JUNE 2023

ASM INTERNATIONAL

CHENNAI CHAPTER

NEWSLETTER

Words From Chairperson

Dear Distinguished Members,

I hope this message finds you all in good health and spirits at this the endemic stage of Covid-19. I have completed one year as Chairman of ASM International Chennai Chapter (ASMICC) and this newsletter features the events conducted for the past one year. The monthly technical talks were delivered by renowned faculty/researchers and industrialists from national and International institutes. The Chennai chapter conducted a industry-focus Workshop on Heat Treatment and it was well attended by many industries in Chennai and other parts of India. The lectures delivered by industry experts was useful, especially for young engineers working in heat treatment industries. Our chapter is constantly supporting and motivating all associated MA chapters for conducting their technical programmes.

Our Chapter was pleased to receive the distinguished members from ASM International, USA, Mr. Pradeep Goyal, Senior Vice President, Dr. Navin J. Manjooran, Vice President, Dr. U. Kamachi Mudali, Trustee, Prof. Ravi Ravindran, Past President. It was a great opportunity for us to discuss with them a strategy to increase the membership and sustaining the Materials Advantage (MA) chapter programs.

We are very happy to announce the forthcoming Fourth Edition of International Conference and Expo on "Heat Treatment & Surface Engineering (HTSE 2023), during September 28-30, 2023 at Chennai, India. The participation of Industries, research, and academic institutions are encouraging, and I hope under the leadership of Chairman Dr. U. Kamachi Mudali, that our organising committee members will make the program a grand and memorable event.

I am happy to note that our members have received many national prestigious awards, and patents. Warmest congratulations on your achievements !!. Wishing everyone more success in the future. I express my sincere appreciation to Dr. Shubrajit Bhaumik, and members of editorial committee for bringing out this newsletter. I am sure that this edition will provide valuable information on activities and other details of the chapter to our ASM community, academics and industries, MA chapter students, and research scholars. I am confident that together with members, industries, faculties, and students, we will continue to contribute to the growth of ASMICC and to achieve greater heights. My sincere gratitude and profound thanks to all our members from academic, research institutes, and Industries for their excellent contributions to the vibrant activities of the chapter

N. Sampathkumar
Chairman-ASMICC

One Day Workshop

CURRENT TRENDS IN INDUSTRIAL HEAT TREATMENT

3rd Feb 2023

Topics Covered During Workshop

- Principles of Heat Treatment
- Heat Treatment Processes
- Induction Hardening
- Heat Treatment Defects
- Process Monitoring & CQI 9 Requirement

ABOUT THE WORKSHOP:

The conference meet was held on 3/3/2023 by American society's of metal and it was all about : development of heat treatment , modification microstructure, mechanical properties hardening, reduction in instability of components, strengthening, impacts , industrial harding , vacuum heat treatment, heat treatment defects and remedies, advancement in LGVC and failure and defects of materials.

1. Heat treatment process :

. Purpose of heat treatment which are like modifications of microstructure, mechanical properties, reduction in brittle and residual.

Developments for heat treatment

. Annealing

. Normalising

. Through hardening

. Case hardening

. Laser hardening

INDUSTRIAL HARDENING:

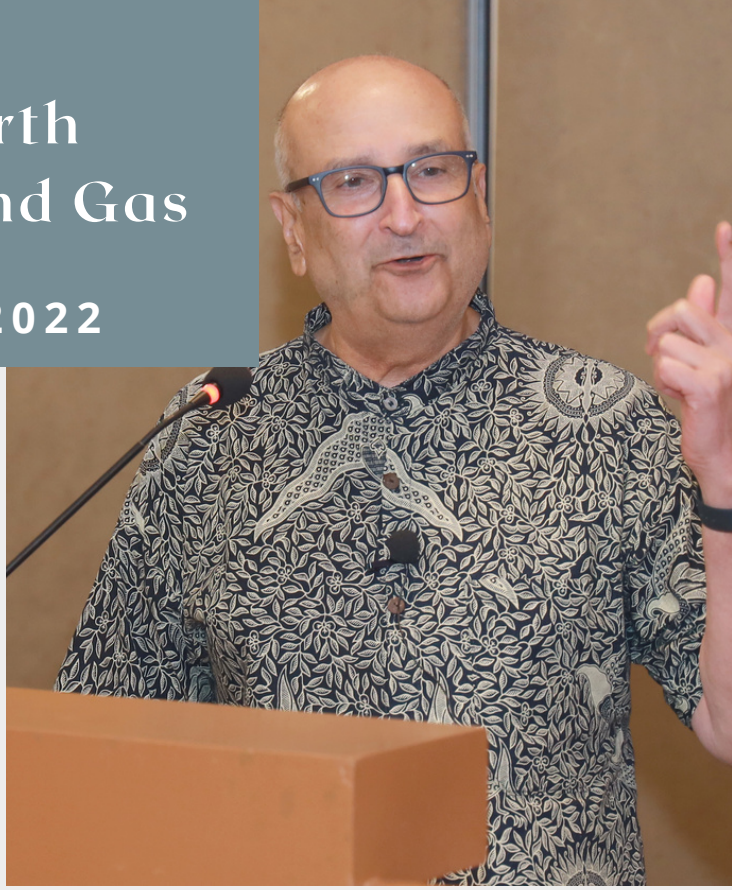
- Case depth depends on the frequency
- Tools for designing induction system .
- Simulation software
- Induction of micro fusion
- Automatic crack detection

Vacuum heat treatment :

- Advancement in LPVC
- Intermediate cooling
- Acetylene decomposition of hydrogen

Technical Talk On "Higher Productivity of Girth Welding of Pipes for Oil and Gas Industry"

9th Nov 2022



ABOUT THE TALK:

Pipelines are lifelines of the fossil fuel industry, and the construction is a complex, long and costly process that involves infrastructures (access rights, preparation, Material, alignments, welding, NDT, Coatings...) for land lines. Additional cost of lay vessel, pipe laying equipment, staff, support activities are further factors for offshore lines. Reducing the cost of welding through fast welding processes, reducing weld preparation and filler materials remains the focus of new developments. Substantial developments in welding (Arc welding, Forge welding, High Energy or Power Beams) and the integration of high strength steels for reduced cost (TMCP X70, X80.) and more is the near outlook. The presentation is based on the personal experience of a near two-year involvement as consultancy to implement this strategy for pipe manufacturers. Scientific concepts and their implementation in an industry is not a linear process and what makes that any attempt successful or not requires a thorough analysis of costs by the technical staff.

ABOUT THE SPEAKER:

Prof Surendar K Marya is an Emeritus Professor at Ecole Centrale Nantes, France since 2008. He was a full professor ECN during 1999-2008, Director, Graduate school of "Applied Mechanics" during 2003-07 and Deputy Director, "International Relations" during 2003-05. Prof Marya has more than 150 research publications, 3 industrial patents, many book chapters, more than 50 keynote/invited presentations in reputed conferences and meetings (e.g. IIW/IIS, JWS, IWS, AWI, ASM, TMS,Am Inst. Phys., etc.) and above 20 invited lectures in academic institutions across globe in his credit. He is one of the most recognized global researchers in the field of Welding and Additive manufacturing. His research area includes Fusion and Solid- State Joining, Laser Arc hybrid Welding of line pipes, Friction Stir Welding (FSW) of high temperature materials, Linear Friction welding, Laser assisted FSW, Electro-magnetic Pulse Forming and Welding, Electro hydraulic forming, Superplastic forming and Additive manufacturing. He has also actively involved in several industrial consultant projects. Few of them are: Laser Arc Hybrid of line pipes, Rolled Welded Tube manufacturing, Friction Stir Welding of Steels, High penetration TIG Welding (in focus, ATIG, K Tig.). Prof Marya is French delegate to the international welding institute (IIW) and former Board member of French Titanium Association.

Technical Talk On "Re-imagining Quality Inspection leveraging AI / Edge Technology"

25th Feb 2023

About Talk:

In this seminar, Dr. Iyengar delved into the world of visual quality control in manufacturing and showcased the immense potential of leveraging AI and edge technology to transform the traditional quality inspection processes. As a technologist with vast experience in both manufacturing and computer science, Dr. Iyengar is uniquely positioned to guide manufacturers on their journey towards digital transformation and improving their quality control processes. The presentation is based on the personal experience of a near two-year involvement as consultancy to implement this strategy for pipe manufacturers. Scientific concepts and their implementation in an industry is not a linear process and what makes that any attempt successful or not requires a thorough analysis of costs by the technical staff.

About the Speaker:

Dr. Iyengar, the Co-founder and CTO of Jidoka Technologies, holds a B.tech from IIT Madras and a PhD from Cornell University, New York. He is leading a team of experts to deliver AI models in production and has been awarded three patents in the field of AI and computer vision.

International Conference on Processing and Performance of Materials (ICPPM 2023)
2-3 March, 2023

ABOUT THE TALK:

The first edition of this conference was held last year during March 7-8, 2022 and it was a huge success. A total of 102 papers from the previous edition of this conference was published in Materials Today proceedings, a scopus indexed Elsevier journal. The scope of this edition of the conference has been enriched by including the performance of materials, apart from just characterization of materials as compared to its previous edition. The conference was held during March 2-3, 2023. We have now partnered with the prestigious, American Society for Metals, popularly known as ASM International, Chennai Chapter. Also, we have collaborated with MDPI, an open access academic publisher Materials Today proceedings, a scopus indexed Elsevier journal, to publish the proceedings conference proceedings. These collaborations have indeed helped and will help us to reach our research work to the members of the community all around the world. The abstracts have come from various parts of this globe including several institutions of repute such as Curtin University, Helmholtz-Zentrum Berlin, Germany, Amity Dubai, IIT Madras, BITS Pilani, NIT Trichy, SRM University and VIT to name a few.

The conference received about 236 abstracts in total and 183 abstracts have been shortlisted after reviews based on the relevance to the theme of this conference and tightly scheduled in 14 parallel sessions, which happened both in physical and online modes. The best paper in each session as well as cash award for the overall best paper was awarded by ASM International, Chennai Chapter based on the juries input. The conference had keynote lectures by Dr. M. Vasudevan, Associate Director of IGCAR, a distinguished Scientist and by Dr. Swee Leong Sing, Assistant Professor from National University of Singapore on the first day of the conference. Same way, 2 more keynote lectures, one by Dr. Phanikumar, Professor, Department of Metallurgical & Materials Engg., IIT Madras and another one by Dr. Khalid Rafi, who is a Senior Lead, Additive Manufacturing Program Development, ASTM International, Singapore on the second day of the conference.

Technical Talk On

"Coating & Surface Engineering Spanning Metals, Ceramics &AI Introduction To Nottingham University PGR Recruitment & UK-India Funding"

24th Feb 2023

ABOUT THE TALK:

The technical part of the talk will cover the latest innovations in materials processing at the University of Nottingham. Coatings are an essential part of modern society, and our aero engines and space rockets rely heavily on coatings to operate. The coating technologies are fast evolving to meet the ever-increasing demand for a more sustainable aviation sector. Thermal Spray and Cold Spray are two widely used coating technologies to deposit high-value engineering coatings on safety-critical aerospace components. We will cover suspension thermal spray, which is an exciting coating process to develop bespoke microstructure and compositions from a range of submicron to nanoparticles (graphene & carbon nanotubes)- even precursor solutions. Cold Spray is a promising technology that allows rapid building up of layers without any melting of metallic powders. A wide range of industrial applications will be explored.

The current cycle of materials development takes two decades, which needs to be shortened to a couple of years to achieve NetZero & sustainability targets. We will explore how Al can help us rapidly develop new compositions and microstructures.

The non-technical part of the talk will explore an introduction to UK higher education, the University of Nottingham, funding for Post Graduate Researchers and UK-India funding opportunities for researchers. A Q&A session will cover any questions on recruitment and collaboration from the audience.

ABOUT THE SPEAKER:

Professor Tanvir Hussain FIMMM, FHEA, CEng is a Professor of Coatings and Surface Engineering at the University of Nottingham and an EPSRC (Engineering and Physical Sciences Research Council) Research Fellow in Advanced Ceramics (£2.1 M). He is also an Associate Head of the Department of Mechanical, Materials and Manufacturing Engineering. He was awarded the Royal Academy of Engineering Fellowship (RAEng) Fellowship 2021 in conjunction with Leverhulme Trust for his work on ceramic coatings. Total funding since joining the University of Nottingham in 2013 is over £6.4 M (in all grants as a Pl or a Co-I). This has included funding via the EPSRC energy theme and as a UON PI for several large Innovate UK (IUK) consortiums. He is the Director of the Centre of Excellence in Coatings and Surface Engineering (CSE), and he has been investigating the processing-microstructure-properties relationships of advanced metallic, ceramic and cermet coatings from the thermal and cold spray. His relationship with industry has been critical for his research, evidenced by funding from Rolls-Royce Aerospace, Rolls-Royce Nuclear, Uniper, Wallwork HT, The Welding Institute (TWI), Monitor Coatings, Castolin Eutectic (Switzerland), and EPSRC Impact Acceleration Account.

Technical Talk On "DISTORTION ENGINEERING -ROLE OF RESIDUAL STRESSES"

15th Oct 2022

ABOUT THE TALK:

Residual stresses arise in almost every stage of processing and machining of materials/components and distortion is a manifestation of accumulation and relief of residual stresses. All mechanical operations in the industry such as machining, rolling, forming, assembly or thermal/thermomechanical operations that include, casting, welding, phase transformations and chemical operations such as plating, carburizing and nitriding can induce residual stresses. Accurate measurement of residual stresses, therefore, becomes an important exercise that aids in life assessment and design components for enhanced life. While mechanical methods (destructive techniques) of measuring residual stresses may appear easier, they come with various limitations although still in vogue in some industries. Diffraction methods are now a standard practice world-wide for the measurement of residual stresses since they are non-destructive and it is possible to estimate the stresses for various complex shaped geometries and at different length scales to a reasonable accuracy. X-ray diffraction in particular serves to be a very useful and a quick way of measuring surface/sub-surface residual stresses using multiple exposure sin2 technique. The technique has matured to be an industrial tool for measuring residual stresses in components and the instrumentation permits measurements without having to follow the Bragg Brentano geometry. The talk will begin with highlighting the importance of residual stress measurements for industrial components followed by discussion on the basics of the measurement technique. The talk willend with a brief discussion on minimizing such statistical errors that aids accurate measurements of residual stresses.

ABOUT THE SPEAKER:

Dr. rer. nat. Ravi Kumar obtained his doctorate in natural sciences from the Max Planck Institute for Metals Research (currently known as Max Planck Institute for Intelligent Systems), Stuttgart, Germany in 2004 with a “Sehr gut” grade (very good) with a fellowship from the Max Planck Institute. Subsequently, he continued in the same institute as a postdoctoral researcher and guest scientist. He worked on the high temperature deformation behavior of polymer precursor derived ceramics during his stay. After 6 years of stay at the Max Planck Institute, he moved to the Institute for Shock Physics in Pullman, USA and worked on the dynamic response of bulk metallic glasses for a brief period. He returned back to India in 2007 and joined the Dept of Metallurgical and Materials Engg., at IIT Madras as an Asst. Professor. Since 2012, he worked in the same department as Associate Professor and heads the Central XRD Laboratory. He is currently professor of ceramics in the Dept of Metallurgical and Materials Engineering at IIT Madras since 2018. As head of the Central XRD Laboratory he consults a large number of industries both in India and abroad. He has been a visiting Professor at the Christian University of Kiel in Germany, Shanghai Institute of Ceramics in China, European Membrane Institute (University of Montpellier) in France, University of Stuttgart in Germany, University of Bergamo in Italy, St. Petersburg University in Russia. He collaborates with a large number of national and international institutions and organizations.

Technical Talk On Additive Manufacturing of Advance Ceramics: The Art of the Possible

24th Feb 2023

ABOUT THE TALK:

The processing of advanced functional ceramic powders and suspensions into useful engineering components has been investigated via a series of research projects each focusing on a different stage of the manufacturing route viz., (i) the ability to control the agglomerates present in the ceramic powder resulting in the production of a free-flowing and crushable powders, (ii) the formation of low viscosity but high solids content nanoceramic suspensions suitable for 2D and 3D additive layer manufacturing (3D printing) and (iii) the use of novel field assisted sintering techniques (FAST). This holistic approach helped to transfer the developments achieved in each stage of the manufacturing process to the next and resulted in the ability to form fully dense, complex advanced ceramic components whilst restricting the grain growth to a minimum.

The methodology has been employed to develop various advanced functional ceramic components such as 3D printed $BaTiO_3$ based light-weight PTCR heaters for automotive and aerospace applications that surpasses existing commercial counterparts, ultra-low loss microwave dielectrics for beyond 5G communication devices, high temperature filter/battery structures, conformal antennas, additively manufactured (AM) zirconia based biomedical components exhibiting vastly superior hydrothermal ageing resistance and mechanical performance suitable for use in biomedical implants (eg., hip/knee prosthesis, finger joints, dental and jaw repairs), as well as armours for ballistic applications.

ABOUT THE SPEAKER:

Bala Vaidhyanathan (BV) is a Professor of Advanced Materials and Processing and was the Associate Dean for Enterprise for 9 years at the School of Aeronautical, Automotive, Chemical and Materials Engineering at Loughborough University. He is the University Special Envoy for Internationalization with India. He leads the Advanced Ceramics Research Group in the Materials Department, won >47 research grants totaling >£30.2Million and has over 200 peer reviewed publications (>4650 citations, h-index 35), named inventor on 17 patents, delivered >60 Plenary/keynote/invited presentations, organizing committee member for >15 global conferences and written six book chapters. He is the Editor of Advances in Applied Ceramics, and on the Editorial Board for many International Materials' Journals. He was a research staff at the Pennsylvania State University, USA, and a Lead Scientist at General Electric. Vaidhy has led the development of energy efficient microwave, hybrid and flash methods for the manufacturing of advanced functional materials for energy, electronics, healthcare, defence applications over the years and LU is currently regarded as one of the world leaders' in the utilization of these techniques. He has won many national & international awards; K.P. Abraham Gold Medal, Glory of India award, Edison Bronze medal for innovation, Verulam Medal, Pfiel Award to name a few. He is the coordinator for the Loughborough Asia Materials Partnership (LAMP) and led/foster several national/international Research, Teaching and Enterprise partnerships between LU and many institutions and industries in the UK and abroad.

Flash carbide –A novel techno economical alternative to electroplated hard chrome plating (EHC)

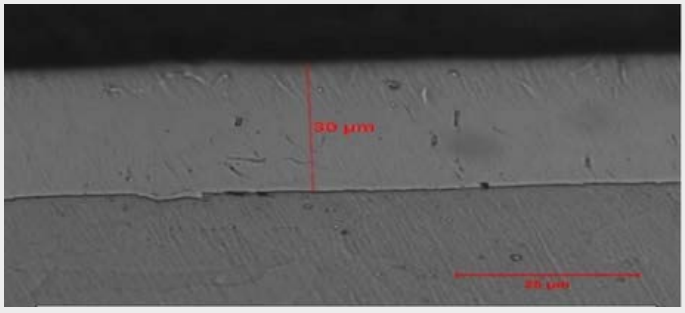
Dr. Dattatraya Aravind Karandikar
CEO/CTO
Kinetic Surface Technologies
T-180, MIDC, Bhosari, Pune 411026

ABSTRACT

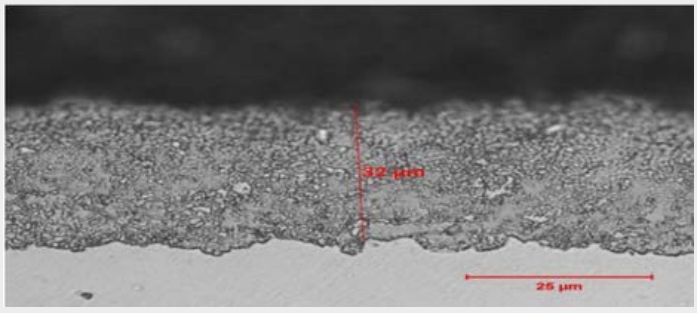
Flash-Carbide is hard and very dense coating of WC-10Co-4Cr composite material, applied with Kermetico High-Velocity Air-Fuel (HVAF) spray method onto various metallic parts and structures to improve their surface resistance to severe wear and corrosion.

- **Initial part is ground to the lowest tolerance dimension.**
- **No grit blasting operation. The coating is applied onto as-ground surface.**
- **The as-sprayed coating thickness is comparable to tolerances, set for the final coated part, typically within the range 15-35 micron.**
- **The as-sprayed coating roughness is low, representing "ground-like" surface - Ra 1.5-1.9 micron (60-75 micro-inches)**
- **Thickness deviation is under 5% (+/- 1 micron).**
- **Coating does not require dimensional grinding. Final surface roughness is achieved with a simple polishing.**
- **Polishing to Ra 0.2-0.3 micron (8-12 micro-inches) removes 5-8 microns of "as-sprayed" thickness; (Ra 0.1 micron – 10 microns off during polishing)**

Coating is dense to meet industry specifications for corrosion resistance (typically set as duration without traces of corrosion during salt-spray corrosion testing NSS and CASS). Mechanical properties, such as fatigue resistance, wear and erosion resistance, impact resistance, etc. exceed existing values for Electroplated Hard Chrome.Present applications in steel rolls, corrugated rolls and hydraulic plungers ,rods, pump pistons, and many more .



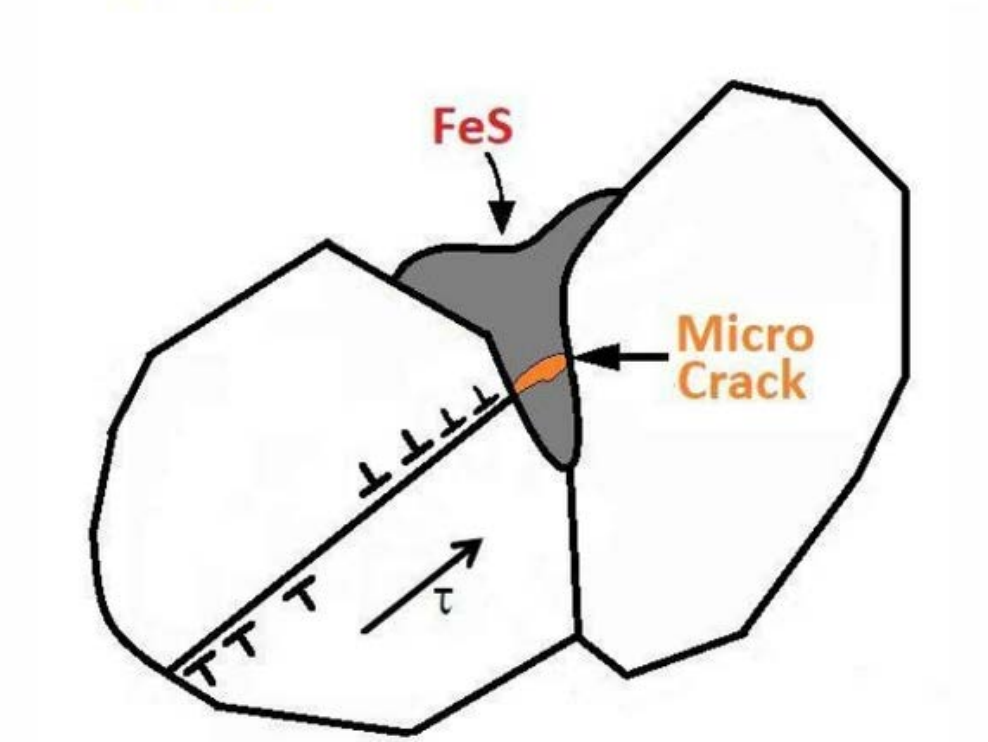
Electroplated Chrome



Flash-Carbide

Why Sulphur is undesirable?

Prof. M.Kamaraj
IIT Madras, Chennai



Sulfur is a common impurity in steel, and during the solidification process, it can react with iron to form iron sulfide (FeS) at the grain boundaries. The formation of FeS can create regions of weakness in the material, which are more susceptible to cracking & can lead to the formation of hot cracks in the steel.

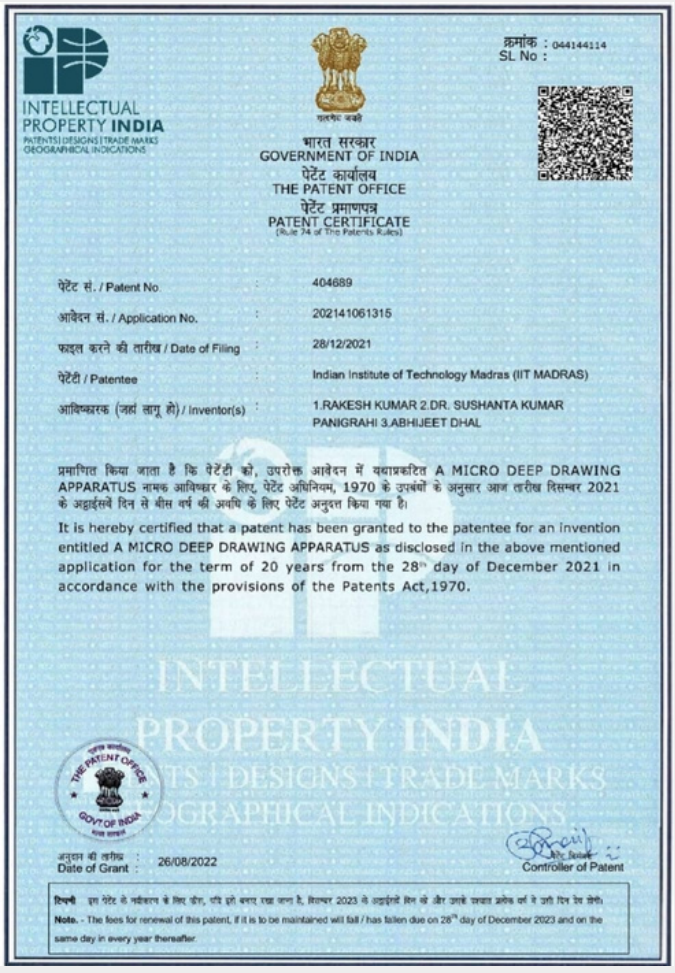
* That is why manganese (Mn) is added to the steel. Mn reacts with the S in the FeS, and result in formation of MnS .
* MnS has a higher melting point than FeS and is less likely to cause hot cracking.

ACHIEVEMENTS

Patent-1 (Inventors: Rakesh Kumar, Sushanta Ku Panigrahi and Abhijeet Dhal):
Title of the invention: A MICRO DEEP DRAWING APPARATUS (Patent No: 404689)

PATENT

This invention discloses development of a micro deep drawing apparatus which has capability to manufacture micro-cups of various size, shapes, and geometries.. Due to the integrated fast heating system, a wide array of materials can be formed using this apparatus including aluminium, copper and also difficult to form material such as magnesium and titanium. The applications of this invention can be highly appreciated in the field of microforming and micromanufacturing industries.



INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

क्रमांक : 044144114
SL No :

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE
पेटेंट प्रमाणपत्र
PATENT CERTIFICATE
(Rule 74 of The Patents Rules)

पेटेंट सं. / Patent No.	:	404689
आवेदन सं. / Application No.	:	202141061315
फाइल करने की तारीख / Date of Filing	:	28/12/2021
पेटेंटी / Patentee	:	Indian Institute of Technology Madras (IIT MADRAS)
आविष्कारक (जहां लागू हो) / Inventor(s)	:	1.RAKESH KUMAR 2.DR. SUSHANTA KUMAR PANIGRAHI 3.ABHIJEET DHAL

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित A MICRO DEEP DRAWING APPARATUS नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख दिसम्बर 2021 के अट्ठाईसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled A MICRO DEEP DRAWING APPARATUS as disclosed in the above mentioned application for the term of 20 years from the 28th day of December 2021 in accordance with the provisions of the Patents Act,1970.

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

THE PATENT OFFICE GOVT OF INDIA

अनुदान की तारीख : 26/08/2022
Date of Grant :

Controller of Patent

टिप्पणी : इस पेटेंट को नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, दिसम्बर 2023 के अट्ठाईसवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 28th day of December 2023 and on the same day in every year thereafter.

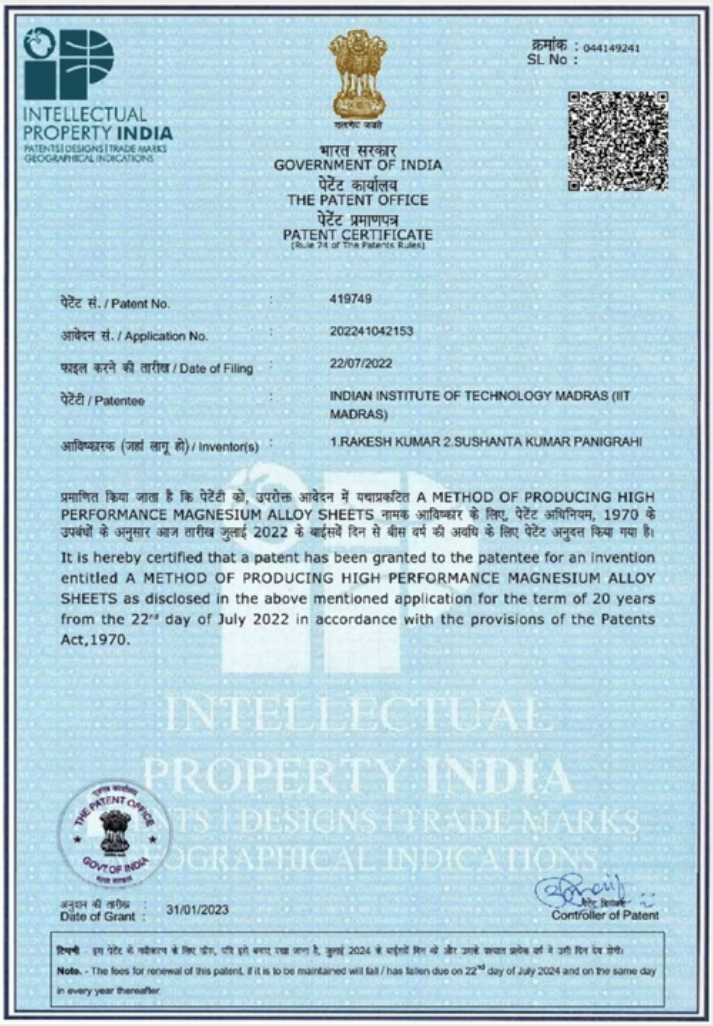
Congratulations

ACHIEVEMENTS

Title of the invention: A METHOD OF PRODUCING HIGH PERFORMANCE MAGNESIUM ALLOY SHEETS (Patent No: 419749)

PATENT

This invention discloses a method of producing high performance magnesium sheets. It offers a highly efficient single stage-based manufacturing strategy to develop high performance Mg alloy sheets with excellent combination of strength and ductility. The various technological advancements of this invention include following such as, significant increase in the ductility and strength, reduced number of manufacturing stages/processes involved, high productivity and more economical. This invention can be widely adopted by automotive and aerospace industries in order to produce commercial grade high performance magnesium alloy sheets.



क्रमांक : 044149241
Sl. No :

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE
पेटेंट प्रमाणपत्र
PATENT CERTIFICATE
[Rule 74 of The Patents Rules]

पेटेंट सं. / Patent No.	:	419749
आवेदन सं. / Application No.	:	202241042153
फाइल करने की तारीख / Date of Filing	:	22/07/2022
पेटेंटी / Patentee	:	INDIAN INSTITUTE OF TECHNOLOGY MADRAS (IIT MADRAS)
आविष्कारक (जहां लागू हो) / Inventor(s)	:	1.RAKESH KUMAR 2.SUSHANTA KUMAR PANIGRAHI

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित A METHOD OF PRODUCING HIGH PERFORMANCE MAGNESIUM ALLOY SHEETS नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख जुलाई 2022 के बाईसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled A METHOD OF PRODUCING HIGH PERFORMANCE MAGNESIUM ALLOY SHEETS as disclosed in the above mentioned application for the term of 20 years from the 22nd day of July 2022 in accordance with the provisions of the Patents Act,1970.

THE PATENT OFFICE GOVT OF INDIA

अनुदान की तारीख : Date of Grant : 31/01/2023

Controller of Patent

टिप्पणी : इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, जुलाई 2024 के बाईसवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 22nd day of July 2024 and on the same day in every year thereafter.

Congratulations

ACHIEVEMENTS

Congratulations

DR. U. KAMACHI MUDALI

Prof. Dr. U.KAMACHI MUDALI assumed as Vice-Chancellor of Homi Bhabha NationaI Institute (HBNI) University, Mumbai on May 11, 2023

Lifetime Achievement Award conferred to Prof. Dr. U. Kamachi Mudali by Ministry of Steel, Govt of India. Notification No. S-20026/2/2022-Tech New Delhi, Date: 18/4/2023

ACHIEVEMENTS

Congratulations

Dr. Shubrajit Bhaumik being recognized for his volunteering works to spread the knowledge of tribology by Surface Ventures, United Kingdom

Dr. Shubrajit Bhaumik, Associate Professor, Amrita Vishwa Vidyapeetham Chennai Campus, has joined the Editorial Board of Tribology- Materials, Surfaces and Interfaces, Taylor and Francis.

Dr. Shubrajit Bhaumik has been promoted to Centre Head of Tribology and Interactive Surfaces Research Laboratory (TRISUL) Amrita Vishwa Vidyapeetham Chennai Campus. His laboratory focuses on Industrial Applications Research. The laboratory received its funding over INR 1.35 crores from industries under his leadership and has state of the art tribometers related to lubricant tribology.

Dr. Shubrajit was also conferred with Research Award 2023 by Research Committee of Amrita Vishwa Vidyapeetham Chennai Campus for his outstanding contribution towards industrial tribology application research.

ACHIEVEMENTS

Congratulations

ASM Chennai Member Arun Prasad. M - Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Avadi, Chennai – 600062 received Dr.J.Abdul Kalam award under PHD Category - instituted by ASM India National Council during Materials Day celebrations on 15th October 2023.

The award commemorates the birthday of Dr. A. P. J. Abdul Kalam (15th October), the then president of India and a visionary scientist who facilitated materials technologies to be brought to the society. The award is thus announced on 15th October every year and the event is celebrated by ASM India National Council as "Materials Day". The award was given during the function held on 15th October 2022, Ahmedabad - Gujarat. The number of awards were three in each category with the following deliverables to both the student and the advisor.

1. A certificate of appreciation. 2. Plaques for all the winners. 3. 1 year student membership as complementary to all the winner (if applicable)

MATERIALS ADVANTAGE STUDENTS CHAPTER @ NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPALLI ANNUAL REPORT

MA NIT Trichy is a steadily evolving chapter, setting higher benchmarks every year since its inception in 2020. This year has seen a more than 100% increase in the number of members in the chapter, compared to the previous year, thanks to the participation of its members, under the leadership of the core and the guidance of our faculty advisor, Dr. V Karthik. Various initiatives and activities were carried out for the benefit of the members and community.

I. Sir Alan Cottrell Memorial Guest Lecture Series was introduced by Material Advantage NIT Trichy Student Chapter with the intention to connect the student community with the researchers at the forefront of materials science to help us understand the various avenues and to introduce us to the various topics ourfield has to offer. It is a series with a stellar lineup of speakers established in various fields of Metallurgy and Materials Science.

Date	Speakers	Designation/ Affiliation	Topic
23rd November 2022	*Prof. Matthew Daly*	*Assistant Professor, University of Illinois Chicago*	*Tracking Deformation over Microstructural Length Scales*
13th February 2023	*Prof. Taylor D Sparks*	*Associate Professor, The University of Utah*	*Materials Informatics: Moving Beyond Screening via generative ML*
22nd March 2023	*Dr. Mano Manoharan*	*Chief Technologist, GE Aviation*	*An innovative journey: From Materials to products*

II. Directions: Alumni Guest Lecture Series - This series of lectures aims to explore the unique career paths traversed by our very own seniors and learn from their experiences.

Date	Speakers	Designation/ Affiliation	Topic
23rd November 2022	*Prof. Matthew Daly*	*Assistant Professor, University of Illinois Chicago*	*Tracking Deformation over Microstructural Length Scales*
13th February 2023	*Prof. Taylor D Sparks*	*Associate Professor, The University of Utah*	*Materials Informatics: Moving Beyond Screening via generative ML*

III. Ask The Founder - A special address by Mr. Karthikeyan Hariharan, founding chairperson of Material Advantage Student Chapter NIT Trichy on the topic "Academic Myth Busters in Materials Science" in addition to explaining the motive behind starting the MA chapter in NIT Trichy.

IV. Meet and Greet - An informal gathering to invite the new set of members into the chapter and get their points of suggestions.

V. How to secure your research internship? Webinar-cum-workshop - An online session conducted for the freshers, sophomore-year and pre-final year students on how to find professors in the interested field of research, draft resume and emails by providing a live demonstration.

VI. Resume proofreading - Conducted one-one sessions on giving personalized suggestions and corrections to the resume of junior chapter members.

VII. Mentor-Mentee Program - Having a guided mentor for members of the MA chapter depending on their area of interest.

VIII. Collaboration with MA Suez Chapter for Metallurgy Around The Globe II (MAGC II) symposium with events and guest lectures.

Above all, the club was virtually active in the social group created where current industry trends and the latest information in metallurgy and materials were discussed. Information regarding internship opportunities was discussed and many got prestigious internships in premier institutions in India like IISc Bangalore, IIT Madras, IIT Bombay, IIT Hyderabad, etc. A Factoid Series "Materialized" was carried forward in the social media handles of the chapter to sensitize the general public about the fascinating aspects of materials science. We have had informal chapter meets where we discuss the member's needs, convey chapter updates concerning the initiatives taken, and also deliberate future events seeking everyone's inputs on the same.

SMVEC ASM STUDENT CHAPTER

Date : 06-05-2023
Time : 1:30 PM to 4:30PM
Venue : CAD Lab, Mechanical Block, SMVEC
Faculty Men : Dr.A.Thiagarajan

Sri Manakula Vinayagar Engineering College (SMVEC) and ASM Student chapter has organized a student competition on 'Design Thinking and Material Selection for Modern Agriculture Machine' on 06th May 2023. In which the students offer a unique approach to the problem solving that emphasizes understanding the needs and create innovative solution. Material Selection is a crucial part for design with a focus on sustainability and cost-effectiveness. Dr.A. Thiagarajan was the coordinator of the competition.

Date : 22-04-2023
Time : 2.00 PM to 4:30 PM
Venue : R &D LAB , SMVEC

Sri Manakula Vinayagar Engineering College (SMVEC) and ASM Student chapter has organized a student ideation on 22th April 2023 in the topics of 'Startup Ideas'. In which the students of the 1st year Mechanical Engineering students submitted their innovative ideas that have potential to use for industries and create new opportunities. This program covers key elements such as a concise problem statement, a scalable solution, market analysis, competitive advantage, and a robust business model. The event was organised by Dr.A.Thiagarajan Associate professor in the department of Mechanical Engineering.

Date : 29-04-2023
Time : 3.00 PMto 4:30 PM
Venue : Mech 308 Class Room, SMVEC
Prepared By : Dr.A. Thiagarajan

Sri Manakula Vinayagar Engineering College (SMVEC) and ASM Student chapter has organized a student competition on 29th April 2023 in the topic of 'Smart Energy System'. In this event the mechanical engineering First year students participated and presented their ideas to increase the efficiency of the solar panels in a place where the sunshine is very low. The students proposed an idea of using the Fresnel Lens to converge light rays into a certain point. Which will result in the increase in the temperature of the solar panel, and by changing the top panel with glass slab coated with Indium Tin Oxide because it has a property of conduction and is optically transparent so that the light can pass through it.

Courses/ Conferences- Technical Talks- Monthly Meeting arranged by ASMICC during Year June 2022 - May 2023

Date	Topic	Speaker	Designation	Organisation
11.06.2022	Fundamentals of electroless plating and its applications in aerospace and Engineering Sectors.	Dr.J.N.Balaraju	Senior Principal Scientist & Deputy Head surface Engineering Division	CSIR National Aerospace Laboratories. Bangalore
06.08.2022	1}Annual General body Meeting & Elect the New Executive Committee. 2)Brochure release on 4th conference&Expo.Heat Treatment and surface engineering HT&SE-2023.	Dr.Kamaraj	Professor and Past Chairman	IIT Madras and ASMICC
9.11.2022	Project for Higher Productivity of Girth Welding of pipes for Oil and Gas Industry	Dr.Surendar Marya	Emeritus Professor & Consultant Centrale nantes,nantes Cedex France	Central Nantes France
15.09.2022	Distortion Engineering-Role of Residual Stresses.	Prof.Dr.rer.nat. Ravikumar,N.V	Head, Central XRD Laboratory & Dept.of Metallurgical and Materials Engg.	IIT-Madras
16.09.2022	Metallurgy for Non Metallurgists	V.P.Parthasarathy/S.P.Rajikanth ASMICC Faculties		
03.02.2023	One day Work shop on Current trends in Industrial heat Treatment	Mr.Shankar -CAT/Mr.Ravishankar -Ex AL Consultant/Mr.R.V Chari - G.H .Induction /Mr.Thirugnanam -TAFE/Mr.Rajinikanth- AHT/Mr.Gnanavel -jata Auto		
24.02.2023	Coatings and Surface Engineering spanning Metals,Ceramics and AI.Introduction to Nottingham University PGR Recruitment &UK-India Funding	Prof. Tanvir Hussain	Professor of Coatings an Surafce Engineering	University of Nottingham
25.02.2023	Re-imagining Quality Inspection leveraging AI / Edge Technology	Dr.Krishna Iyangar	Co-Founder & CTO	Jidoka Technologies
02.03.2023 03.03.2023	International Conference on Processing and Performance of Materials	Dr.Swee Leong Sing NUS Singapore/ Dr.M.Vasudeven- IGCAR/Dr.Phanikumar/IIT Madras /Dr.Khalid rafi ASTM Intl Singapore		
16.03.2023	Special meeting with the ASMICC E.C.Members	Mr.Pradeep Goel	Vice President	ASM International
25.03.2023	Automated Composites Manufacturing in Aerospace Industry	Dr.Devendren Thirunavukarasu	Founder & Director	ST Advanced Composites (STAC)
13.04.2023	Fuield Failure Analysis Techniques & case Studies for Automotive industries	N.Sampathkumar -M.D Ambattur Metal Treaters		
15.05.2023	Techniques ,Advances and Applications of Additive Manufacturing in the industry-specific to Metals	Prof. T.S.Srivatsan	Professor Emeritus,Department of Mechanical Engineering,	The University of Akron Ohio, USA

ASM DISTINGUISHED MEMBERS VISIT

Visit of Dr. Navin J. Manjooran, FASM, Vice President (2022-2023) and Prof. Ravi Ravindran, Past President of ASM International visited Chennai Chapter and interacted with ASM Chennai Chapter members.

ASM DISTINGUISHED MEMBERS VISIT

Visit of Mr. Pradeep Goyal , Senior Vice President to Chennai Chapter on 16th March 2023,

UPCOMING EVENT

ASM INTERNATIONAL | CHENNAI CHAPTER

HT&SE
Heat Treatment & Surface Engineering Conference & Expo 2023

4th International Conference & Expo on Heat Treatment and Surface Engineering - 2023

28-30 September, 2023

Venue: Chennai Trade Centre, Chennai, Tamil Nadu, India

Participation by:

- Register as Delegate
- Share your work through talk/poster
- Exhibition of Equipments/ New developments/Instruments/ Monitoring, measurement and controls.
- Sponsor and enhance your company's visibility/ reach.

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