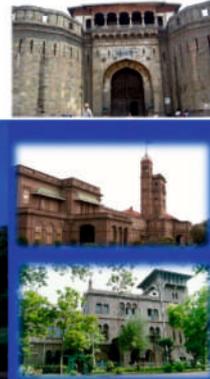


Chapter News Letter


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EDITORIAL . . .

Welcome, dear readers to the August, 2023 edition of Pune Chapter Newsletter.

At the outset let us congratulate Pune Chapter for winning two Chapter excellence awards in the category Membership Retention & Recruitment, Size Category 3 and Communications, Size Category 3.

Prof. Sandeep Deshmukh of Sinhgad College of Engineering, Mechanical Dept., who is also an active ASM member, was granted a patent titled 'The process for Improving Mechanical Properties of Implements' by the Indian Patent Office, Government of India.

Two technical talks took place in the intervening period. The first was a seminar on 'Decarbonization Strategy for the Steel Industry'. Stalwarts from the Steel Industry and Academia, gave their presentations in this Seminar. The symposium included technical presentations on various topics like Green Steel, low-carbon blast furnace and the various alternate fuels for it, opportunities for CO2 emission reduction in green steel production.

The second technical talk was on 'Duplex Stainless Steels: A high performance solution for challenging environments' given by Mr. Jayant Patankar. He introduced the concept of duplex stainless steel (DSS) as a remarkable material with a unique microstructure. He highlighted the growing significance of DSS in various industries due to its exceptional combination of properties.

Pune Chapter is very active in students' activities, Recently MA chapter of MIT Belgavi have successfully completed a industrial visit to SLR METTALIKA, HOSPET. It was encouraged and arranged by Mr. Galgali, Mr. Chivate and Mr. Sanjeev Inamdar.

A very interesting technical article "The Impact of AI on 3D Printing: Unlocking the Potential of Additive Manufacturing" authored by Dr Guruprasad Kuppu Rao, of NMIMS School of Design is in this edition. As you all know AI is playing a very important role in our lives today. The author has ably explained how AI has significantly enhanced the design process in 3D printing by leveraging advanced algorithms to optimize and generate complex geometries. By incorporating AI into the design phase, engineers and designers can harness its computational power to create innovative and efficient designs that were previously unattainable.

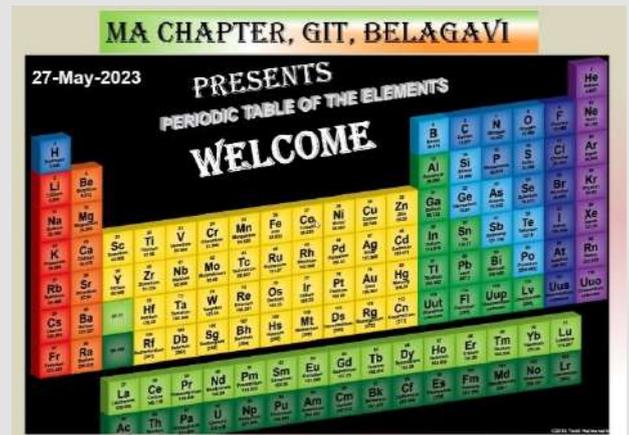
In the Know Our Member section we have featured Mr. Arun Adiverekar, a Management Consultant, with 40 years of Industrial experience. Mr. Arun has shown willingness in taking up ASM activities.

In conclusion I would request young professional to devote some quality time for ASM activities. Under the stewardship of Mr. Galgali and Mr. Pathak many new activities have started at ASM Pune Chapter, but we are drastically falling short of manpower to support these activities.

Louis Vaz, Editor

Students Outreach Material Advantage Students Chapter Under American Society for Metals

The MA chapter of MIT Belgavi have started a lecture series on the periodic table where they explain each element in detail.



ASM Belagavi chapter has successfully completed industrial visit to SLR METTALIKA, HOSPET. It was encouraged and arranged by Galgali sir, Chivate sir and Sanjeev Inamdar sir.

.....Continued on page no. 4

JOINT WORKSHOP

A seminar on 'Decarbonization Strategy for the Steel Industry' was held on the 29th of May in collaboration with IIM Pune Chapter. The inaugural address was given by Mr. MV Kotwal, former member of L&T Board and President, Heavy Engineering. Welcome addresses were given by Mr. NB Dhokey, Mr. Lalit Kumar Pahwa and Mr. Udayan Pathak.

The one-day symposium had invited speakers who were experts in different domains who elaborated on the pros and cons of various technological options and the immediate way forward for INDIA. The symposium included technical presentations on various topics like Green Steel, low-carbon blast furnace and the various alternate fuels for it, opportunities for CO2 emission reduction in green steel production and digital twins for enabling decarbonization of process industries, followed by discussions and ended with a panel discussion on the Way Forward for Indian Steel Industry. This event was sponsored by Kirloskar Ferrous Industries Ltd. and TCS Research.



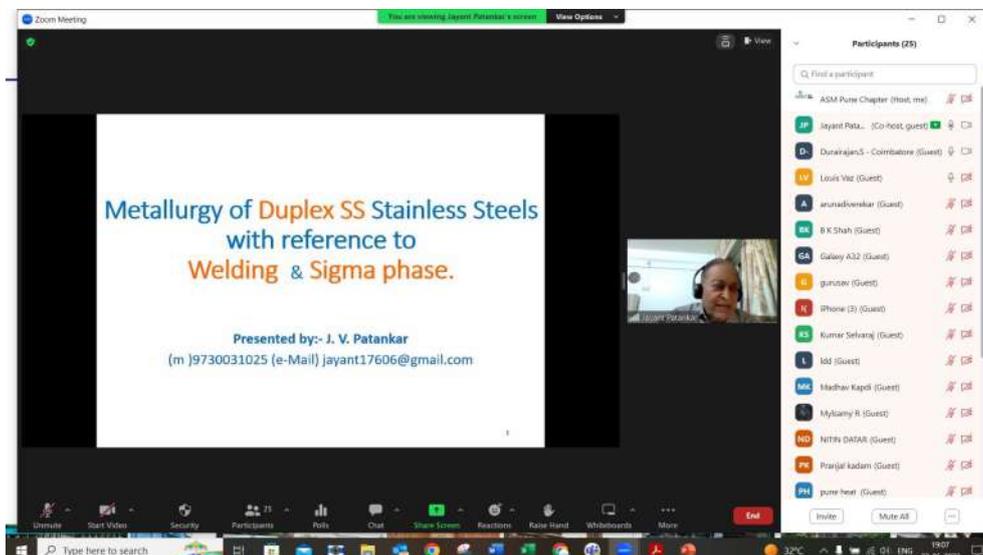
MA CHAPTER ACTIVITIES



Another technical talk on 'Duplex Stainless Steels: A high performance solution for challenging environments' given by Mr. Jayant Patankar. This online technical talk was jointly organized by the ASM Pune Chapter in collaboration with Institute of Engineers and Vidnyan Bharati on the 22nd of July.

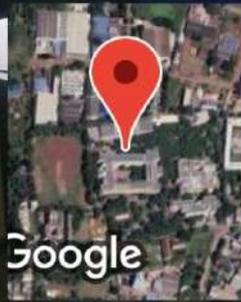
Mr. Patankar completed his Master of Engineering in Foundry Technology from the Indian Institute of Science in 1968 and has over 54 years of experience. He is currently working as Technical Advisor in MPM Pvt. Ltd. Nagpur and MPM Infosoft Pvt. Ltd. Chennai. He has worked in reputed companies like Kishor Pumps Pvt. Ltd., Kores India Ltd., Continental Castings Ltd., Goetze (I) Ltd., Kirloskar Pneumatic Foundry Pune, Bhagwati Foundry and Ashutosh Castings. His skills include but are not limited to foundry operation, cast iron, ductile iron, steel castings with special proficiency in gating and risering of castings, process control and management, manufacture and major thrust plant administration.

Mr. Patankar gave a wholesome lecture in which he introduced the concept of duplex stainless steel (DSS) as a remarkable material with a unique microstructure. He highlighted the growing significance of DSS in various industries due to its exceptional combination of properties. The key properties, advantages, applications, welding and considerations were explained as well as future developments and research.





GPS Map Camera



Belagavi, Karnataka, India
RF8P+5R3, Udyambag Industrial Area, Udyambag,
Belagavi, Karnataka 590008, India
Lat 15.815561°
Long 74.48716°
27/05/23 03:54 PM GMT +05:30



GPS Map Camera



Hosapete, Karnataka, India
Near Shanbgah Crucal Hospet, Hosapete, Karnataka 583201, India
Lat 15.27584°
Long 76.387943°
05/08/23 08:59 AM GMT +05:30

Prof. Sandeep Deshmukh of Sinhgad College of Engineering, Mechanical Dept. was granted a patent titled 'The process for Improving Mechanical Properties of Implements' by the Indian Patent Office, Government of India. Dr C L Gogte, mentor and inventor and Mr D G Chivate from ASM International Pune chapter were instrumental in guiding him.

Team ASM Pune Chapter wishes him heartiest congratulations for this wonderful achievement!



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FROM CHAIRMAN DESK . . . ✍

Greetings for Festive Season!

I pleased to get connected with you once again. With consistent efforts of Newsletter committee under mentorship of Mr. Louis Vaz our Bi-monthly newsletter is well established. Our focus on students' outreach helped us make our MA Chapters dynamic, as evident from the news about them in this newsletter. Environmental issues are being tackled globally through different efforts. To update our members about strategies towards Decarbonisation in Steel Industry, we organised half day workshop.

We at ASM not only encourage for but also support them. One such patent being granted to Sinhgad Institute of behalf of all us, I would like to

Our chapter is growing in many young members are yet importantly active volunteers. I one young member in our

Continuing education is once of core groups, we conduct open programs like Metallurgy for Non-Metallurgists, etc., we also organise tailor made programs to suits needs of our member companies. We have planned four In-house training programs for Mahabal Group Miraj. They are Metallurgy for Non-Metallurgists, Casting Development, Basic & Advanced Heat Treatment and Failure Analysis.



personal growth of our members, combined efforts has lead to Sandeep Deshmukh, Faculty Engineering & Technology. On congratulate him.

membership strength, but still to become member & more request all of you bring at least Chapter.

activities of ASM. While for the wider



ASM International Pune Chapter

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Technical Article

The Impact of AI on 3D Printing: Unlocking the Potential of Additive Manufacturing

Dr Guruprasad Kuppu Rao,
NMIMS School of Design

Introduction

The convergence of artificial intelligence (AI) and 3D printing, also known as additive manufacturing, has opened up new possibilities and unlocked the true potential of this revolutionary technology. AI algorithms and techniques have revolutionized various aspects of the 3D printing process, from design optimization and material selection to quality control and post-processing. This essay explores the profound impact of AI on 3D printing, examining how it has enhanced efficiency, accelerated innovation, improved product quality, and expanded the range of applications. Furthermore, we will explore the challenges and ethical considerations that arise with the integration of AI in 3D printing and discuss the future prospects of this symbiotic relationship.

Enhanced Design and Optimization

AI has significantly enhanced the design process in 3D printing by leveraging advanced algorithms to optimize and generate complex geometries. Through generative design techniques, AI can explore numerous design possibilities based on specified constraints and performance criteria, resulting in lightweight and optimized structures. By incorporating AI into the design phase, engineers and designers can harness its computational power to create innovative and efficient designs that were previously unattainable. This capability has proved particularly valuable in industries such as aerospace, where lightweight and high-strength components are essential.

Moreover, AI algorithms can analyze vast amounts of data to identify patterns and optimize design parameters, leading to improved product performance. Machine learning techniques can learn from existing designs, materials, and manufacturing data, enabling the creation of models that predict the behavior of new designs. This predictive capability reduces the need for extensive physical testing and iterations, saving time and costs in the development process.

Accelerated Iteration and Innovation

AI-powered algorithms have expedited the iteration process in 3D printing, leading to faster innovation cycles. Through real-time analysis and optimization, AI systems can provide immediate feedback on design iterations, material selection, and printing parameters. This rapid iteration capability allows for faster prototyping and innovation, reducing time-to-market for new products.

Furthermore, AI can facilitate the exploration of new materials and composites, enabling the development of innovative and high-performance products. By analyzing material properties and performance data, AI algorithms can guide the selection of materials for specific applications, leading to the discovery of novel materials or combinations that enhance product functionality and durability.

Improved Quality Control and Process Monitoring:

AI has revolutionized quality control in 3D printing by enabling real-time process monitoring and defect detection. Machine learning algorithms can analyze sensor data from 3D printers to detect anomalies, predict potential failures, and optimize process parameters. This real-time monitoring enhances the



overall quality of printed parts by identifying and correcting issues during the printing process, minimizing the production of defective parts and reducing material waste.

Additionally, AI algorithms can perform post-processing analysis and inspection of 3D-printed objects, ensuring the accuracy and integrity of the final product. By comparing the printed object against the digital model, AI systems can detect and correct any deviations or distortions, improving the overall dimensional accuracy and surface finish.

Expanded Applications and Accessibility

The integration of AI in 3D printing has expanded its range of applications, making it accessible to a wider range of industries and users. AI-driven design optimization and material selection enable the creation of custom products tailored to specific requirements and use cases. This customization capability has found applications in healthcare, where patient-specific medical devices and prosthetics can be rapidly produced.

Furthermore, AI algorithms have facilitated the creation of digital libraries and repositories of 3D models, allowing users to access and modify existing designs or share their creations with the community. This collaborative and open-source approach fosters innovation and enables the democratization of 3D printing technology.

Challenges and Ethical Considerations:

As AI becomes increasingly integrated into 3D printing, several challenges and ethical considerations arise. Intellectual property protection becomes crucial as AI algorithms can generate designs that may inadvertently infringe existing patents or copyrights. Ensuring a fair and ethical framework for the use of AI-generated designs is essential.

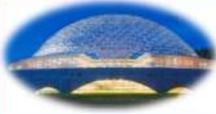
Moreover, the potential displacement of labor is a concern. With the automation capabilities of AI in 3D printing, there may be implications for traditional manufacturing jobs. It is important to consider strategies for reskilling and reemployment of individuals affected by these shifts.

Furthermore, AI systems must be transparent and accountable. The decision-making processes of AI algorithms need to be understandable and explainable, especially in safety-critical applications. Ethical considerations surrounding data privacy and security also need to be addressed to protect sensitive design and manufacturing information.

Future Prospects:

The integration of AI and 3D printing is still in its early stages, and the future prospects are promising. The continued advancement of AI algorithms, coupled with developments in 3D printing technology, will likely lead to even more significant impacts on innovation, efficiency, and accessibility. Addressing the challenges and ethical considerations associated with this integration will be crucial for its widespread adoption and responsible use. As AI continues to augment the capabilities of 3D printing, we can expect to witness further breakthroughs and advancements in manufacturing, customization, and design optimization, unlocking a new era of additive manufacturing possibilities.

Article by
Dr Guruprasad Kuppu Rao
Dean & Professor,
NMIMS School of Design,
Mumbai.



Know Our Member

We would like to welcome all the new members to the ASM Pune Chapter!



New Individual member

Name : Mr Arun D. Adiverekar

Designation: Management Consultant

Present Organisation / consultant / others: Consultant – Business Excellence
“Consultancy on all aspects of Total Quality Management”

Function: All

Contact information (Mobile, E-mail) and other details if any: arunadiverekar@gmail.com, Ph +91 9689948181

- **Education details:** DME, AMIE(Mech), GDMM, MBA (Materials Mgmt)
- **Work experience:** 40 years of Industrial experience in Engineering /Auto Ancillary/Automotive Engines Mfg & Capital Goods mfg Industry
- **Area of expertise:** Quality Assurance, 5S Implementation & Certification, Kaizen, NABL Accreditation & Laboratory Mgmt Systems – Metallurgical Laboratory & Metrology Laboratory, Integrated Mgmt Systems
- **Business Details If Any:** Consultant – Business Excellence

UPCOMING PROGRAMS

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29th and 30th September in MKSSS College, Nagpur.

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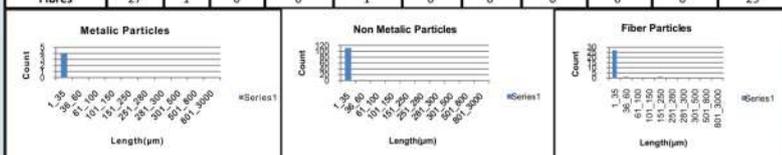
PARTICLE TEST REPORT.

Customer	ABC		
Part No:	A124N	Recd Date:	04-Jun-18
Report No.:	1672	Department :	QA Lab
Sample ID:	ABC	Test Date:	05-Jun-18
Analysis:	Particle	Standard Specification:	As per ISO 16232
Magnification	100X	Filter paper Size:	47 mm
No. of Fields :	5	Scanning Area	30 mm



Particle Size Analysis

Size ranges(µm)	1_35	36_60	61_100	101_150	151_250	251_280	281_300	301_500	501_800	801_3000	Total Count
Metallic	4	0	0	0	0	0	0	0	0	0	4
Non Metallic	111	3	0	0	1	0	0	0	0	0	115
Fibres	27	1	0	0	1	0	0	0	0	0	29



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