visited local Universities to encourage new activity for the betterment of the Chapter. Volunteering is kind of like the lottery saying, "you've got to play to win", or I think more appropriately, "you've got to participate to excel".

Thank you for the your support, and see you January 16th!

## Sustaining Member Spotlight - LTK Engineering Services

**LTK Engineering Services**, based in Ambler, Pennsylvania is the nation's largest consulting firm dedicated solely to the rail transit industry. Founded as Louis T. Klauder and Associates in 1921 as a sole proprietorship, the firm was reorganized in 1984 as LTK Engineering Services (LTK), an employee-owned company providing engineering and management services to the transportation industry. LTK has regional offices in Boston, Chicago, Dallas, Denver, Houston, Los Angeles, Minneapolis, New York, Portland and Seattle. In addition, on-site staff is located at client facilities throughout the United States. LTK's staff of 236 includes more than 170 engineers with expertise in all areas of rail systems planning, engineering and economic analysis. In-house capabilities include structural analysis, stress analysis using finite element techniques, mechanical and electrical design and design support, and materials and welding.

While LTK's primary focus is designing new and overhauled passenger rail cars, the technical expertise is also available within LTK to address a wide range of materials and mechanical engineering issues with products and plant equipment.

LTK was recently asked to evaluate the operation of some large steam turbine bearings. Staff expertise in materials and rotating machinery was used to evaluate the cause and potential consequences of operation at higher oil temperatures on the cast babbit bearing. As a result of this study, LTK advised their client that the turbine could be operated without any changes even though the bearing oil temperature was increased as the result of redesign of the bearing.

Corrosion engineering associated with stray current generated from dc powered rail transit is a specialty of LTK. The design evaluation of a 7.5 mile starter LRT system was conducted by LTK experts to determine the level of corrosion on transit and adjacent structures. The evaluation included a soil analysis, electrical modeling, and corrosion rate calculations for various structures of varying materials of construction. Detailed design was performed for cathodic protection, corrosion allowances and electrical continuity/isolation to protect the identified structures.

LTK has been a proud member of the Philadelphia technical community for over 80 years.

## In Memoriam

Our chapter lost in early November, two past Chairmen of our chapter - and a lot more.

*Jake Giacobbe* was our Chairman back in 1960-61. He was also National President of ASM International in 1981, a ASM Fellow in 1971, a National William Hunt Eisenman Award winner in 1989, and was honored by the chapter for its William Hunt Eisenman award in 1974. Jake also was honored by the chapter in 1968 as the Delaware Valley Metals Person of the Year. He was gainfully employed by Superior Tube for some 41 years and retired as their Vice President of Metallurgy.

*Craig Hood* was our chapter chairman in 1963-64. He also was honored nationally as an ASM Fellow in 1975. He received the Chapter's William Hunt Eisenman award in 2000 and the Delaware Valley Metals Person of the Year award in 1990. Craig spent much of his career at SPS Technologies to include being their Director of Research & Development, and in August of 1983 founded his own consulting firm - ACH Technologies.

They will be missed.

## MMA Tour

The professional development committee & the young members committee will be sponsoring a plant tour of MMA labs in Newtown PA on February 19, 2003 from 2:00 pm to 3:30 pm. MMA is a full service material testing facility, which should prove interesting to all who attend.

If interested in attending, please contact Scott Nyce or Roger Jones @ Solar Atmospheres @ 215-721-1502 or @ raj@solaratm.com or dsn@solaratm.com.

## ASM Scholarships

Philadelphia "Liberty Bell" Chapter is offering its scholarships again this year.



## ASM Spring



## ASM Philadelphia Sustaining Members (2002-2003)

Ajax Electric Company	Dynatec Process Systems, Inc.	Lindquist Steel Inc.	SPS Technologies, Inc.
Allied High Tech Products, Inc.	ECRI-MSLB	LTK Engineering Services	Superior Tube Company
Apollo Designs	Electro-Science Labs	MMA Laboratories	Tinius Olsen Testing Machine Co., Inc.
B & G Manufacturing Co.	EMSL Analytical Inc.	Magna-Tech P/M Laboratories	Vacuum Furnace Systems
Edward A. Boll Co., Inc.	Exelon PowerLabs	Metlab	Robert Wooler Company
Buehler, Ltd.	Forensic Sciences Inc.	National Basic Sensor	<b>Institutional Members</b>
Carpenter Technology Corp.	Fredericks Company	Newage Industries, Inc.	Drexel University
Conroy Engineering, Inc.	Hoeganaes Corporation	Penn Stainless Products	Temple University
Consulting Engineers, Inc.	Houghton International Inc.	Pressure Technology, Inc.	Villanova University
Delaware Valley Utility Advisors	Inductotherm Corporation	Quaker Chemical Corporation	William Tennent High School
Delvest Inc.	Kosempel Mfg., Inc.	Ramball Testlab, Inc.	Williamson Trade School
Dial Machine Company	Laboratory Testing, Inc.	Rex Heat Treat	
Donovan Heat Treating Company	Leco Corporation	A.L. Singmaster Personnel Svc.	
Dubose National Energy Svcs., Inc.	Lehigh Testing Laboratories Inc.	Solar Atmospheres, Inc.	

## Welding: Technology, Processes, Materials, Design, Quality

### A course offered by Drexel University – January 6-10, 2003

Drexel University is offering a professional course aimed at engineers who have to deal with welding problems and all of their aspects: technology, process, design, and quality. The course covers standard approaches to welding as an engineering discipline and relies on applicable standards like AWS, ANSI, and ASTM. The course will prepare engineers to meet the requirements for the qualification of welding engineers, as prescribed by AWS Specification B5:16:2000X. Although a one-week course is not sufficient for complete preparation, it can serve as an excellent basis for further individual effort toward this aim. Having this in mind, the course designers have chosen the AWS Handbook, Volume 1 covering all basic aspects of welding, as the course notes. This is also the reason for the very intensive schedule for the course, including 30 hours of lecture over 5 working days. The program is presented by the Department of Materials Engineering, Drexel University (S. Kalidini, R. Doherty, R. Knight, A Sedmak).

#### Outline of the Program

**Welding Heat Sources and Arc Physics** - Power sources, shielding gases, and arc stability.

**Welding Processes** - Flux core, MIG, TIG, laser, electron beam, subarc, friction, and others.

**Welding and Joining Metallurgy** - Structure, solidification, phase transformations, and weldability of typical engineering materials.

**Weld Design** - Structural fabrication requirements and mechanical properties.

**Quality Assurance** - NDE Processes - characteristics, advantages and limitations of each.

**Practical Welding and Related Applications** - Summary of design, safety, and quality assurance considerations.

*Contact the Materials Engineering Department at Drexel University for additional information.*