Seasonal Greetings to you all!

News Letter

December 2018

ASM International Chennai Chapter

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Dr. T. Sundararajan, Chairman
Wheels India Ltd.

Dr. M. Kamaraj, Vice Chairman
IIT Madras

Mr. N. Sampath Kumar, Vice Chairman
Ambattur Metal Treaters

Dr. Srinivasa Rao Bakshi, Secretary
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Mr. S. Shankar, Joint Secretary
Caterpillar India Pvt. Ltd

Mr. R. J. Venkatesh, Treasurer
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Dr. U. Kamachi Mudali, Past Chairman
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Mr. V. L. Sridharan, Chair, ASM-INC
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Mr. V. P.Parthasarathy, Chair: Education
Brakes India Ltd.

Mr. B. K. Venkatesh, Chair: Awards
Techmat Enterprises India P. Ltd.

Mr. C. Renganathan, Chair: Interchapter Relations, Chennai Metco

Dr. T. M. Sridhar, Chair: Web Administration & News Letter
Dept. of Analytical Chemistry, University of Madras

Dr. V. R. Chari, Chair: Young Professional development & promotional activities
GH Induction Pvt. Ltd..

Dr.Veerabadran EC Member
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Mr. R.V. Chari, EC Member
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Dr.Murugaiyan Amirthalingam, EC Member
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Mr. V. Kumara Subramanian, EC Member
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Mr. D. Ravi Kumar, EC Member
Stanadyne Amalgamations Pvt. Ltd.

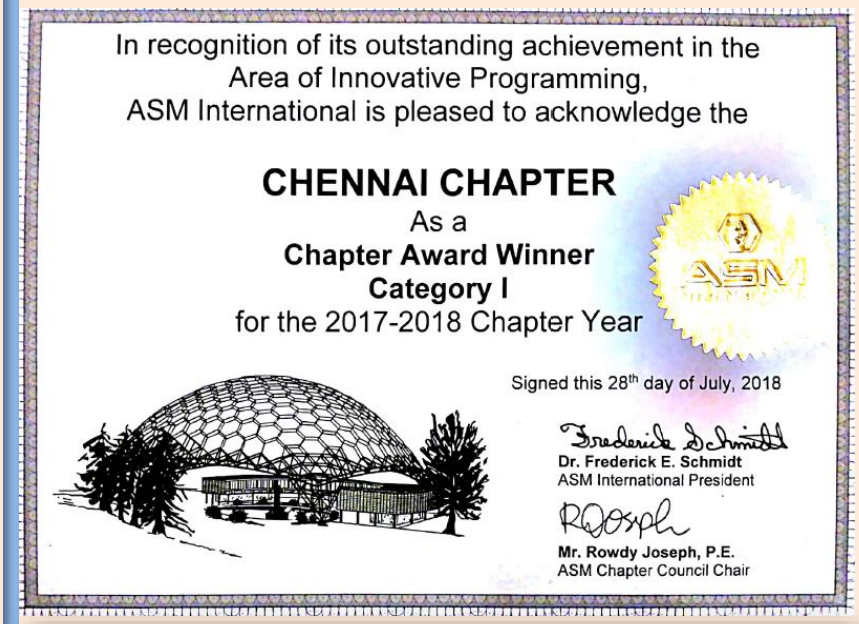
Mr.Gunasekaran EC Member
Consultant Metallurgist

Mr. Sajikumar, EC Member
Maxwarm Engineering

Address for Correspondence
ASM International Chennai Chapter
Pearl Apartments, Plot No:2113, 13th Main Road,
Anna Nagar, Chennai - 600 040.

Chennai chapter Honours / Awards / Recognitions

Congratulations to all the members for these achievements !



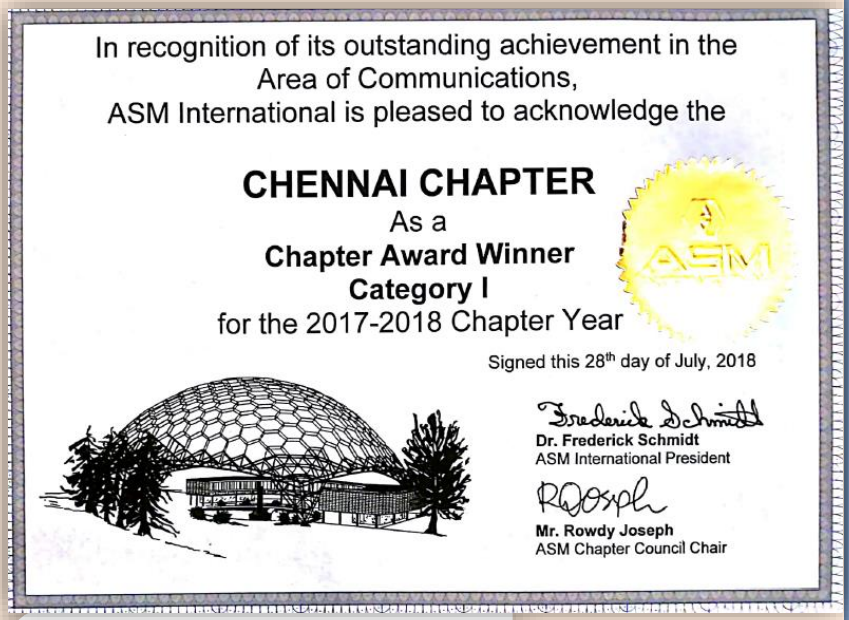
In recognition of its outstanding achievement in the Area of Innovative Programming, ASM International is pleased to acknowledge the

CHENNAI CHAPTER
As a
Chapter Award Winner
Category I
for the 2017-2018 Chapter Year

Signed this 28th day of July, 2018

Dr. Frederick E. Schmidt
ASM International President

Mr. Rowdy Joseph, P.E.
ASM Chapter Council Chair



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Prof. M. Kamaraj

Fellow ASM International

Office Bearers of ASM International Chennai Chapter

Dr. T. Sundararajan
Chairman
Wheels India Ltd.

Dr. M. Kamaraj
Vice Chairman
IIT Madras

Mr. N. Sampath Kumar
Vice Chairman &
Online Membership chair
Ambattur Metal Treaters

Dr. Srinivasa Rao Bakshi
Secretary
IIT Madras

Mr. R. J. Venkatesh
Treasurer
Savita Oil Technologies

Mr. Shankar Subburathinam
Joint Secretary &
membership Chair
Caterpillar India Pvt. Ltd

Dr. U. Kamachi Mudali
Past Chair
Heavy Water Board

Mr.V. L. Sridharan
Chiar ASM INC
Consultant

Mr. C. Renganathan
MEI Chair
Chennai Metco Pvt. Ltd.

Mr. V. P. Parthasarathy
Education Chair
Brakes India Ltd.

Mr. B. K. Venkatesh
Chair, Awards
Techmat Enterprises

Dr.T.M Sridhar
Web administrator &
Newsletter
University of Madras

Dr.K.M.Veerabdran
EC Member
MIT Anna university

Mr. V. R. Chari
Young Members Chair
GH Induction Pvt. Ltd.

Mr. Gunasekaran
EC Member
Consultant -Metallurgy

Mr. D. Ravikumar
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Stanadyne India

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IIT Madras

Mr. G. Sajikumar
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Mr. R.V. Chari
EC Member
GH Induction Pvt Ltd

Mr. V.Kumara Subramaniam
EC Member
Tube Investments India Ltd

Expert panel Discussion on Materials for 21st Century

Expert panel Discussion on Materials for 21st Century

"Paradigm of Materials Development and Manufacturing"

Expert panel Discussion on Materials for 21st Century – a report.

ASM International Chennai Chapter is recognized for its innovative programs. Following suit an **Expert panel Discussion on Materials for 21st Century "Paradigm of Materials Development and Manufacturing"** was held on 06th October 2018 from 7.00 to 9.00 pm. The elite panel members were introduced by **Dr. T. Sundararajan, Wheels India and the moderator for the evening discussion.** The expert members were

Dr. F. Schmidt, Jr., Director of Technology, Advanced Applied Services, Saint Charles, IL, USA,
Dr. U. Kamachi Mudali, Distinguished Scientist & Chairman & Chief Executive, Heavy Water Board (HWB), Department of Atomic Energy, Mumbai.
Dr. M. K. Surappa, Vice Chancellor, Anna University, Chennai
Dr. M. Sathya Prasad, Vice President, Product Development, Ashok Leyland, Chennai,
Dr. P. Sivakumar, Former Director, Combat Vehicles Research & Development Establishment (*CVRDE*), Chennai

Dr. Schmidt in his opening remarks attributed the advancement in US industry to the periodic table as every element in the table is being used. The advanced materials based technologies include hot additive manufacturing, composites, energy and environment material. Among others medical devices, electronics and transportation are major areas that serve the society.

Prof. Surappa highlighted that materials transformation in the next few years to disruptive technologies, lifestyle changes, high performance, highly efficient and high temperature stress resistant materials. Light weight composites, High strength materials were obtained by heat treatment to improve the properties. But today there is no trade off as nanomaterials and engineering, thin film coatings, drug delivery systems which involve the processing of materials in large quantities is a challenge today. Graphene as a material has manufacturing challenges in its development from lab to pilot to industry.

Dr. Sivakumar commented on the challenges in defence sector. The major challenge in battle tank manufacturing is weight reduction as it is expected to go down from 90 to 60 tons with integration of all its components – engines, transmission, electronics, 34 wheels and now how to bring down the weight? FRP is the choice and challenge but the futuristic of main battle tank would be to further weight reduction to range from 25 to 50 tones and more students need to take up metallurgy which is the need of the hour.

Dr. Sathya stressed on light weight materials and supply chain becomes important as we buy sheets from Mexico, stamp it in Taiwan manufacture in China and painting in Bangladesh. Thus, integration and delivering a product is dependable. Radio was once an obsession, Casio came out with a watch were we need not change the battery for 10 years but today smart watches need to be charged every day. New approaches are accompanied by capital investment.

Expert panel Discussion on Materials for 21st Century

Dr. U. Kamachi Mudali expressed that if the temperature of the earth increases by 1°C due to increase in CO_2 production as the industries are growing and we need more power, Coal is a major contributor to this but on the other hand renewable energy does not meet industry needs. Advance technology with less CO_2 releases can be implemented in two ways ie., energy sources for future and coal replacement technology. Hydrogen form water electrolysis is energy consuming and also difficult to store and liquefy. But volume wise hydrogen is found everywhere in this earth. Hydrogen production with nuclear plants that generate heat @ 520°C, 20 Mbar. A technique combing Hydrogen and Sulphur at 920**°C** /20 Mbar but materials for this is the need of the hour.

Coal based super critical thermal plants have advantages of 700**°C** /300 bar. New advance materials are being developed by BHEL, IGCAR were 30-45% increase in production would bring about a decrease in CO_2 production so that our grand children can live in a healthy environment. High temperature coatings, Thermal Barrier Coatings, Ta Nb alloys are further technological supports to this development.

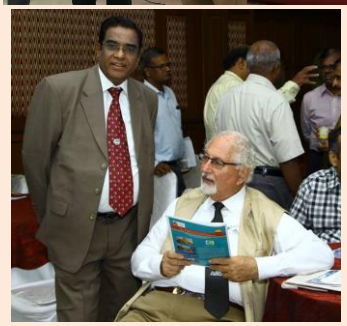
Round 2: Today government funds R&D for power and how can we get new products ?

Dr. Kamachi : New ICME that is Integrated Computerized Materials Engineering is a technique were components/ prototypes can be made. Delhi iron pillar is made of wrought iron containing 60 ppm Sulphur, 30 ppm Carbon and weighing 6 tonnes as a single piece manufactured by hot forge technology. South India panchaloka alloys were made with out studying phase rule, entropy, enthalpy but they are existing for 1000 years and gold/bronze has been used in shrines but no corrosion occurs. We lack passion where we have to evolve our own process. No universal material would exist for 60 years of life.

Dr. Schmidt : generation of materials already in use in components were obtained by studying the past. ASM has documented the techniques used by fore fathers.

Prof. Surappa : graphene and nano composites changes in methodology for mass manufacturing is needed. Steels. high strength steels will continue in existence. Graphene is a light weight material but its CO_2 adsorption – out of the box chemistry and fashion technology is like catalyst and TiO_2 which changes its colour ie a mix of departments and disciplines changes like in smart phones where colour changes in one minute is need of the hour.

Expert panel Discussion on Materials for 21st Century



Dr. Sivakumar – at par with international standards today Indian industry is ready to take prototype changes in industry, Structural weight and performance is also important. Nano is vital, cooling system in tanks at 52°C, engine should perform with nano additives to coolants in labs. Standards for nanomaterials have to be developed with good support from government.

Dr. Sathya – de spectrum … There is need to fix the purpose to design the product. We have access to materials and technology but cost ? Tata nano car is not a description of BMW or Volvo.

Rapid fire : Metallurgy as a carrier.

Dr. Schimidt: cold fusion of materials generates a lot of investment. Further, there are two challenges – battery energy storage technology and harvesting renewable energy.

Prof. Surappa : disruptive technologies materials is a key.

Dr. Sivakumar : smart is polluted word is it the future that is to monitor the sun in Rajasthan or IOT (internet of things).

Dr. Schimidt : additive manufacturing on ships and US navy now is able make parts, download and port on the ship. In Michigan prosthetic devices are designed from MRI scans using the meshes from Singapore and manufactured in Europe

Dr. Sathya : Ashok Leyland uses 3 D feel technology.

Dr. Kamachi : in his philosophical comment - God has given brain which is the same but everyone cannot be given the same job. Spend 10% on original technology that will stay even after we pass away.

Prof. Surappa : Big way to go

Dr. Sivakumar : changes keep evolving, 3DP changes were from 2D, 3D, CAD, CAM, FEM reducing time and investment.

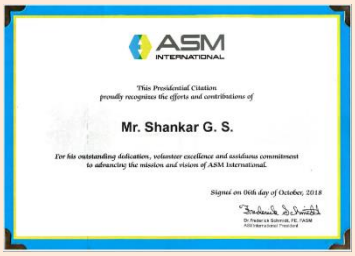
Dr. Sathya : electronics use it loose it – predictive reliability.

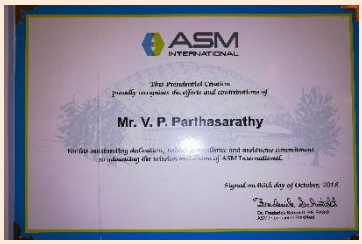
The program ended with a recap by **Dr. Sundararajan** a formal thanks to all the eminent speakers for their participation in this event and to the members who had come to attend the program.

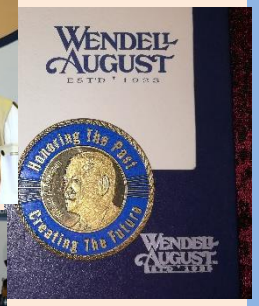
Dr.Frederick E. Schmidt, Jr., P.E., FASM, President ASM International visit to Chennai

The Chennai Chapter News Letter for the period Jan-June 2018 was released by Dr.Schmidt, President ASM International.

The Executive Committee of ASM International Chennai Chapter extended a warm welcome to **Dr.Frederick E. Schmidt, Jr., P.E., FASM, President ASM International** on 6th October 2018 at Radha Regent by 6.30 PM . It was an opportunity to display the vibrant materials community of Chennai chapter and to make him feel proud to visit our chapter. Mr. Bala was the master of ceremony for the day. The program started with an invocation by Ms. Shantha and the welcome address was delivered by Dr. Sundararajan, Chapter Chairman. The annual report was presented as an audio-video visual designed and developed by our young members Mr. Vignesh, Mr. Hari and Mr. Naveen Prasad. Prof. Kamaraj, Vice Chairman introduced the chief guest to the audience. Dr.Schmidt showered applauses on Chennai Chapter for its overall chapter performance and commented that best people performed as a group to lead in to the future. Around 9 million USD was spent on publishing digitally and it reaches faster to the people. Materials information society is one of the major extension activity of the family. This was followed by presentation of ASM International and Chennai Chapter awards and citation recognizing their achievements and contributions of its members to the chapter. Mr. Sampath Kumar, Vice Chairman read out the citations. The awards were presented by Dr.Schmidt, President ASM International. The recipients and awards are given below :

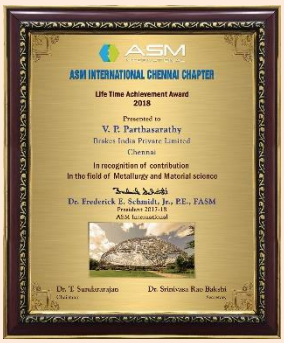


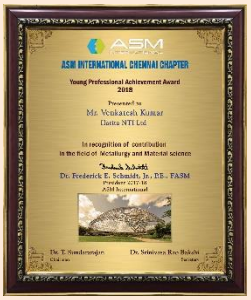


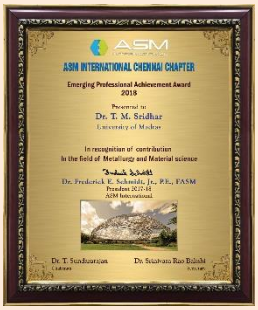


Congratulations to the Award Winners

ASM International Chennai Chapter Awards 2018 presented to the following personalities in recognition of their contribution in the field of Metallurgy and Material Science from Dr.Schmidt, President ASM International.

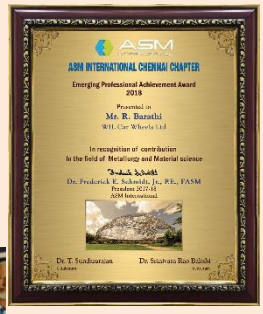






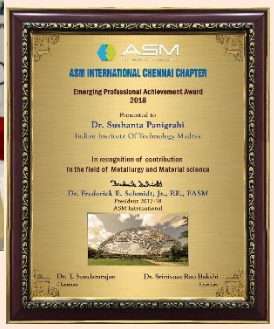
Life Time Achievement Award presented to Mr. V.P.Parthasarathy, Brakes India Private Limited, Chennai

Young metallurgist Award resented to Mr.Venkatesh Kumar, Harita NTI Ltd



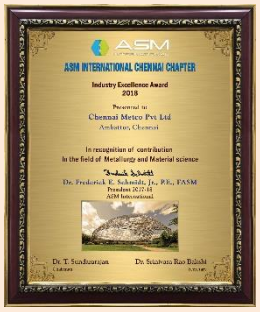
Emerging Professional Achievement Award presented to Mr.R.Barathi, WIL Car Wheels ltd, Chennai

Emerging Professional Achievement Award presented to Dr.Sushanta Panigrahi, Indian Institute of Technology Madras, Chennai



Emerging Professional Achievement Award presented to Dr.T.M.Sridhar, University of Madras

Industry Excellence Award to Chennai Metco Pvt Ltd, Ambattur, Chennai



Congratulations to the achivers

Awards and Acheivements

President Appreciation

Dear colleagues, and dedicated Volunteers,

It was a pleasure meeting with each of you! The hospitality by each chapter, meetings, student and workshops were very well attended, thanks to the obvious planning by ASM India leadership.

We congratulate each and every one of you all for having put together such a tremendous welcome given not only to dignitaries but also a broad age group of members.

The Board of Trustees "Highly" appreciate the volunteerism, the Energy, and the Passion you exhibited. I was highly impressed with the turnout of young engineers and students at the meetings!

Please keep up the recruiting and follow-up which can only be accomplished by you folks in India!

May you all keep the ASM flag fluttering in the Prominent Universities & public events high ON THE PODIUM / pedestal in years to come.

God bless the efforts of the India council and the Task Force as we work to advance the "Service to Members" as our first priority!

Fred Schmidt
President

Aurora Prem Kumar
Trustee

ASM INTERNATIONAL, USA

Activities of the Chapter

Technical Lectures

Dr.A.P.J.Abdul Kalam Memorial Lecture

On

STRATEGIC MATERIALS IN SPACE

INC has been celebrating Materials Day every year around October 15th the birth anniversary of DR.A.P.J.Abdul Kalam with Memorial Lecture named after the Great Scientist who served as the 11th President of India.

This year Chennai chapter has taken a lead to organise the Lecture by the Eminent Scientist Dr. P. V. Venkitakrishnan, Outstanding Scientist –ISRO, on Tuesday 23rd October @ Central Lecture Theatre in IIT by 3.00 PM.

Chapter Activities

Technical Lectures

A technical talk on "**New Generation Quenching Oils and Polymers**" was presented by ***Mr. Atul Kamble, GM - Heat Treatment, Hardcastle Petrofer Pvt. Ltd*** on 24th November 2018 at Hotel le Royal Meridian, Chennai. The lecture was organized by ASMICC and MMS supported by Hard Castle Petrofer.

"Dr. Placid Rodriguez Memorial Lecture" (PMRL) was instituted by The Indian Institute of Metals (IIM), in 2009, under the pioneering leadership of Dr. Baldev Raj, Director, National Institute of Advanced Studies, Bangalore. Since then, this event is being organised annually by the **PRML Committee on behalf of** Kalpakkam and Chennai chapters of The **The Indian Institute of Metals. This years lecture was delivered by *Dr. Samir V. Kamat* Distinguished Scientist & Director General Naval Systems and Materials, DRDO on "*Materials Technologies for Future Defense Systems: Aeroengines*" on 5th October, 2018 (Friday) at 15.30 hrs in IC&SR Auditorium, IIT Madras, Chennai. ASMICC and MMS members were invited and they attended the lecture.** Dr. Samir has his has completed his B. Tech (Metallurgical Engineering) -IIT Kharagpur, 1985 and Ph.D (Materials Engineering), Ohio State University, USA,1988 and has 180 papers in International Journals.

Activities of the Chapter

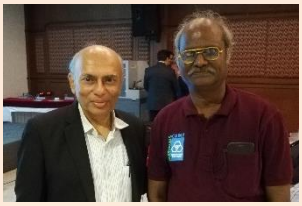
A technical talk on **"Using simple MS Excel for making data driven business strategies"** was presented by **Dr. Chandrasekhar C K, Data Scientist, Statistician and 6 Sigma Black Belt, at 9.30 A.M, on Sunday on 19 August 2018 at Alumni Club, Anna University.** The talk was co-organized with Madras Metallurgical Society and IIM, Chennai Chapter.

The talk exposed the participants to application of Microsoft Excel software for developing business strategies. Using simple examples, the course highlights how excel functionality can be applied to make data driven business decisions. The course assumes that users have reasonable familiarity with spread sheet basics.

"

A technical talk on "**Innovation Flow-How To Transform our ideas in to innovations**." was presented by **Dr Shankar Venugopal** Vice President, Mahindra & Mahindra Mahindra Research Valley, Chennai.at 6.30 P.M, on Saturday 6th January, 2018 at JP Hotels, Chennai. The talk was co-organized with Madras Metallurgical Society and IIM, Chennai Chapter.

Chapter Activities



A technical talk on **"Optical / Atomic Emission Spectrometers (OES / AES)"** was presented by **Mr. Mukund Pant, Director and Mr. P. D. Pant, Chairman and Managing Director**, **METAL POWER ANALYTICAL (INDIA 6.30 PM, on Saturday, 21st July 2018 at Hotel Radha Reagent.** The talk was co-organized with Madras Metallurgical Society and IIM, Chennai Chapter and METAL POWER ANALYTICAL (INDIA) PVT. LTD. Mumbai. Metal Power provides a comprehensive range of products, applications and services to meet the analytical needs of metal industries. They covered the topics across organization transformation, strategy definition and implementation, manufacturing efficiency improvement and supply chain optimization. Their present role focuses primarily on widening and deepening our geographical reach and product portfolio while also strengthening key infrastructure areas for the Company." They had an interactive session with the members on their practical issues faced during analysis.

ASM International Chennai Chapter organized a Two-day workshop on " **New Vistas In LIGHT WEIGHTING**" on 30th and 31st August 2018, at Feathers, A Radha Hotel, Manappakkam, Chennai. Eminent speakers from Overseas, Industries, Academics, and R&D Institutions delivered the lectures covering the various aspects including adaption of advanced technologies to increase fuel efficiency, reduce emissions levels and enhance the driving dynamics of the vehicle. In addition the detailed discussion will be on advanced materials, processes, new technologies etc. were also held.

There was an active participation from technical experts from various industries across the country. The course was organized by Mr. V.P Parthasarthy Mr. G.S Shankar and Dr. Sushanta K Panigrahi.

Executive Committee members, ASM ICC.

Honours received by our Chapter Members

Dr. U. Kamachi Mudali, Distinguished Scientist & Chairman & Chief Executive, Heavy Water Board (HWB), Department of Atomic Energy, Mumbai selected for the **Frank Newman Speller Award 2019 from NACE International, USA**. The award is given for outstanding contributions in corrosion engineering. I am the first person to get this award in Asia, excl. Japan, for the first time. The award includes an inscribed plaque and S1000 cash, and a plenary talk at the Annual CORROSION 2019 Conference at Nashville, TN, USA during March 24-28, 2019. Further **Recognition and** Conferred with **"Honours for him include :**

- **Distinguished Scientist** promotion (highest grade) from July 01, 2018 by DAE, Govt. of India.
- **Elected President**, Electrochemical Society of India, IISc Bangalore for 2018-2019.
- **Elected to the General Council** of Indian National Academy of Engineering.
- **Elected as Fellow** of National Academy of Sciences India (NASI)

Mr. V.Pari, ASM India Council has been conferred this year's "**Life Time Achievement" award in NDT by ISNT.**

Prof. B. S. Murty, Department of Metallurgical and Materials Engineering on being elected as a **Fellow of The World Academy of Sciences (TWAS)** for his contribution to the advancement of science in developing countries, effective from 1st January 2019. MURTY, Budaraju Srinivasa (India): (M) PhD, Professor, Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India. The nominee has done major work on thermodynamic prediction of glass formation in multicomponent systems. His concept of milling maps to identify conditions for phase formation by mechanical alloying has attracted a number of groups to synthesize advanced materials through this route.

He has been selected for **JC Bose National Fellowship** which is awarded to recognize active scientists and engineers for their outstanding performance and contributions by the Department of Science & Technology, New Delhi.

Mr. V.L. Sridharan, ASM INC Chair elected as member of the **nominations Committee of ASM International, USA.**

Dr. T. Sundararajan, Wheels India , elected Fellow of ASM International, USA.

Dr. N. Rajendran, Director, Center for International affairs and professor, Department of Chemistry has been selected for **Fellow Award of NACE International , USA**.

Dr. T.M. Sridhar, Asst. Professor and Head i/c, Department of Analytical Chemistry, University of Madras has been elected as **Fellow of Academy of Sciences, Chennai.**

Fellow ASM International

Fellow ASM award was presented to **Prof. Kamaraj** at ASM's annual Awards Dinner, Tuesday, October 16th in Columbus, OH during Materials Science & Technology 2018 (MS&T'18). The citation is :

Dr. M. Kamaraj, FASM

Professor, Metallurgical and Materials Engineering

Indian Institute of Technology Madras, Chennai, India

"For significant contributions to the understanding of tribological behavior of surface coatings and development of wear resistant coatings for hydropower turbine blades, bio-implants and dissimilar joints for automobiles.

https://www.asminternational.org/2018-fellows

ASM CHAPTER HONOR ROLL

The ASM Volunteerism Committee proudly announces the 2018 Chapter Volunteer Honor Roll recognizing individuals whose performance is exemplary and essential for ASM's success. All Chapters were invited to nominate members who serve as volunteers in an ongoing capacity. Submissions for the 2019 Honor Roll will open in March. Join us in recognizing the following 2018 Chapter Honor Roll volunteers.

Congratulations to

Mr. V.P. Parthasarthy

as published in AM&P News Letter, 2018

Chennai Chapter

V.P. Parthasarathy is known for his knowledge of industrial metallurgy and best practices. He conducts Chapter workshops, seminars, and student outreach programs. As chair of the technical program, he drafted the curriculum and organized metallurgy and materials science training programs for academics, industry professionals, and students. He also mentors the core committee and inspires young team members with his professional and energetic volunteering style.

Painting and Protective Coatings workshop report

ASM International Chennai Chapter organized an **One-day workshop on "Painting and Protective Coatings"** in association with **Berger Paints** on 21st December 2018, **Government Industrial Training Institute, ITRAIN, Berger Paints Facility**, Near Ambattur Telephone Exchange Bus Stop, Ambattur Chennai 600 053. There was an overwhelming response with more than 55 delegates attending the workshop. The following topics were covered by the resource persons :

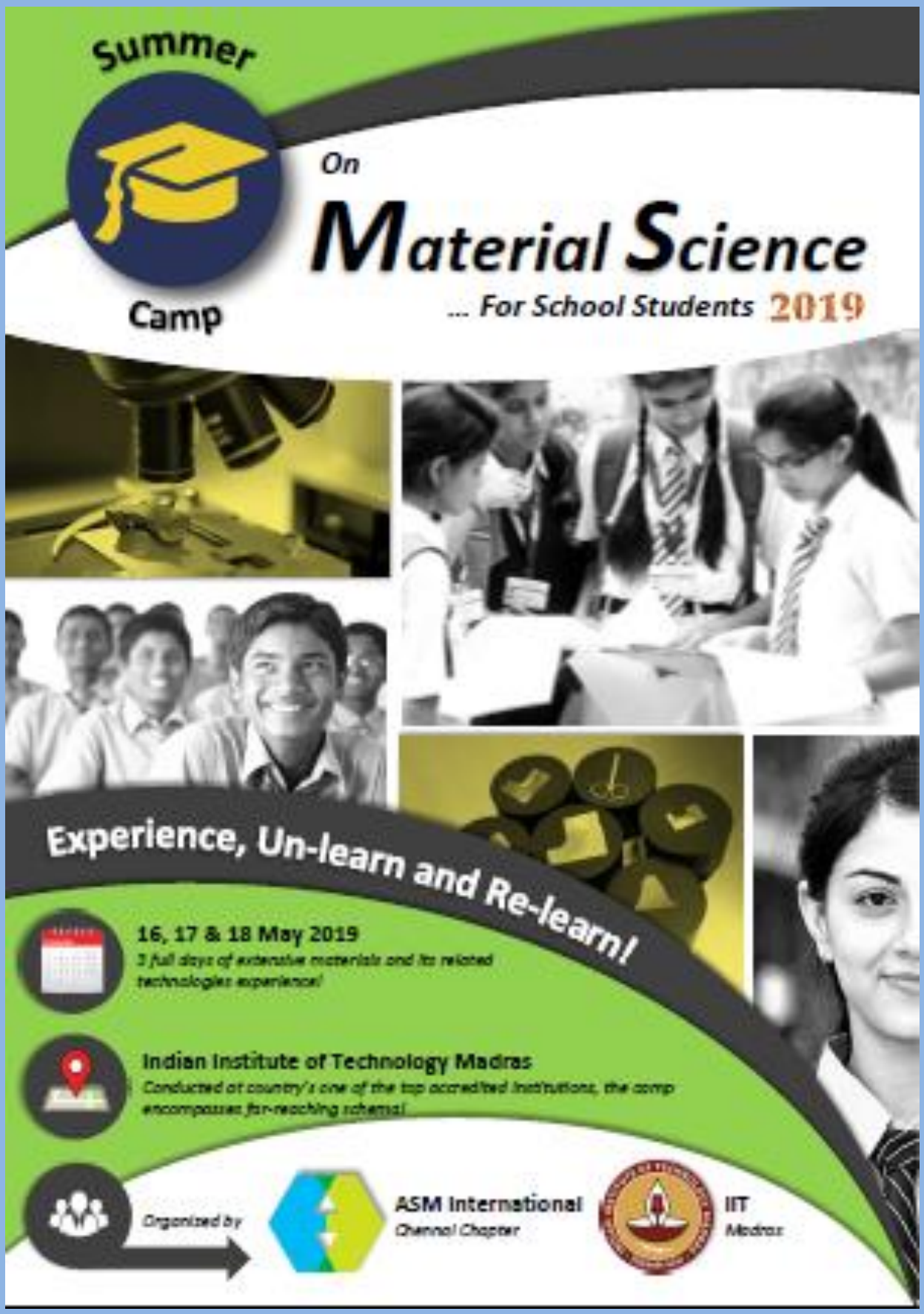
- Principles of corrosion & Impact on Industry - **Dr. T.M. Sridhar**, University of Madras
- Ecofriendly Energy Efficient Multimetal Pretreatment System - **Mr. Atul Karpe**, DGM – Marketing and Techncial Services. Chemetall Rai (BASF), Pune
- Powder Coating - **Mr D Satyanarayana**, Sr GM, MSE, Brakes India Private Limited
- Paint Shop Challenges and automation - Topics :a) Design of booth for automotive plastic, b) Design of booth for powder painting, c) Design of booth for process painting, **Dr. M.K. Ganesan**, Managing Director, Prism Surface coatings, Bangalore
- Surface Preparation Standards for industry -**Mr. K. Sivakumar**, NACE level 2 Instructor, Berger Paints, Chennai
- Liquid Paint – Chemistry, Applications and Practices - **Mr. S. Ravichandran**, Sr Manager T&D Berger Paints, Kolkata
- CED Painting - **Mr P Murugadas,** TAFE (DBR) Sr.Manager – Paint shop.Tractors and Farm Equipment Limited. Doddaballapur Operations, Bangalore
- Coating Defects during application and while in service - **Mr. R. Venkatesan**, SSPC & FROSIO Certified Trainer & MD, Harvish Technical Services, Chennai.
- This was followed by lab sessions which included demonstration on surface preparation, Air spray, airless, express painting, painting simulator & inspection equipment by **Mr. S. Ravichandran & Mr. K. Siva Kumar, Berger Paints**. The program came to an end with Certificate Distribution and vote of thanks.

Activities of the Chapter

Activities of the Chapter

Acknowledgements : ASMICC acknowledges ASM student members **Mr. V. Balasubramani** and **Mr. M. Sundara Ganesan**, University of Madras for their support in preparing this news letter.

Achivements & Awards



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