

# ASM International Chennai Chapter Newsletter

Vol 11, Issue 2, May 2011

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**Dr. Baldev Raj**  
IGCAR, Kalpakkam

**Dr. N. Gowrishankar**  
Director, IP Rings

## From the Secretary ...



### Seasonal Greeting!

ASM International Chennai Chapter is happy to bring out the second issue of this newsletter for the year 2010-11. The issue covers on various activities organized by our chapter from January 2011 to April 2011. I am happy to note that several activities took place in that four months despite various other commitments and events such as financial year end pressures, annual examination in the academic institution, series of holidays for New Year and Pongal and most importantly the World Cup Cricket Series.

In this period of January-April 2011, we organized several activities which includes four technical lectures from academic and industry experts, workshop on "Materials Characterization and Failure Analysis". Also we have assembled thrice for the executive committee meeting which always shapes our planned events to success.

Our technical talks are always unique in nature which focus on not only on Materials Science and Engineering but also their consequences to the society. In this term, we had two interesting lectures which very relevant to metallurgical and process industries viz, induction heating and surface engineering on tool components. Two more technical talks emphasized on energy need for the developing India and their consequence related to environment. The workshop on Materials Characterisation and Failure analysis was well organized with lectures from leading experts on their respective areas. I am delighted to note that Student from various Institution are overwhelming participated in the program.

We are planning three more technical lectures and a Workshop on Welding in the next quarter. The workshop will be held on 4th June 2011 at Hotel comfort Inn Marina, Egmore, Chennai. Also, in this quarter we will be awarding the two best performing students and industries. We are happy that the response is good and started receiving nominations from various quarters.

ASM International Chennai Chapter can be proud that we achieve more than 100 percent of what had been planned. I sincerely thank executive committee members for their excellent teamwork and enthusiastic members for their wholehearted support which made us possible to realize to this stage. I would like to end my note that Chapter will always be looking forward to receive innovative ideas from its members to increase the number of activities.

Finally I indebted to all advertisers and printer for their support in bring out the newsletter.

**Dr.T.Sundararajan**

*Honorary Secretary, ASM International Chennai Chapter*

## Chapter activities during Jan 2011 to April 2011

### Technical Talks:

#### Carbon Credit - An Overview

Speaker: Dr. Dhanya M. Nambiar,

Centre for Environment Education. & Developments Pvt .Ltd, Mumbai

Venue and Date: Hotel Quality Inn Sabari on 6th Jan 2011



#### Induction Heating and Hardening, Challenges in Induction Design and Optimum Use of Flux Concentrators

Speaker: Prof. V.S. Nemkov,

Director R&D, Fluxtrol Inc, USA.

Venue and Date: Hotel Quality Inn Sabari on 03rd March 2011



#### Energy Ethics and Equity

Speaker: Dr. Baldev Raj,

Director and Distinguished Scientist,

Indira Gandhi Centre for Atomic Research, Kalpakkam

Venue: Hotel Comfort Inn Marina on 08th April 2011



#### Selection of Materials and Coating for Improved Tool performance

Speaker: Dr. T. Sundararajan,

Wheels India limited, Chennai

Venue and Date: Hotel Green Park on 28th April 2011



## Special Event: Felicitation Program for ASM Fellows



ASM Chennai Chapter facilitated two distinguished members, Dr. Baldev Raj, Director and Distinguished Scientist Indira Gandhi Centre for Atomic Research and Prof. B.S. Murty,

of Indian Institute of Technology for elected as the fellow of ASM International. The award is the 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.

Chennai chapter organized the felicitation program for both the fellows on 08th April 2011. Mr. V.L. Sridharan, Chairman of Chennai Chapter welcomed the gathering and highlighted the active contribution to the chapter by both elected fellows.



Mr. V. Parthasarathy, Past President of India National Council, in his felicitation address applauded Prof. Murty for his outstanding contribution in the field of Nano materials and his active role in establishing several student chapter activities for Chennai chapter. Mr. B.K. Venkatesh, Vice Chairman recalled his association with Dr. Baldev Raj as the scientist at Bhabha Atomic Research Centre (BARC) and elaborated his valuable contribution in the field of Non destructive testing and nuclear technology. Both Prof. B.S. Murthy and Dr. Baldev Raj thanked Chennai chapter for the felicitation function and regarded the chapter activities. Subsequently, Dr. Raj addressed the gathering with special Technical lecture "Energy, Ethics and Equity".



The meeting is concluded with vote of thanks from Dr. T. Sundararajan, Hony. Secretary and followed by cocktail dinner.

## Seminar/Workshops/Training:

### Two day workshop on Material Characterization and Failure Analysis

held on 4th & 5th March, 2011 at Indian Institute of Technology, Madras

A Two-Day Course on Materials Characterization and Failure Analysis was conducted on March 4-5, 2011 at Central Lecture Theatre, IIT Madras by ASM International Chennai Chapter in association with Kalpakkam-Chennai HRDC of IIM. Prof. B.S. Murty and Dr. A.S. Gandhi, IIT Madras are the coordinators for the course. The course was attended by about 70 participants from industry, research laboratories and academia.

The topics covered in the course were Metallography and Microstructure, Scanning Electron Microscopy, Mechanical Testing, Strengthening Mechanisms, Chemical Characterization, Corrosion and its Protection, Principles of X-ray Diffraction, Residual stress measurements by X-ray diffraction - case studies, Non Destructive Evaluation, Principles of Fractography, Failure analysis - case studies.



## Announcements

### ASM Young Metallurgist Award

ASM international Chennai Chapter constituted the Young Metallurgist award in the year 2007 and continuously awarding to the prospect young metallurgist and students from our affiliated chapters. We invite each chapter to send two nominees for the award on or before 31st May 2011. Following are the eligible criteria for the nominations.

1. Nominee should be affiliated to Materials Advantage Student Chapter
2. Student from Bachelor degree in Metallurgy / Mechanical Engineering and /or Master Degree with Metallurgy/ material science focus.
3. Nomination shall contains their curriculum vitae and project work carried out in the final semester
4. Recommendation letter from one of the following - HOD/Faculty/Student chapter coordinator

The nominations can be sent to

#### ASM INTERNATIONAL CHENNAI CHAPTER

C/O.Madras Metallurgical Services P.Ltd.  
No.24, Lalithapuram street,  
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### ASM Industry Excellence AWARD

ASM international Chennai Chapter constituted TWO AWARDS, one each for Small and Medium Scale Industries. The following criteria will be given due consideration for the selection of the Award.

- The company should have been in existence at least for a minimum period of five years.
- Actions initiated to improve quality and production by adopting latest technology and or management techniques in the last five years
- Lean management effort in the last 3 years.
- New materials used to increase the manufacturing efficiency and or the cost effective performance of the end products.
- Use of non-conventional energy
- New technological processes introduced in the last couple of years.
- Export promotion efforts and the percentage of export sale.
- Treatment of waste and other environmental activities.

For further Details and application please contact

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### Contribution to Tsunami Relief Fund to Japan

ASM International contributed 1000 USD to American Red Cross for recent devastation in Japan's Natural calamity. Chennai Chapter is joined with head quarters by contributing additional 200 USD from our chapter. Our tireless work on not only to materials fraternity but also to the cause of humanitarian will continue with all our members support.

## ADVANCED DIPLOMA IN METALLURGY AND MATERIALS SCIENCE by MMS and AVIT

Madras Metallurgical Society (MMS) along with Arupadai Vedu Institute of Technology (AVIT) launched new course on “ADVANCED DIPLOMA IN METALLURGY AND MATERIALS SCIENCE”. This would be highly beneficial to non-metallurgical practicing metallurgy as a professional. The duration of the course is one year and the classes are to be conducted during weekends (Saturday and Sunday ). For any further enquiries, please do contact the Course Coordinator,

**N.Lakshminarayanan**

Coordinator | ADMMS

E-mail: [mmsjointsecretary@gmail.com](mailto:mmsjointsecretary@gmail.com)

Mob: 98401 38585

### Feedback on Newsletter

I'm very excited to see that my web site and steel image is distributed on the other side of the world. That's great! Feel free to use it as you wish, just if you don't mind, include me in the distribution of it. Good newsletter as well. Much more thorough and informative than what you do here. I'm going to think about it yet we should probably do something similar.

Shane Turcott, Steel Image Inc, [www.steelimage.ca](http://www.steelimage.ca)

## EC Meetings Held in 2010-11

**4th E.C. Meeting held at Anna Nagar Towers Club on 27th January 2011**

**5th E.C. Meeting held at Anna Nagar Towers Club on 22nd February 2011**

**6th E.C. Meeting held at Anna Nagar Towers Club on 02nd April 2011**

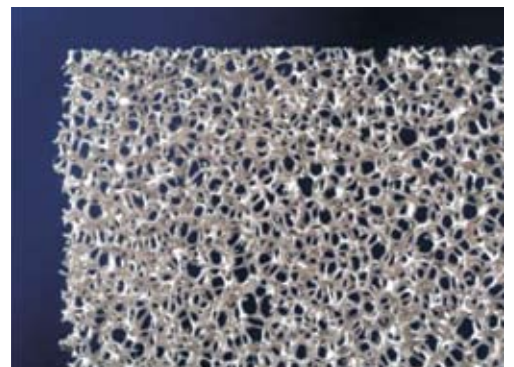
## Knowledge Store

### Titanium foams replace injured bones

Flexible yet rigid like a human bone, and immediately capable of bearing loads: A new kind of implant, made of titanium foam, resembles the inside of a bone in terms of its structural configuration. Not only does this make it less stiff than conventional massive implants. It also promotes in growth into surrounding bones.

The greater one's responsibilities, the more a person grows. The same principle applies to the human bone: The greater the forces it bears, the thicker the tissue it develops. Those parts of the human skeleton subject to lesser strains tend to have lesser bone density. The force of stress stimulates the growth of the matrix. Medical professionals will soon be able to utilize this effect more efficiently, so that implants bond to their patients' bones on more sustained and stable basis. To do so, however, the bone replacement must be shaped in a manner that fosters in growth – featuring pores and channels into which blood vessels and bone cells can grow unimpeded. Among implants, the titanium alloy Ti6Al4V is the material of choice. It is durable, stable, resilient, and well tolerated by the body. But it is somewhat difficult to manufacture: titanium reacts with oxygen, nitrogen and carbon at high temperatures, for example. This makes it brittle and breakable. The range of production processes is equally limited.

The titanium foam is the result of a powder metallurgy-based molding process that has already proven its value in the industrial production of ceramic filters for aluminum casting. Open-cell polyurethane (PU) foams are saturated with a solution consisting of a binding medium and a fine titanium powder. The powder cleaves to the cellular structures of the foams. The PU and binding agents are then vaporized. What remains is a semblance of the foam structures, which is ultimately sintered. “The mechanical properties of titanium foams made this way closely approach those of the human bone”. “This applies foremost to the balance between extreme durability and minimal rigidity.” Bone-like rigidity allows for stress forces to be transmitted; with the new formation of bone cells, it also fosters healing of the implant. Consequently, stress can and should be applied to the implant immediately after insertion.



For more information contact **Dr.-Ing. Peter Quadbeck or Cornelia Müller** [www.fraunhofer.de](http://www.fraunhofer.de)

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