From the Chairman ...

ASM International Chennai Chapter has performed very well during 2009-2010 with multifaceted activities. Our performance is well recognised by our head quarters by awarding the chapter Excellence Award. I am very proud to share with our members that this chapter excellence recognition to our chapter was awarded seven years in succession.

In this current year of 2010-11, we organized several activities started with annual general body meeting with family get together, several technical lectures from both academic and industry experts, In house trainings, and workshops. Also we hosted the India National Council meeting during December 2010. Chennai Chapter has always played a crucial role in shaping and functioning the India National Council.

During the first and second quarters of 2010-2011, we organized two focused workshops, namely, a Two-day workshop on Basics on Material Engineering in Tractor and Farm Equipments Limited (TAFE) for their engineers. One more course on Metallurgy for Non-metallurgist was conducted in December. The course was very successful with 90+ participants from various automotive companies such as Caterpillar, Ford, Nissan, Ashok Leyland, Brakes India and Wheels India Limited.

In the coming months we are planning several Technical Talks along with two more workshops. The third workshop this year entitled, “Materials Characterisation and Failure Analysis” will be held on 4-5, March 2011 at Indian Institute of Technology, Madras. Course on Welding is planned during May 2011.

All these activities were made possible because of the excellent teamwork of the executive committee and wholehearted support of the enthusiastic members. We have plans to organize more student chapter activities in the near future. We are proud to announce that the Chapter will always be looking forward to receive innovative ideas from its members to increase the number of activities of the Chapter.

V.L. Sridharan
Chairman, ASM International Chennai Chapter
Chapter Activities during June 2010 to December 2010

Annual General Body Meeting at Hotel Beverly International

Annual General body meeting (AGM) was held on 11th July 2010 at Hotel Beverly at Chennai. The program was started with welcome address by the Mr.V.L. Sridharan, chairman ASM International Chennai Chapter. Financial statement and Annual reports were presented by Hony. Treasurer and Secretary respectively, Announcement of Elected Office bearers & E.C.Members for the year 2010-11 was made by D.G.Sastry. The meeting was entertained with Light Music by one of the leading music party “DEV’S KARA OKE’ and the dinner. Members were attended along with their families the meeting was a grand get –together.

ASM International Excellence award to Chennai Chapter & Attending Leadership Program

We are happy to inform that our ASM Chennai Chapter is the winner for the Chapter Excellence award for year 2009-2010. Our chapter bagged this distinction for the eight year in succession.

Chapters of Excellence awards was presented during the Friday evening dinner at Leadership Days 2010 in Cleveland, Ohio. Dr.T.Sundararajan, Hony. Secretary, attend Leadership days on behalf our chapter received the award consisting of $1200 and a walnut plaque from Dr.F.Lisy, President, ASM International.

Technical Talks:

Improving the ductility of ultra fine grained / nanostructured materials – recent developments

Speaker: Dr. V. Subramanya Sarma
Indian Institute of Technology, Madras
Technical Talk (ASM & MMS) on Smart Materials by Dr. V. Sampath, Professor, Dept of Metl. and Mtls. Engg, IIT Madras on 22 October 2010 at hotel Queens Way Park.

Technical Talk (ASM & MMS) Fatigue & Fracture: Experimental investigations on large size structural components by Dr. G. Raghava, Head, Fatigue and Fracture lab, SERC, Chennai held on 26 November 2010 at Hotel Queens Way Park.

Seminar/Workshops/Training:
In-house training course on Metallurgy for Non-Metallurgists at Tractor and Farm Equipments (TAFE) Ltd, Chennai

This course is specifically designed to suit the need of the Tractor and Farm Equipments (TAFE) Ltd. Around 50 young engineering professionals from various functions such as Design, Development, manufacturing, Supply Chain and Marketing are participated in the program. Pre and Post course assessments were made for the attendees to evaluate their learning from the course. The results showed that the 35% increase in the knowledge and understanding on Metallurgy.

Two day workshop on Metallurgy for Non-Metallurgist

The state-of-art workshop was conducted on 17th & 18th Dec. 2010 at Marina Towers, Chennai. Dr. K. Sivakumar, Director, Combat Vehicle Research and Development Establishment inaugurated the workshop. In his inaugural speech Dr. Sivakumar emphasized the importance of materials knowledge for mechanical engineers who deals Design, process and procurement. Also, he commended the initiatives taken by ASM International Chennai Chapter towards the continuous knowledge up gradation to the metallurgy professional in Chennai region. The workshop was attended by 96 participants from various industries, research institutions and engineering colleges. Experts from both academia and industry gave lectures on fundamental and advanced topics on Basic Metallurgy, Principals of heat treatment, Surface Engineering, Casting and Forgings, welding and recent advances in Nano materials.
India National Council Meet

ASM International Chennai Chapter hosted the India National council meet on 03 December 2010 at Race Course Club. Mr. Venkatesh, Vice Chairman of our Chapter welcomed the office bearers of National council and chapter representatives. Members from Pune, Bengaluru, India and Gujarat were attended along with Chennai chapter members. The meeting was ended with Dinner hosted by our Chapter.

Executive Committee Meetings

- 1st E.C. Meeting held at Madras Cricket Club on 21st August 2010
- 2nd E.C. Meeting held at Queensway park Hotel 24th September 2010
- 3rd E.C. Meeting held at Anna Nagar Towers Club on 26th October 2010.
- 4th E.C. Meeting held at Anna Nagar Towers Club on 6th December 2010

Metal News

ASM International announced 24 Distinguished fellows for the year 2010 to provide recognition to members for their distinguished contributions to materials science and engineering and to develop a broadly based forum of technical and professional leaders to serve as advisors to the society. Two distinguished personalities are selected from India and Chennai Chapter is very proud that both the fellows are from our chapter.

Dr. Baldev Raj
Distinguished Scientist and Director
Indira Gandhi Centre for Atomic Research, Kalpakkam, Tamil Nadu, India

For pioneering contributions to non-destructive testing of nuclear reactor materials and for the development of technologies for fast breeder reactors.

Dr. B.S. Murty
Professor, Indian Institute of Technology Madras, Chennai, India

For distinguished contributions to the field of mechanical alloying and ball milling and for mentoring materials science students.
Knowledge Store

Theory for Titanic Failure

When the remains of the RMS Titanic were discovered more than two miles beneath the surface of the North Atlantic in 1985, the story of the great liner once dubbed “unsinkable” by the press began moving from legend into scientific fact. Numerous research investigations have been piecing together the details of what really occurred on April 14-15, 1912, after Titanic struck an iceberg, broke in half and carried more than 1,500 people to their deaths. Now, the answer to one of the most elusive questions—Why did the 46,000-ton ship sink in less than three hours?—may be contained in a new report from NIST.

The culprit, says NIST metallurgist Timothy Foecke in the report, is very possibly one of Titanic’s smallest components—the 3 million wrought iron rivets used to hold the hull sections together. Foecke performed metallurgical and mechanical analyses on steel and rivet samples recovered from the Titanic’s hull. His examinations revealed that the wrought iron in the rivets contained three times today’s allowable amount of slag (the glassy residue left behind after the smelting of ore), making it less ductile and more brittle than it should have been. This finding provides strong evidence that Titanic’s collision with the iceberg caused the rivet heads to break off, popped the fasteners from their holes and allowed water to rush in between the separated hull plates. Photographs of Titanic’s sister ship, the RMS Olympic, back up the rivet failure theory. Taken after the Olympic collided with another vessel in 1911, the photos clearly show dozens of vacant holes in the hull where rivets once sat. Sonar and other evidence gathered during a 1996 visit to the Titanic also point to seam and rivet failure.

For a single copy this failure analysis “Metallurgy of the RMS Titanic (NISTIR 6118)”, send a request by email at inquiries@nist.gov.

Magnetically Impulse Arc Butt (MIAB) Welding

MIAB - Magnetically Impelled Arc Butt welding - uses a magnetic field to move a welding arc rapidly round a butt joint. The arc is struck between two components positioned in a specifically designed magnetic field. The arc moves so quickly that it appears as if the entire joint is simultaneously heated until the joint faces reach a temperature at which they can be forged together. The power to the arc is removed and the subsequent process controlled so that the components are welded with the required alignment and orientation. The process does not use filler material and any surface impurities are extruded during the forging phase. The result is a very fast and reproducible method of welding tubes.

Features: • The components are not rotated so the alignment can be maintained. • Uniform heating of the joint results in low distortion. • Welds a wide variety of materials including dissimilar combinations. • Can be interfaced with automatic handling systems.

Applications: • Vehicle drive shafts • Rear axle assembly • Wheel bearing housing • Pipe and tube assemblies • Shock absorber assemblies • Threaded sleeves assemblies • Nuts welded to plates

Materials: • Steels, Steel Castings and Cast Iron • Aluminum alloy • Stainless steels • Copper, Aluminum to copper, Cupro-nickel

For Queries and further information: Dr. Vladimir KACHYNSKYI
E.O.Paton Electric Welding Institute of The National Academy of Sciences of Ukraine
E-mail: magweld@yandex.ru

STEEL IMAGE - The Art of Metallurgy

Sometimes images of metals exhibit patterns worth pausing over. Steel Image of the Month is intended to share metallographic sights that one could find aesthetically pleasing. If we weren’t so technically minded, we might even call it “art.”

If you were to put vodka outside in really, really cold Russian weather, a portion of the water within the vodka would freeze around the perimeter of the bottle. During freezing, the alcohol would be rejected from the ice and the alcohol content in the unfrozen center would become more concentrated. Don’t try this at home. Steel undergoes the same ‘rejection’ process when solidifying. If cast improperly, the center of a steel part can become filled with a high concentration of particles, impurities and voids like this shown above, decreasing the performance of the steel.

For More such exciting images log on to www.steelimage.ca
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