March, 2015

This Issue:
2. Next Meeting: (Tuesday)
   March 24, 2015
   “Basic Concept of Laser Peening”
   James R. Harrison
   Marketing Manager, Special Projects
   Curtiss Wright Surface Technologies

Meeting Location:
Meson Madrid, Palisades Park, NJ

3. Letter to Members Announcing New Chapter Website

3. Coming Events

4. Directions to Meson Madrid

Membership Hotline
800-336-5152
Mon - Fri. 8:30am - 5:00pm

Please report any changes to your address, phone number, e-mail, etc.

ASM International Web Site:
http://www.asminternational.org

ASM Metro New York-New Jersey Chapter Web Site:
http://www.asminternational.org/web/metro-nynj-chapter/home

Chair’s Message

Greeting Materials Engineers and Scientists.

As I write this, the ground is frozen, the streets are covered with ice, and New England won the Super Bowl. The last item was an example of “Defeat snatched from the jaws of Victory”. I hope we do not experience this in our professional lives and one way to do this is to keep current with new matters. Our March talk is on peening, not the typical shot peening by hard objects, but by lasers. The talk title is “Basic Concept of Laser Peening” by James Harrison of Curtiss Wright on March 24, 2015. For me, this is a new concept and I look forward to learning how this works and the advantages laser peening offer over traditional methods. Jim Harrison also has experience preparing and racing a Z06 Corvette in Sports Car Club of America (SCCA) events. I think some members of our local chapter will have strong interest in this activity, maybe even more than in peening. Bring your sports car and racing questions and speak with Jim before and after the presentation. The meeting location is Mason Madrid, in Palisades Park, NJ. We hope to see you there.

This leads to the other topic, our website. ASM, after years of complaints and user frustrations, is starting a new web site for chapters. The address is http://www.asminternational.org/web/metro-nynj-chapter/home and it should be active by March. I am sure there will be problems in the transition but I look forward to better service to the community. A letter announcing the new Chapter website appears on page 3.

The main advantage of this site is ease of editing, and easy ways to find additional information related to the chapter. The link to our bulletin is found by clicking on the next event on the home page and the link is in blue below the announcement. A second method is highlight “About Us” and scroll to Chapter Newsletters” and it will be highlighted. Another way is to click on Newsletters. One plus is we can acknowledge our Sustaining Members and advertisers with the scrolling at the page bottom. We hope to offer more links and contact information and I request that the Sustaining Members and advertisers contact me so I can get proper contact and links.

Please send feedback regarding the web site back to us. We aim to have it be functional and helpful.

Dr. Robert Sherman, Applied Surface Technologies
Chairman, ASM Metro NY-NJ Chapter
roberts@co2clean.com
Sustaining Members

Alcoa Howmet
Belmont Metals
Bolt Tech Mannings
Central Wire Industries
Copper Development Association
Columbia University
Excel Technologies, Inc.
ExxonMobil Research & Eng.
G. Cotter Enterprises
Instru-Met
Ironbound Heat Treating
Div. of Metal Improvement Co.
McWilliams Forge Co.
Praxair Electronics
Temperature Processing Co.

The Metro NY-NJ Chapter thanks these companies for their ongoing support.

Metro NY-NJ Chapter

789th Meeting  March 24, 2015  Tuesday

Program:   Place:  Members & Guests:  $30.00
6:15 pm Networking  Meson Madrid, Palisades Park, NJ
7:00 pm Dinner  Directions are on page 4
8:00 pm Presentation  Students  Free

“Basic Concept of Laser Peening”

Speaker:  James R. Harrison, Marketing Manager  Curtiss-Wright Surface Technologies

Laser peening is a technology employed to induce deep levels of plasticity in materials resulting in a high magnitude of compressive residual stress to depths from 1 to 10 mm enabling increased fatigue strength and enhanced resistance to stress corrosion failures. It is well known that inducing residual compressive stress into the surface of metals provides performance benefits including; increased resistance to fatigue, fretting fatigue, stress corrosion cracking, corrosion fatigue and increased damage tolerance. Shot peening has been the mainstay of surface treatment to prevent cracking, providing a level of compressive residual stress (CRS) in the skin that is a large fraction of the yield strength of the material and typically extending .010 inches into the surface. This CRS, although shallow, significantly resists crack initiation and gives excellent resistance to stress related corrosion failures. However in many situations, the depth of residual stress provided by shot peening is too shallow. Stress Corrosion cracks can initiate at flaws or localized corrosion sites such as pits. Damaged areas, such as scratches, fretting or cavitation can create initiation sites that penetrate beyond the thin protective layer created by shot peening. In many applications the deeper level of compressive stress developed by Laser peening is needed.

Continued on page 4
Dear Chapter Members,

We are excited to unveil the new Metro NY-NJ Chapter website
http://www.asminternational.org/web/metro-nynj-chapter

That’s right: The ASM International Metro NY-NJ Chapter is now benefiting from ASM’s Global Community information technology infrastructure to deliver a superior online experience. This site is free of charge to our Chapter and contains great new features.

Local Ownership: Our site offers the capabilities of the ASM Global Community Site with local Chapter ownership and focus. Our officers have decision-making power over our sites, reflecting the unique culture of the Metro NY-NJ Chapter. We can highlight and feature the information that is most important and relevant to us.

The Local Information You Need: Chapter information and content is gathered, uploaded and maintained by the volunteer webmaster or web team. The local content is always kept in the prime online locations, and ASM content is secondary. You will now have the ability to register for Chapter meetings and events on our site.

Timely Updates: Because content from the ASM Global Community Site is linked to our Chapter site, updates take place automatically. Whenever new content is added to the ASM site, it updates on the local Chapter site, giving local users the latest information.

Current Member Information: When you log into our chapter site, you can obtain the same individual profile, account, membership information that you would find on the ASM site. This keeps all data as current as possible with the master membership database at ASM.

Visit our new site today and start navigating through all the new benefits it offers you and our Chapter.

Sincerely,
ASM Metro NY-NJ Chapter
Officers & Executive Committee
March 24th Presentation (Continued from page 2)

Basic Concept of Laser Peening

Laser peening has emerged in the past several years as a very viable and important technology for inducing a very deep compressive residual stress which is more precisely controlled and able to retain a higher quality surface finish than by other methods. In laser peening, an intense beam of laser light impinges on a surface ablating material from a thin applied sacrificial layer to create a tailored shock wave that impresses a deep but highly controlled level of residual compressive stress into selected areas of metal surfaces. During processing there is essentially no heating of the part, just a shock wave traveling through it. Major current applications include highly stressed components on aircraft structures and in aircraft engines, in motor sport engines, electric power generation turbine blades, and in oil and gas exploration/production equipment. Systems have been in place since 2003 for processing of parts in the US, Europe and Asia. Applications, such as work in nuclear power plants, require an ability to bring laser peening into a facility to work on large components in situ. With this in mind, the laser peening technology has been packaged into transportable trailers allowing the peening laser to be stationed in or near a facility and the laser beam propagated inside simple tubes to a robotic system that is able to scan and peen the areas needing compressive stress. Currently onsite work can and is being done on an as-needed basis at remote customer facilities using a fleet of transportable laser systems.

James R. Harrison Bio

Jim Harrison is the Sales Engineer for the Laser Peening Divisions of Curtiss Wright Surface Technologies/Metal Improvement Co. A BS form The University of Kansas, Jim has over 40 years’ experience in metal treatments and their use in industry. 30 years with Curtiss Wright’s heat treating, shot peening, peen forming, and laser peening operations. Prior to Curtiss Wright Jim worked for Learjet Aerospace Co., and the Coleman Co. In his spare time he prepares and races a Z06 Corvette in SCCA events.