



IEI NEWS

January 2022

36th Indian Engineering Congress

1-16

Future Electricity Systems: Challenges and Current Trends

17

Innovations in Thermal Science and Engineering

18

Report of Energy Conservation Day

21

A CENTURY OF SERVICE TO THE NATION

Volume 28

Number 10

IEI wishes its Members a Happy New Year

36th Indian Engineering Congress, New Delhi

Engineers for Viable Technology and \$5 Trillion Economy

The 36th Indian Engineering Congress of The Institution of Engineers (India) was organized by Delhi State Centre of the Institution on the theme



Engineers for Viable Technology and \$5 Trillion Economy during December 26-28, 2021, at Vigyan Bhawan, New Delhi. Dr Mahendra Nath Pandey, Hon'ble Minister of Heavy Industries, Government of India graced the Inaugural Function as Chief

Guest and Dr Hemant Omkarrao Thakare, President-Elect, IEI, was the Guest of Honour. The mega event of the Institution was started with invocation and lighting of the lamp. Mr Dinesh Kumar, Chairman, Organizing Committee and Chairman, Delhi State Centre, IEI delivered the welcome address.

Chief Guest of the function, Dr Mahendra Nath Pandey, Hon'ble Minister of Heavy Industries, Government of India in his address focused on the role of engineers for the development of national economy in post COVID situation. The Hon'ble Minister further mentioned the contribution of engineering fraternity towards the development of healthcare infrastructure on urgent basis during the pandemic situation. He also remembered the commendable service rendered by the engineering community in nation building and to achieve the economic development of the country.

Guest of Honour of the function, Dr H O Thakare, President-Elect, IEI in his address stated that the industrial scenario of India has been going through a phenomenal change over the last decade, when market-driven and globally

networked industrial enterprises are fast becoming the emblems of a vibrant India, which promises a better economy in the time ahead. Dr Thakare added that with rapid economic development of the country with the advent of industrialization and globalization, the country will definitely achieve the target of USD 5 Trillion Economy with the help of viable technologies developed by our engineers and IEI will play a significant role in it.

Er Narendra Singh, President, IEI in his Presidential Address, stated that India has emerged as one of the fastest growing major economies and is expected to be one of the top three economic powers in the world over the next 10-15 years, backed by its robust domestic consumption and demographic dividend. The Government of India has set the target to emerge as a \$5 trillion economy by 2025 and the ongoing pandemic has made the achievement of this target more challenging, he stated. President, IEI further opined that to achieve India's ambitious goal to be a USD 5 trillion economy by 2025, strong infrastructural growth is essential. In particular, he mentioned, the success of India's manufacturing sector and the focus on "Make in India" are directly influenced by how strong the backbone of India's infrastructure is. India needs to focus on building new cities, ports, bridges, high-speed rail and highways.

On the occasion, the Souvenir of the 36th Indian Engineering Congress was released along with Abhiyanta Bandhu, 2021, the IEI publication in National Languages in the august presence of Chief Guest and the dignitaries on the dais.



The prestigious IEI Industry Excellence Award 2021, IEI Safety & Quality Awards 2021 were also presented during the occasion. The IEI Industry Excellence Award has been instituted to recognize industry leaders for their innovation, excellence in engineering operations and services and their capacity to sustain excellence in a competitive manner. The bench-marks created



Contd. on page 2



Engineers for Viable Technology and \$5 Trillion Economy

Contd. from page 1

by the industries in India have included productivity, quality, safety and performance assurance which would give India the rightful place in the global markets. Delegates from reputed industries all over India graced the Award function with their august presence.

The recipients of IEI Industry Excellence Award 2021 are:

Engineering Manufacturing and Processing

- Bharat Electronics Limited
- Hindustan Aeronautics Limited
- Bharat Forge Limited
- Afcons Infrastructure Limited
- Hindustan Zinc Limited
- The Singareni Collieries Company Limited
- Hyundai Motor India Limited
- Electronics Corporation of India Limited
- Tamil Nadu Newsprint and Papers Limited
- Ramkrishna Forgings Limited
- BrahMos Aerospace Private Limited
- Cochin Shipyard Limited
- Maral Overseas Limited
- DCM Shriram Limited
- Carborundum Universal Limited
- Avantel Limited
- Global Engineers Limited

Engineering Service and Consultancy

- RITES Limited
- Engineers India Limited
- Adani Infrastructure Management Services Limited
- WAPCOS Limited
- Power Finance Corporation Limited
- MECON Limited
- Intercontinental Consultants and Technocrats Private Limited
- Electrical Research and Development Association
- K & J Projects Private Limited
- REMC Limited
- Development Environenergy Services Limited (DESL)
- Epicons Consultants Private Limited

The Certificate of Appreciations were presented to the following organisations

Engineering Manufacturing and Processing

- West Bengal State Electricity Distribution Co Limited
- Arjas Steel Private Limited
- Tata Housing Development Company Limited
- RIECO Industries Limited
- CDET Explosive Industries Private Limited

Engineering Service and Consultancy

- Andhra Pradesh Southern Power Distribution Corporation Limited
- RUKY Projects Private Limited
- C & G Building Consultancy Private Limited
- Tandon Consultants Private Limited

Further, on the occasion, the Education Innovation Award 2021 was presented by Delhi State Centre, IEI to the College of Agricultural Engineering Raichur, Indira Gandhi Delhi Technical University for Women, New Delhi and Maharaja Surajmal Institute of Technology, New Delhi.

The Inaugural Function was well attended by illustrious Past Presidents, Vice Presidents, Council Members & Corporate Members of IEI, Delegation from industries, Awardees, Engineering Professionals, Academicians, Research Scholars and representatives from the entire gamut of the engineering fraternity. Maj Gen MJS Syali, VSM (Retd), Secretary & Director General of the Institution proposed the vote of thanks.

The Inaugural Function was followed by the Memorial Lectures, instituted in the memory of distinguished engineering personalities, delivered by the eminent experts in the field and felicitation of distinguished engineering personalities.

The prestigious Prizes and Awards in different categories for the Papers published in the Journals of The Institution of Engineers (India) during the years 2019 and 2020 were presented to the respective awardees by Er Narendra Singh, President, IEI.

Due to the pandemic situation, the Technical Sessions were held during December 15-16, 2021 in online mode as part of the 36th Indian Engineering Congress. Over these two days 55 numbers of papers out of 73 accepted papers were presented in 12 technical sessions spanned over two days.

Session-wise details of the presented papers presented are:

DAY 1

Room 1

Technical Session I

The First Technical Session on Room 1 was held on 15 December 2021 at 1200 h. Six Technical Papers from academia and industry were presented during the session. The topics of the Papers encompassing diverse aspects of Civil Engineering made the session interesting and vibrant.

The session was chaired by Er V B Singh, Chairman, Civil Engineering Division Board, IEI.

Technical Session 2

The Second Technical Session in Room 1 was held pertaining to Electrical Engineering at 1430 h. Four Technical Papers from academia and industry were presented during the session. The topics of Papers encompassed Power Electronics, Entrepreneurship prospects in Indian Solar energy market and detection and analysis of harmonics in power grid.

The session was chaired by Er P Rajamani, Chairman, Electrical Engineering Division Board, IEI.

Technical Session 3

The Third Technical Session in Room 1 was held pertaining to Civil engineering at 1630 h. Six Technical Papers were presented during the session. The Papers are from varied fields like Application of Blockchain, Geotextile, Arsenic contamination of ground water, Skill development in construction industry etc.

The session was chaired by Er S P Dutta and Prof R K Prasad, Members of Civil Engineering Division Board, IEI.

Room 2

Technical Session 1

The First Technical Session on the first day at Room no 2 commenced at 1200 h. Three Technical Papers from Computer Engineering were presented during the session. The session was interesting as the Papers presented addressed diverse fields like Machine Learning approach to medical application, identifying hidden web resources and application of simple mobile phone to engineering problem.

The session was chaired by Er B S Patel, Chairman, Computer Engineering Division Board, IEI.

Contd. on page 9

Address by

Dr Hemant Omkarrao Thakare

President, IEI

Text of the Presidential Address delivered by Dr Hemant Omkarrao Thakare, President, IEI during the 102nd Annual General Meeting of the Institution held at New Delhi on December 27, 2021

Introduction

I approach my installation as the 93rd President of The Institution of Engineers (India) at its 102nd AGM in the national capital with a sense of both honour and humility. I would like to sincerely thank the Council of the Institution for reposing their faith in me and electing me as the Second President of the Second Century. I look forward to the collective wisdom of the IEI Council in providing efficacious services to all our stakeholders. I also look forward to their guidance and suggestions towards our common cause. I also thank all my well wishers and friends especially in the engineering community and also those who are present here whose encouragement and support have provided me an opportunity to serve the Institution. I assure all of you of my unswerving commitment and dedication to undertake the task at hand.

On this occasion, I would like to pay my due reverence to the doyens of engineering profession such as Bharat Ratna Sir Mokshagundam Visvesvaraya, Sri R N Mookerjee, Dr A N Khosla, Dr Triguna Sen, Padma Bhushan Dr K L Rao, Nawab Zain Yar Jung Bahadur and many other illustrious engineering personalities whose dedication and contribution to the development of engineering in the country have been widely acclaimed and respected. It is also with pride that we take note of many luminaries who were at the helm of affairs of this august Institution and contributed to its multidimensional growth through their visionary approach and leadership. I must also extend my thanks and appreciation to my predecessor, Er Narendra Singh, who has just concluded a two year term of office replete with accomplishments.

**The Institution of Engineers (India)**

During its glorious journey of more than 100 years, the Institution has been at the forefront of Nation building by promoting the general advancement of engineering among its members and attached persons and acquired prestige of the engineering fraternity by upholding its interests. The growth and effectiveness of the Institution is attributable to the robust governance system which has withstood the test of time and also to the commitment and dedication of leaders and employees.

The Institution has always believed in inclusivity. In 1928, when the infrastructure of engineering education in India was inadequate, the Institution in its wisdom commenced conducting Sections A and B Examinations in engineering disciplines which came to be popularly known as AMIE examinations for diploma holders and working professionals, creating engineers with a strong theoretical and practical foundation.

We are privileged and fortunate to have the guidance of a visionary Council who established various Fora to address specific interest areas in the cause of the development of the Nation and also the Engineering Staff College of India (ESCI) which has now become the cornerstone of our continued professional development initiatives. Our 125 State & Local Centres are vibrant, conveniently located and provide yeoman service to the engineering community.

The Institution has a rich legacy of establishing and nurturing links with renowned global professional engineering bodies. These global linkages have facilitated us in extending our outreach to further our bonding and sharing of knowledge with fellow engineers.

The Institution played pioneering role in building technical competencies in all branches of engineering. For a number of years the Institution was the regulatory organ for recognition of quality engineering education providing colleges and institutions prior to AICTE. It is now time to set new goals and usher in the next Century with more meaningful and pragmatic perspective.

The Emerging Scenario

As a result of pandemic and climate change, it is widely envisaged that society would be widely impacted by the ongoing technological revolution. IoT, AI, Robotics, Block Chain and Machine Learning are making life easier and more productive for the citizens; on the other hand, there are significant concerns on the impact on climate, water availability, optimal land use and such like. The balance to be maintained poses its own challenges. This emerging scenario would make it necessary for a complete change in the way we think and implement our education system, professional practice and utilization of resources. It is my firm belief that the Institution with its multi-disciplinary and wide coverage across the country would have to take up a pre-eminent and leadership role in evolving and providing valuable inputs to various stake holders to enable challenges to be addressed in a holistic manner.

Current Challenges

101 years of our existence has been phenomenal, to say the least. However, of late this Great Institution is passing through some real testing issues which need to be approached and resolved urgently and amicably by creating a win-win situation for all stakeholders.

I know, it is easier saying than doing, but I have full faith in our collective wisdom, competence and capabilities and belief that if we put in focused efforts with an eye on finding judicious, rightful and compassionate solutions, they will emerge and shall help us reorganize our systems to take us to new heights in the next century of our existence.

AMIE recognition, issues/ lapses in financial management, severe strain on IEI finances, restoring dignity and honour of our members and Engineering Profession, our role in new digital world are some of our immediate challenges.

Needless to say, we shall all have to put our might together to resolve them and move ahead. I wish to reassure each one of you that Your President shall not be found wanting in these tough times.

New Opportunities

The Challenges / Troubles, fortunately do not come alone. They bring along with them many opportunities that need to be identified, exploited and encashed on for our benefits.

I take some of your precious time to dwell on some of them.

- ❖ Engineering Education and Training to build competitive, honest, dedicated army of Engineers for the country and abroad

- ❖ Research, Consultancy and Problem solving for the Industry, Corporate world and Society at large
- ❖ Arbitration and allied services that are needed by the Profession
- ❖ Professional Evaluation, Assessment, Accreditation and Certification work as Third Party
- ❖ Recognition as Think Tank and a Repository of Talent for Nation building Policies
- ❖ Working Groups to evolve future developmental Plans and providing Engineered feasible solutions.

These are only few, collectively we can think of many more.

Our Approach

The next obvious question is How do we do it?

I must confess that there is no definite answer in my mind at this point of time. However, there is no doubt that we shall be required to work out a roadmap and devise strategies for delivering as per great potential that we possess.

Our approach and actions shall be –

- Consolidating our IEI HQ as well as HQ Cell at the Capital here
- Integrating all our Fora and Organ
- Close Networking with all our 125 Centres
- Logical, Rational, Unbiased, Inclusive Mindset and above all
- Creating a System and Team that never stops till the Goal is achieved.

Implementation of Sustainable Development Goals

The Institution of Engineers (India) is committed towards building an inclusive, sustainable and resilient future. Development in India is aligned with the Sustainable Development Goals (SDGs) through promotion of technology. The goals substantially reflect the development agenda of India, as Prime Minister Narendra Modi himself noted in his speech at the United Nations Sustainable Development Summit in September 2015. To quote him, *“Much of India's development agenda is mirrored in the Sustainable Development Goals. Our national plans are ambitious and purposeful; Sustainable development of one-sixth of humanity will be of great consequence to the world and our beautiful planet.”* SDGs have put India

on the right development path. Our members are fully involved in attaining these goals. IEI will ensure to play a meaningful role in this space.

Further, due to the considerable efforts of World Federation of Engineering Organizations, 4th March the anniversary of the founding of WFEO in 1968 has been declared as the World Engineering Day by UNESCO. IEI has fully supported establishment of International Engineers Day. I am proud to declare that this historic milestone for engineering fraternity is now celebrated in a befitting manner by the Fora and Centres of the Institution.

Pride in the Engineering Profession

Looking back on the journey of last 101 years, I have always felt that we engineers need to pride ourselves on the great achievements made through generations in the development of the country. Here I would like to quote Sir R N Mookerjee in his Inaugural Address at the first AGM in 1920 while talking about the contributions made by engineers in adverse conditions in the context of the Great War. I quote, *“the engineering profession showed how, in spite of insufficient and make-shift equipment in many cases, it was able to produce large quantities of articles needed for war purposes of which no one had ever before thought could be made in India and at the same time carry on engineering works of public importance under conditions of very great difficulty”*.

A Century later, it is with happiness that I would like to echo in word and spirit the sentiments expressed by the first Indian President of the Institution that engineers need to pride themselves on the contribution being made by them in the development of the Nation with a spirit of knowledge sharing, collaboration and esprit-de-corps. We engineers, in this technology driven world have to, therefore, be aware of our professional responsibilities and the confidence imposed upon us by the society. Here, I would like to emphasize that ethics must be the foundation of all professional work we undertake in all dimensions.

Conclusion

The current developments in the technological domain prompt us to look at the future with optimism. The Institution's credentials, competency and capabilities, supported by its committed teams and dynamic leadership, places it in a unique position to address the challenges and opportunities that present itself in this changing scenario. I seek your co-operation, support and guidance to promote the Vision and Values of IEI and I believe that this would pave the way for the Institution to scale new heights in the coming years.

Presentation of IEI Safety and Quality Awards 2021



Mr Subhash Chandra Joshi



Mr Chitaranjan Nanda

The IEI Safety and Quality Awards were instituted by the Safety and Quality Forum (SQF) of the Institution with a view to encourage professionals from manufacturing and service sectors to strive for excellence. For the year 2021, **Mr Subhash Chandra Joshi**, Chairman, Alwar Local Centre, IEI received the Safety Award and **Mr Chitaranjan Nanda**, Chief Engineer, CPWD, Bhubaneswar received the Quality Award.

Presentation of IEI Industry Excellence Awards 2021



1. Hindustan Aeronautics Limited
2. Bharat Electronics Limited
3. Electronics Corporation of India Limited
4. Engineers India Limited
5. MECON Limited
6. Power Finance Corporation Limited
7. Bharat Forge Limited
8. BrahMos Aerospace Private Limited

9. RITES Limited
10. Hindustan Zinc Limited
11. Afcons Infrastructure Limited
12. The Singareni Collieries Company Limited
13. Cochin Shipyard Limited
14. DCM Shriram Limited
15. Hyundai Motor India Limited

Presentation of IEI Industry Excellence Awards 2021



16. WAPCOS Limited
17. Tamil Nadu Newsprint and Papers Limited
18. Ramkrishna Forgings Limited
19. Adani Infrastructure Management Services Limited
20. Electrical Research and Development Association
21. Maral Overseas Limited
22. Carborundum Universal Limited
23. Avantel Limited
24. Global Engineers Limited
25. Intercontinental Consultants and Technocrats Pvt Ltd
26. K & J Projects Private Limited
27. REMC Limited
28. Development Environenergy Services Limited (DESL)
29. Epicons Consultants Private Limited



Memorial Lectures

The following Memorial Lectures, instituted by the Institution in memory of stalwarts in the engineering profession, are a salient feature of the Indian Engineering Congress organized annually by The Institution of Engineers (India). During the Thirty-sixth Indian Engineering Congress, these lectures were delivered by leading experts from diverse fields. Following are some excerpts of the lectures.

The 64th Sir M Visvesvaraya Memorial Lecture

Engineers for Viable Technology and A \$5 Trillion Economy



The Sir Mokshagundam Visvesvaraya Memorial Lecture was instituted in the year 1957-58 in the memory of Late Sir M Visvesvaraya, the doyen of Indian engineering. The 64th Sir M Visvesvaraya Memorial Lecture was delivered by Lt Gen T S A Narayanan, AVSM, Commandant, Military College of Electronics and Mechanical Engineering, Secunderabad on the topic 'Engineers for Viable Technology and A \$5 Trillion Economy'. In his address, Gen Narayanan remembered the rich Indian legacy with ancient engineering and architectural marvels and the contribution of internationally acclaimed engineers and scientists in nation building. He mentioned the significance of identifying viable technologies in capacity building and to realize the dreams for a five trillion dollar economy. He stated the significant role of the agriculture sector and rural economy in ensuring food security and providing livelihoods and also providing an impetus to the growth of industries and service sectors. He mentioned Indian manufacturing as a high impact labour intensive sector, capable of meeting the dual objective of job opportunities and GDP growth. He further opined that the Electronics System, Design &

Manufacturing of the country need to undergo a metamorphosis with proper development of skills for the young electronics engineering community. He felt that the aeronautical sector is another important domain that needs to be addressed and added that in the global space industry, India has demonstrated its capability as a cost-effective, high success-rate player with commendable initiatives by private sectors in the arena of launch vehicles and satellites. He mentioned the role of digital transformation, wide applications of IT and IT enabled services during the pandemic times in healthcare, education, accounting and finance etc. In his concluding remarks, the speaker recommended the interdisciplinary skills and concurrent engineering practice for the future engineers and felt that engineers and scientists can explore the right way to lead the society towards a sustainable economy and prosperity.

The 56th Nidhu Bhushan Memorial Lecture

An Engineer's Perspective on How to Prepare the Engineers of Tomorrow

The Nidhu Bhushan Memorial Lecture was instituted in the year 1966 in the memory of late Nidhu Bhushan Chatterjee, a social worker. The 56th Nidhu Bhushan Memorial Lecture was delivered by Dr (Mrs) Amita Dev, Vice Chancellor, Indira Gandhi Delhi Technical University for Women, Government of Delhi on the topic 'An Engineer's Perspective on How to Prepare the Engineers of Tomorrow'. In her address, Dr Dev highlighted the demand and effect of digital revolution and advocated for significant retrospection and modification in engineering education and induction of new technical skills in terms of creativity, interdisciplinary nature, flexibility and motivation to meet the future challenges due to this paradigm shift in technologies. She stated that the proliferation of IoT, AR/VR, automation and Machine Learning has created exciting, cutting-edge opportunities for the future engineers. She felt that the disruptive forces leading to automation, interconnectivity and rapid innovation unlocked a new range of unique opportunities spanning industries and disciplines within engineering. She also mentioned that the rate of digital disruption is escalating and placing increasing demand on organizations to adopt emerging technologies in order to improve productivity and industries has begun to shift towards AI based models. She stated that today's industry demands engineers, well versed in technical as well as soft skills, which include teamwork, collaboration, leadership, problem solving, critical thinking, work ethics, persistence, emotional intelligence, organizational skills, creativity, interpersonal communication and conflict resolution. She also explained the applications of Artificial Intelligence in automation, cyber security, agriculture and digital farming, healthcare, defence and border security, space technology etc.



The 47th Bhaikaka Memorial Lecture



Job Opportunities, Employability and Skill Development of the Practicing Engineers

The Bhaikaka Memorial Lecture was instituted in the year 1976 in the memory of Late Bhailal Bhai Patel, popularly known as Bhaikaka, an eminent engineer, educationist and administrator. The 47th Bhaikaka Memorial lecture was delivered by Shri Rajesh Aggarwal, IAS, Secretary, Ministry of Skill Development & Entrepreneurship, Government of India. In his address, Shri Aggarwal deliberated at a length the job opportunities, employability and skill development for the practicing engineers, emphasized on industry-academia interface and strongly advocated for the induction of industrial exposure in the academic campus. He further stressed on the practical oriented vocational courses from school level onwards with the objective to develop the educational skills as well as conceptual skills, which leads to design and development of products, processes and systems. He further focused on active intervention and enhanced participation of young and dynamic workforce in all

avenues to make the country self reliant.

The 34th Dr Ajudhia Nath Khosla Memorial Lecture

Infrastructure Sector Consultancy – Challenges and Solutions



The Dr A N Khosla Memorial lecture was instituted in the year 1988 in the memory of Late Dr Ajudhia Nath Khosla, an outstanding Engineer-Administrator and the Past President of The Institution of Engineers (India). The 34th Dr Ajudhia Nath Khosla Memorial Lecture was delivered by Shri Pawan Kumar Gupta, CMD, NBCC India Limited on the topic 'Infrastructure Sector Consultancy – Challenges and Solutions'. In his address Shri Gupta deliberated at a length the role and scope of functioning of consultancy services for infrastructure development, contract management, conceptualizing the project etc. He discussed the requirement of professional knowledge, expertise and competency for consultancy services, which include sufficient exposure to project management, procurement, contracts, construction management, green building and sustainability, assets and facilities management, project formulation, feasibility execution, commissioning, approval and clearance etc. Shri Gupta, in his address stressed on the high value of coordination and decision making at all stages of project conceptualization and execution. He further discussed the challenges about process selection and

optimization, expertise in specific domains for maximized output during project execution. He focused on the coordination and teamwork within different workgroups of consultants to avoid project delay and to obtain the best output. He also discussed different issues of merging and acquisition, utility and importance of databases for consultancy services etc.

The 43rd Sir Rajendra Nath Mookerjee Memorial Lecture

BRO's Role in Contribution to Viable Technology and \$5 Trillion Economy

The Sir R N Mookerjee Memorial Lecture was instituted in the year 1990 in the memory of Late Sir Rajendra Nath Mookerjee, the first President of The Institution of Engineers (India) with an Indian origin. The 43rd Sir R N Mookerjee Memorial Lecture was delivered by Lt Gen Rajeev Chaudhry, VSM, Director General Border Roads, HQ DGBR, Delhi Cantt on the topic 'BRO's Role in Contribution to Viable Technology and \$5 Trillion Economy'. In his address Lt Gen Chaudhry mentioned that despite global disruption and restrictions all over, the Indian construction industry is active and is still going beyond. He stated the role and involvement of Border Roads Organization (BRO) in infrastructural development in extreme weather conditions and difficult terrains. He further explained the scope of work and achievements of BRO in construction of roads, tunnels etc in the most remote, inhospitable and cold areas with low population density and scarcity of resources. He remembered the relentless effort of BRO to interconnect most remote ends of the country by means of roads and tunnels. Gen Chaudhry in his lecture, explained the methodology to achieve sustainable road sub-base by means of shifting Moraines and placing Geo-cells, application of M-50 Concrete Blocks to prevent surface damage during snow cleaning. He explained specific applications of non-frost susceptible sub-base courses on the roads, applications of plastic coated aggregates in heavy rainfall areas, stabilization of slopes and so on. Gen Chaudhry further deliberated on the scope, opportunities and advancement of MSME sector in socioeconomic development of the country and mentioned MSME as the most prominent sector, where BRO functions. In his address, the speaker highlighted the enhancement of economic growth of the country with development of roads, better connectivity and improved transportation.



The 30th Dr Amitabha Bhattacharyya Memorial Lecture

Reinventing the Indian Education System

The Dr Amitabha Bhattacharyya Memorial Lecture was instituted in the year 1992 in the memory of Late Dr Amitabha Bhattacharyya, an eminent engineer-teacher and Past President of The Institution of Engineers (India). The 30th Dr Amitabha Bhattacharyya Memorial Lecture was delivered by Prof V Ramgopal Rao, Director, Indian Institute of Technology Delhi on the topic 'Reinventing the Indian Education System'. In his lecture, Prof Rao deliberated on the current status of research and development in the country and mentioned that India secured a prominent position in the world in terms of research output. He stated the status and impact of Indian research publications and mentioned the knowledge to wealth transition as the greatest challenge. Prof Rao opined that the societal problems in higher educational institutions of the country need to be focused and clarified their role in terms of education, knowledge generation and innovation. Prof Rao in his address, stressed on more research funding in collaboration with industry. Dr Rao further highlighted the importance of five key technological platforms, namely Information Technology, Biotechnology, Nanotechnology, Cognitive Technology and Quantum Technology. He deliberated on the importance of innovation and patents to initiate start ups, application of low cost sensor platforms and systems, micro-sensor based explosive detection and nano-sniffer technology, and so on. He explained the IDEA



FACTORY approach to coordinate different ideas, create the right atmosphere and structure interaction.

Contd. on page 10

Engineers for Viable Technology and \$5 Trillion Economy

Contd. from page 2

Technical Session 2

The Second Technical Session at Room no 2 on the first day was held at 1430 h in Mechanical Engineering Division. During the session, five Papers were presented from industry and academia, that highlighted the contribution of engineers to Indian economy, application of AI & ML in Diesel Locos of Indian Railways, Design of Gas Pipeline for steel plant, environmental issues for fossil fuel base power plants etc.

The session was chaired by Er Jagroop Singh, Chairman, Mechanical Engineering Division Board, IEI and Dr G Ranganath, Member, Mechanical Engineering Division Board, IEI.

Technical Session 3

The Third Technical Session in Room no 2 on the first day was commenced at 1630 h. During the session three Papers were presented from industry and academia.

The session was chaired by Er M Velan, Chairman, Environmental Engineering Division Board, IEI and Prof (Dr) Raman Saravanane, Member, Environmental Engineering Division Board, IEI.

DAY 2

Room 1

Technical Session 1

The First Technical Session in Room no 1 was held on 16 December, 2021. Six out of seven Papers were presented, pertaining to Electronics Engineering in the field of Antenna Design, Medical application, Control System, and Maritime Applications were presented during the session. Highlight of the session was presentation of Paper by Rear Admiral of Srilankan Navy T W W Leelarathna on 'Integrated Maritime Domain Information Awareness'.

The Session was chaired by Prof (Dr) Jagtar Singh and Dr (Ms) Vrinda Krishanlal Gupta, Members, Electronics & Telecommunication Engineering Division Board, IEI.

Technical Session 2

The Second Technical Session on the second day at Room no 1 was held at 1430 h, where four Papers were presented pertaining to Electrical Engineering.

The Session was chaired by Prof (Dr) Natarajan Kumaresan, Member, Electrical Engineering Division Board, IEI.

Technical Session 3

During the Third Technical Session on the second day at Room no 1, four technical Papers were presented pertaining to Agriculture and Chemical Engineering. The Papers presented involving Agriculture Machine, Data Driven Modelling for Rainfall Runoff and Property of Mango Pulp for Foam-Mat etc.

The session was chaired by Dr M Chowde Gowda, Chairman Agricultural Engineering Division Board, IEI.

Room 2

Technical Session 1

The First Technical Session of the second day at Room no. 2 was held at 1000 h pertaining to Metallurgy, Mining and Textile Engineering. Total three Papers were presented during the Session.

The Session was chaired by Er K K Mehrotra, Chairman, Metallurgical and Materials Engineering Division Board, IEI and Dr D V Pichamuthu, Chairman, Mining Engineering Division Board, IEI.

Technical Session 2

The Second Technical Session in Room 2 on the second day was held at 1230 h pertaining to Mechanical and Production Engineering Divisions.

Four numbers of Papers from Industry and academia were presented in this session by professional engineers as well as renowned academicians.

The session was chaired by Dr Enti Ranga Reddy, Member, Mechanical Engineering Division Board, IEI and Mr R Ramdoss, Member, Production Engineering Division Board, IEI.

Technical Session 3

The last Technical Session of the two-day event was held on 16 Dec 2021 at 1630 h which included Papers from Interdisciplinary field and Architecture engineering. Total six numbers of papers were presented in this session addressing social, economic and industrial issues.

The session was chaired by Er P Chaturvedi, Chairman, Interdisciplinary Coordination Committee, IEI and Er H K Mittal, Chairman, Architectural Engineering Division Board, IEI. The Online Technical Sessions were attended by 268 numbers participants.

During the 36th Indian Engineering Congress, the WFEO-CIC session on 'Smart Technologies for Smart Cities' was organized in hybrid mode. The session included audio-visual messages from Prof Gong Ke, President WFEO and Dr Marlene Kanga, Past President, WFEO. Mr Mahesh Mahajan,



Chief Operating Officer (COO) & Head of Products – MindtreeNxt (A L&T Group Company) delivered the Keynote address. Mr Mahajan spoke about the smart cities projects across the country, crowd management solutions through Artificial Intelligence, functional modules of smart cities through data management systems etc. Earlier, Mr Navinchandra B Vasoya, Past President, IEI & National Member, Executive Council, WFEO, delivered the Introductory speech. Mr S S Rathore, Past President, IEI and Chair WFEO-CIC was also present on the occasion. Er Narendra Singh, President, IEI and Dr H O Thakare, President-Elect, IEI also graced the occasion and addressed the audience.

The IEI Alumni Meet was also organized concurrently with the 36th Indian Engineering Congress. Er Narendra Singh, President, IEI was the Chief Guest and Dr H O Thakare, President-Elect, IEI, was the Guest of Honour. Dr



T M Gunaraja, Immediate Past President, IEI and Mr Sisir Kumar Banerjee, Past President, IEI graced the occasion and addressed the audience. Distinguished Alumnus were felicitated on the occasion, namely Dr Subhash Chander, Scientist F, DRDO, Shri Daljit Singh, Engineer in Chief (Retd) and Technical Advisor, Government of Punjab and Dr A Srinivasula Reddy, Principal, CMR Engineering College, Hyderabad; in the august presence of

Contd. on page 10

Engineers for Viable Technology and \$5 Trillion Economy

Contd. from page 9

the dignitaries on the dais, Council Members and Corporate Members. Mr Devendra Gill, Chairman, IEI Alumni Association in his address emphasized on sustainable harmony between IEI and Alumni, that leads to a better responsive Institution. Dr Enti Ranga Reddy, Immediate Past Chairman, Alumni Association, IEI stated the achievement of IEI Alumni in various core sectors.

During the occasion, a Technical Exhibition was inaugurated by the President, IEI and President-Elect, IEI with active participation from reputed organizations.

During Valedictory Function, Shri Dharmendra Pradhan, Hon'ble Minister of Education & Skill Development and Entrepreneurship, Government of India graced the occasion as Chief Guest. In his address, Shri Pradhan proudly glorified the rich legacy and cultural heritage of the country regarding continuous professional development. He highlighted the famous engineering and architectural marvels in India. He further focused on the ancient engineering and technological concepts & practices of the country in the field of textile technology, marine engineering, architecture, structural engineering, water management etc. In his address, Shri Pradhan emphasized on strengthening manufacturing infrastructure of the country, initiating more startups for producing goods and services with sustainable quality to facilitate exports. He further stressed on the upgradation of skills and knowledge base of the engineering community based on digital learning mode. He further mentioned the contribution and relentless effort by the engineers and scientists of India regarding the infrastructural development of healthcare management system during the national crisis. Hon'ble Minister, in his address, opined for the greater role of The Institution of Engineers (India) for capacity development and nation building.

Guest of Honour of the event, Er Narendra Singh, President, IEI expressed his satisfaction and congratulated Delhi State Centre for organising the event in a befitting manner during the pandemic period.

Guest of Honour of the event, Dr H O Thakare, President-Elect, IEI, in his address opined that the vibrant two-day discussions and deliberations obtained would definitely enlighten and enriched all and make us conscious of the increased responsibility of the engineers in exploring newer

technologies to develop our country.

On the occasion, an IEI publication 'Combating COVID 19: Role of Engineers and Doctors', soft copy of Annual Technical Volume of Civil Engineering Division Board, 2021, e-Proceedings of 36th National Convention of Civil Engineers and soft copy of Annual Technical Volume of Electrical Engineering Division Board were released in the august presence of Chief Guest and dignitaries. Eminent authors were also felicitated on the occasion.

Earlier, Mr Dinesh Kumar, Chairman, Organizing Committee and Chairman, Delhi State Centre delivered the welcome speech. Maj Gen MJS Syali, VSM (Retd), Secretary & Director General, IEI summarized the Proceedings of the event. Mr Praveen Kumar Singh, Secretary, Organizing Committee proposed the vote of thanks.

The Valedictory Function was followed by the 102nd Annual General Meeting of the Institution on December 27, 2021, which was attended by a large



number of Corporate Members of the Institution. The Annual Report of IEI for the year 2020-2021 and Audited Accounts of IEI for the year ending 31 March 2021 were accepted and noted during the Annual General Meeting. Thereafter, the ceremonial function of

installation of New President of IEI took place, when Dr Hemant Omkar Rao Thakare took over the charge from Er Narendra Singh as the President of The Institution of Engineers (India) for the session 2021-22 and delivered the Presidential Address. Dr H O Thakare presented the Scroll of Honour to Er Narendra Singh, Immediate Past President in recognition of his devoted contributions and selfless service rendered by him in the High Office as the President of The Institution of Engineers (India) for the session 2019-20 and 2020-21.

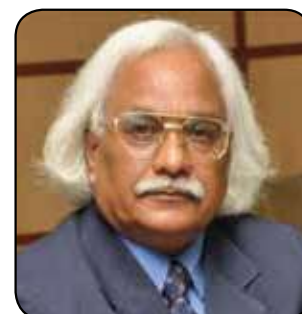
Memorial Lectures

Contd. from page 8

The 11th Prof C S Jha Memorial Lecture

Redesigning Engineering Education for a Sustainable Green and Prosperous Future

The Prof C S Jha Memorial Lecture was instituted in the year 2011, in the memory of Late Professor Chandra Sekhar Jha, an eminent engineer and educationist. The 11th Prof C S Jha Memorial Lecture was delivered online by Prof P B Sharma, Vice-Chancellor, Amity University Gurgaon, Founder Vice Chancellor, Delhi Technological University and Past President, Association of Indian Universities, AIU on the topic 'Redesigning Engineering Education for a Sustainable Green and Prosperous Future' through online mode. Prof Sharma in his lecture stated that the principle of funding for research and development should be aligned to the national missions and priorities to make the country self-reliant. He opined that this is the time to explore and recognize knowledge and innovations, which demands a major shift in the design of technical education to create engineers with innovative minds, which results in improved outcome from the industries and enhancement of new age entrepreneurship powered by the innovative genius of young India. The ecosystem for innovation, technology incubation and startups and R&D funding in areas of high national and global relevance is the prime agenda by the Government of India and Corporate, he added. He further advocated for modification of university and college campuses with sustainable green practices gravitating with technology innovations to empower sustainable and inclusive growth. In his address, Prof Sharma focused on the sustainable green practices including application of renewable energy, rainwater harvesting, wastewater recycling etc. The speaker felt that it is the need of the hour to nurture interdisciplinary education, engage in cutting edge research and technology innovations for sustainability, cultivate transitional and solution research and take them towards commercially viable technologies to make India a world leader in quality education and research.



Contd. on page 16

Recipients of IEI Prizes & Awards

One of the important events of the Congress was the presentation of prizes and awards to the authors whose papers were published in the Journals of The Institution of Engineers (India) co-published by Springer during the year 2019 and 2020 and were adjudged the best in respective fields. Details of prizes and awards, the titles of the winning papers along with the authors' names are listed hereunder.

Prizes and Awards for the year 2019

The Institution Prizes (2 nos.)

Karabi Bharadwaj, Bapi Mondal and Nirmalendu Debnath for their Paper titled 'Vibration Reduction of Eccentric Steel 3D Framed Building Considering Soil Flexibility', *Journal of The Institution of Engineers (India): Series A, Issue 2, Volume 100, 2019.*



V Bharath, Santhrusht S Ajawan, Madev Nagaral, Virupaxi Auradi and Shivaputrappa Amarappa Kori for their Paper titled 'Characterization and Mechanical Properties of 2014 Aluminum Alloy Reinforced with Al_2O_3 Composite Produced by Two-Stage Stir Casting Route', *Journal of The Institution of Engineers (India): Series C, Issue 2, Volume 100, 2019.*

K F Antia Memorial Prize

Umarani Devaraj, Seyazhai Ramalingam and Dhivya Sambasivam for their Paper titled 'Evaluation of Modulation Strategies for Single-Phase Quasi-Z-Source Inverter', *Journal of The Institution of Engineers (India): Series B, Issue 4, Volume 100, 2019.*



Corps of Engineers Prize



Murty V S N Anavilla, Subbaiah Venkata Kambagowni and Rao Bhujanga Vepakomma for their Paper titled 'Design and Validation of Diesel Engine Infrared Signature Suppression Devices for Naval Ships', *Journal of The Institution of Engineers (India): Series C, Issue 5, Volume 100, 2019.*

Corps of Electrical and Mechanical Engineers' Prize

Sujatha Chandramohan and G P S Gagneza for their Paper titled 'Estimation of Road Loads and Vibration Transmissibility of Torsion Bar Suspension System in a Tracked Vehicle', *Journal of The Institution of Engineers (India): Series C, Issue 5, Volume 100, 2019.*



Union Ministry of Energy – Department of Power Prize



A Kumar and S Shuhag for their Paper titled 'Impact of TCPS, SMES and DFIG on Load Frequency Control of Nonlinear Power System Using Differential Evolution Algorithm', *Journal of The Institution of Engineers (India): Series B, Issue 2, Volume 100, 2019.*

Sir Arthur Cotton Memorial Prize

Pooja Gupta and J K Sharma for their Paper titled 'Effect of Nonlinear Non-homogeneity of Floating Granular Pile and Soil on Settlement', *Journal of The Institution of Engineers (India): Series A, Issue 2, Volume 100, 2019.*



Pandit Madan Mohan Malaviya Memorial Prize

Pushpa Y G, Vasudev Nagaraju and Gobinath G for their Paper titled 'An Improved Pollution Testing Methodology for Polymeric Insulators : Analysis on Surface Coating and Flashover Voltage Under Solid Layer Test', *Journal of The Institution of Engineers (India): Series B, Issue 1, Volume 100, 2019.*



Dr Rajendra Prasad Memorial Prize

Vineeth Balakrishnan, Manoj Pradhan and P Y Dhekne for their Paper titled 'Effect of Distributed Spherical Air-Gaps on Performance of Emulsion Explosive', *Journal of The Institution of Engineers (India): Series D, Issue 2, Volume 100, 2019.*

Sir Ganga Ram Memorial Prize

Zeenat Arif, A B Soni, S N Victoria and R Manivannan for their Paper titled 'Synthesis and Characterization of Oleic Acid-Capped Metallic Copper Nanoparticle via Chemical Reduction Method', *Journal of The Institution of Engineers (India): Series E, Issue 1, Volume 100, 2019.*



Hem Prabha – S N Gupta Prize



Satish S Deshmukh and Abhaykumar S Woyal for their Paper titled 'Sediment Yield Estimation Using RS and GIS for Upper Karha Watershed Maharashtra, India', *Journal of The Institution of Engineers (India): Series A, Issue 3, Volume 100, 2019.*

Dr Triguna Charan Sen Prize

S Viju and G Thilagavathi for their Paper titled 'Oil Spill Cleanup by Bonded Nettle Fibrous Mat', *Journal of The Institution of Engineers (India): Series E, Issue 1, Volume 100, 2019.*



Brij Mohan Lal Memorial Prize



Atrayee Bandyopadhyay, Amiya K Samanta and K Michel Paul for their Paper titled 'Assessment of Axial Capacity of RC Stub Column Confined with Unplasticized Polyvinyl Chloride Pipe', *Journal of The Institution of Engineers (India): Series A, Issue 4, Volume 100, 2019.*

Tata Rao Prize

Geeta Pathak, Debidasi Mohanty, S K Dwivedi and Bhim Singh and B K Panigrahi for their Paper titled 'Implementation of MVF-Based Control Technique for 3 Φ Distribution Static Compensator', *Journal of The Institution of Engineers (India): Series B, Issue 6, Volume 100, 2019.*





Aerospace Engineering Division Prize

P S Suresh, Niranjan K Sura and K Shankar for their Paper titled 'State Estimation for Landing Maneuver on High Performance Aircraft', **Journal of The Institution of Engineers (India): Series C, Issue 1, Volume 100, 2019.**

Agricultural Engineering Division Prize

Ajai Singh, Sunny Agarwal, Jyoti P Patil and V C Goyal, for their Paper titled 'Assessment of Water Supply-Demand Using Water Evaluation and Planning (WEAP) Model for Ur River Watershed, Madhya Pradesh, India,' **Journal of The Institution of Engineers (India): Series A, Issue 1, Volume 100, 2019.**



Architectural Engineering Division Prize



Yash Kumar Mittal, Virendra Kumar Paul and Anil Sawhney, for their Paper titled 'Methodology for Estimating the Cost of Delay in Architectural Engineering Projects : Case of Metro Rails in India', **Journal of The Institution of Engineers (India): Series A, Issue 2, Volume 100, 2019.**

Marine Engineering Division Prize

M K Srinath and M S Ganesha Prasad, for their Paper titled 'Corrosion Analysis of TiCN Coated Al-7075 Alloy for Marine Applications : A Case Study', **Journal of The Institution of Engineers (India): Series C, Issue 2, Volume 100, 2019.**



Metallurgical and Materials Engineering Division Prize



C K Asnani, R Bhima Rao and N R Mandre, for their Paper titled 'A Novel Process for Extraction of Uranium from Monazite of Red Sediment Using Activated Carbon of Waste Tyres Source', **Journal of The Institution of Engineers (India): Series D, Issue 1, Volume 100, 2019.**

Production Engineering Division Prize

Krishna Kishore Mugada and Kumar Adepu for their Paper titled 'Role of Tool Shoulder End Features on Friction Stir Weld Characteristics of 6082 Aluminum Alloy', **Journal of The Institution of Engineers (India): Series C, Issue 2, Volume 100, 2019.**



The President of India's Prize

Vinay Kumar Midha, Vaibhav Gupta and Arunangshu Mukhopadhyay for their Paper titled 'Impact of Positive Thread Feeding for High-speed Industrial Lockstitch Sewing Machines : Part II Response with Cotton and Spun Polyester Needle Threads', **Journal of The Institution of Engineers (India): Series E, Issue 2, Volume 100, 2019.**

Institution Prize (Donated by Col. G N Bajpai)

Swarup Das and S E Talole for their Paper titled 'Nonlinear Control of Marine Surface Vessels', **Journal of The Institution of Engineers (India): Series C, Issue 2, Volume 100, 2019.**

The Railway Board's Prize

Karuna Nikum, Abhay Wagh, Rakesh Saxena and Bharat Mishra for their Paper titled 'New Economical Design of SVC and Passive Filters to Improve Power Quality at Railway Substation : A Case Study', **Journal of The Institution of Engineers (India): Series B, Issue 5, Volume 100, 2019.**

Sir Rajendra Nath Mookerjee Memorial Prize

Prasun Dutta and Nityananda Nandi for their Paper titled 'Numerical Study on Turbulent Separation Reattachment Flow in Pipe Bends with Different Small Curvature Ratio', **Journal of The Institution of Engineers (India): Series C, Issue 6, Volume 100, 2019.**

Sir Thomas Ward Memorial Prize

Sumeet Singh Bhatia and Jagtar Singh Sivia for their Paper titled 'On the Design of Fractal Antenna Array for Multiband Applications', **Journal of The Institution of Engineers (India): Series B, Issue 5, Volume 100, 2019.**

N K Iyengar Memorial Prize

P Sam Paul, G Lawrance, A S Varadarajan, X Ajay Vasanth and S Benny Raj for their Paper titled 'Suppression of Tool Vibration in Boring Process : A Review', **Journal of The Institution of Engineers (India): Series C, Issue 6, Volume 100, 2019.**

Prizes and Awards for the year 2020

The President of India's Prize

Utkarsh Sharma and Bhim Singh for their Paper titled 'Utility-Tied Solar Water Pumping System for Domestic and Agricultural Applications', **Journal of The Institution of Engineers (India): Series B, Issue 1, Volume 101, 2020.**



K F Antia Memorial Prize



Venkaiah Chowdary, Chandrasekhar Chintada and Srikanth Kakara for their Paper titled 'Influence of Commercial Vehicle Characteristics on the Magnitude of Dynamic Wheel Loads Over Asphalt Pavement Profiles with Different Roughness', **Journal of The Institution of Engineers (India): Series A, Issue 4, Volume 101, 2020.**

The Railway Board's Prize (1)

Durlav Hazarika and Jyoti Kumar Barman for their Paper titled 'Development of a Mathematical Model for a Railway Track Using a Gray-Box Modelling Technique', **Journal of The Institution of Engineers (India): Series B, Issue 6, Volume 101, 2020.**



The Railway Board's Prize (2)



Debopoma Kar Ray, Anisha Rai, Ankit Kumar Khetan, Abhishek Mishra and Surajit Chattopadhyay for their Paper titled 'Brush Fault Analysis for Indian DC Traction Locomotive Using DWT-Based Multi-resolution Analysis', **Journal of The Institution of Engineers (India): Series B, Issue 4, Volume 101, 2020.**

The John C Gammon Prize

C B Nayak, M Jain and S B Walke for their Paper titled 'Parametric Study of Dome With and Without Opening', **Journal of The Institution of Engineers (India): Series A, Issue 3, Volume 101, 2020.**



The Surendranath Mukherjee Memorial Prize



Joygopal Jena and Swetalina Nath for their Paper titled 'An Empirical Formula for Design Flood Estimation of Un-Gauged Catchments in Brahmani Basin, Odisha', **Journal of The Institution of Engineers (India): Series A, Issue 1, Volume 101, 2020.**



36th Indian Engineering Congress, New Delhi



Sir Arthur Cotton Memorial Prize

Surendar Natarajan and Nisha Radhakrishnan for their Paper titled 'An Integrated Hydrologic and Hydraulic Flood Modeling Study for a Medium-Sized Ungauged Urban Catchment Area : A Case Study of Tiruchirappalli City Using HEC-HMS and HEC-RAS', **Journal of The Institution of Engineers (India): Series A, Issue 2, Volume 101, 2020.**

Dr Jai Krishna Prize

Johneo Pasi and Avik Samanta for their Paper titled 'Seismic Retrofitting Strategies for Soft-Ground-Storied Building', **Journal of The Institution of Engineers (India): Series A, Issue 4, Volume 101, 2020.**



Pandit Madan Mohan Malaviya Memorial Prize

Geeta Pathak, Bhim Singh and Bijaya Ketan Panigrahi for their Paper titled 'Multi-functional Microgrid's Transient-Free Connection : Disconnection with Grid', **Journal of The Institution of Engineers (India): Series B, Issue 1, Volume 101, 2020.**

Sir Ganga Ram Memorial Prize

Pankaj Kumar Roy, Chaiti Ray, Arunabha Majumder and Malabika Biswas Roy for their Paper titled 'Performance Analysis of Some Low-Cost and Locally Available Adsorbents that Remove Excess Fluoride Ion from Raw Water to Develop a Filter for the Rural Population', **Journal of The Institution of Engineers (India): Series E, Issue 2, Volume 101, 2020.**



Dr Triguna Charan Sen Prize

Sankar Roy Maulik, Kunal Bhandari and Arup R Bhattacharyya for their Paper titled 'Synthesis and Characterization of Microcrystalline Cellulose from Rice Husk', **Journal of The Institution of Engineers (India): Series E, Issue 2, Volume 101, 2020.**

Brij Mohan Lal Memorial Prize

Anunay Jain and Veerendra Kumar for their Paper titled 'Yield Line Analysis of Reinforced Concrete Slab Carrying Concentrated Loading', **Journal of The Institution of Engineers (India): Series A, Issue 1, Volume 101, 2020.**



Tata Rao Prize



Arabinda Das, Alok Mukherjee and Palash Kumar Kundu for their Paper titled 'Application of Principal Component Analysis for Fault Classification in Transmission Line with Ratio-Based Method and Probabilistic Neural Network : A Comparative Analysis', **Journal of The Institution of Engineers (India): Series B, Issue 4, Volume 101, 2020.**

Suchit Kumar Ghosh Memorial Prize

Sudha Das Khan, Pijush Topdar and Alope Kumar Datta for their Paper titled 'Applicability of Fuzzy-Based Visual Inspection Approach for Condition Assessment of Bridges in Developing Countries : A State-of-the-Art Review', **Journal of The Institution of Engineers (India): Series A, Issue 4, Volume 101, 2020.**



Aerospace Engineering Division Prize

Dipankar Chatterjee, Santanu Dey and Thangadurai Murugan for their Paper titled 'Blast Wave Interaction with Generic Objects and the Measurement of Blast

Wave Reattachment Distances', **Journal of The Institution of Engineers (India): Series C, Issue 5, Volume 101, 2020.**

Agricultural Engineering Division Prize



Rama Chandra Pradhan, Sumit Sudhir Pathak, Akshay Dagadu Sonawane and Sabyasachi Mishra for their Paper titled 'Effect of Moisture and Axes Orientation on the Mechanical Properties of the Myrobalan Fruits and its Seed Under Compressive Loading', **Journal of The Institution of Engineers (India): Series A, Issue 4, Volume 101, 2020.**

Architectural Engineering Division Prize

Sayantani Lala, Kshitij Jain, Ashok Kumar, Anuj Kumar, E Rajasekar and Kishor S Kulkarni for their Paper titled 'Design Aids for Supplementary Lighting Design in India', **Journal of The Institution of Engineers (India): Series A, Issue 4, Volume 101, 2020.**



Computer Engineering Division Prize



Prashanti Guttikonda and Nirupama Bhat Mundukur for their Paper titled 'Polynomial-Based Secret Sharing Scheme for Text, Image and Audio', **Journal of The Institution of Engineers (India): Series B, Issue 5, Volume 101, 2020.**

Production Engineering Division Prize

A Chandru and S V Satish for their Paper titled 'Friction Stir Welding of Aluminum Sponge by Non-Porous Edge Retention', **Journal of The Institution of Engineers (India): Series C, Issue 5, Volume 101, 2020.**



The Institution Prizes (2 nos.)

Vijetha Ponnamm, Subbaiah Tondepu, Ramesh Naidu Mandapati, Murali Naik, Ranganadh Reddy Aluri and Naresh Katari for their Paper titled 'A Novel Material for the Removal of Zinc from Wastewater Using Sterculia Foetida', **Journal of The Institution of Engineers (India): Series D, Issue 1, Volume 101, 2020.**

The Institution Prizes

Shuming Shen, Xiaofang Xu and Xuhong Yang for their Paper titled 'Improvement of Interface Adhesion of Poultry Feathers Used as Reinforcing Fibers in Composites', **Journal of The Institution of Engineers (India): Series E, Issue 2, Volume 101, 2020.**

Corps of Engineers Prize

Hemant Kumar, Varinder Singh, Satbir S Sehgal and Rajeev Kukreja for their Paper titled 'Effect of Plenum Shape on Thermohydraulic Performance of Microchannel Heat Sink', **Journal of The Institution of Engineers (India): Series C, Issue 1, Volume 101, 2020.**

Union Ministry of Energy – Department of Power Prize

Makarand Sudhakar Ballal, Manish Genesh Wath and Hiralal Murlidhar Suryawanshi for their Paper titled 'Measurement Current Transformer Error Compensation by ANN Methodology', **Journal of The Institution of Engineers (India): Series B, Issue 3, Volume 101, 2020.**

Shrimati Saroma Sanyal Memorial Prize

S Sivanesan, A K Mariselvam, P Vasudevan and K Padmanabhan for their Paper titled 'Smartphone APP for Continuous Observation of Pollution Levels Due to Particulate Matter Measured by Laser Mie Scattering', **Journal of The Institution of Engineers (India): Series A, Issue 3, Volume 101, 2020.**

Metallurgical and Materials Engineering Division Prize

Ranu Srivastava and Ranjt Prasad for their Paper titled 'Mineralogical Characterization – Assisted Reduction Roasting of Banded Hematite Jasper Ore', **Journal of The Institution of Engineers (India): Series D, Issue 2, Volume 101, 2020.**

Felicitation of Eminent Engineering Personalities



Prof D P Agrawal

Former Chairman
Union Public Service Commission (UPSC)



Mr V K Yadav

Former Chairman & CEO, Railway Board &
Ex-officio Principal Secretary, Government of India (Retd.)



Lt Gen Harpal Singh, PVSM, AVSM, VSM, ADC

Engineer-in Chief
Army Headquarters, New Delhi



Smt Soma Mondal

CMD
Steel Authority of India Limited

The Steel Authority of India Ltd (SAIL) had instituted two Awards, namely, SAIL AWARD and DR M VISVESVARAYA AWARD to be given away every year during the Indian Engineering Congress to author/s of the articles adjudged best on selected topics.

Recipients of SAIL Award

For the year 2020, **Ashish Garg**, H Amarnath Vyas and Anurag Saxena for their Paper titled 'Digital Transformation in the Steel Industry'.



Ashish Garg

For the year 2021, **Santosh Kumar** for his Paper titled 'Eco-friendly Steel Making for a Sustainable Future'.



Santosh Kumar

Recipients of Dr M Visvesvaraya Award

For the year 2020, **Santosh Kumar** for his Paper titled 'Hydrogen-based Steel Making - The Future?'.



Santosh Kumar

For the year 2021, **B Khalkho**, S Sudershan, P Saravanan and S Srikanth for their Paper titled 'Usage of Green Hydrogen in Steel Industry'.



B Khalkho



IEI Young Engineers Award 2020-2021

With a view to promote the pursuit of excellence in the field of engineering, IEI has instituted 'IEI Young Engineers Award'. The purpose of the Award is to recognize outstanding achievements/contributions made by young engineers in engineering research, excellence in engineering technology development, technology transfer, etc. Any engineer citizen of India not older than 35 years of age as on March 31, of that year is eligible for the Award. The recipients of the IEI Young Engineers Award for the year 2020-21 in different engineering disciplines are as follows.

Aerospace Engineering



Dr Sunil Manohar Dash

Architectural Engineering



Dr Yash Kumar Mittal

Agricultural Engineering



Dr Jayant Sarjerao Ghatge

Agricultural Engineering



Dr Bibwe Bhushan Ratnakar

Agricultural Engineering



Mr Chethan C R

Chemical Engineering



Dr Virendra Kumar Saharan

Civil Engineering



Dr Prabhat Ranjan Prem

Civil Engineering



Dr G S Rampradheep

Civil Engineering



Dr (Ms) A Kanchanadevi

Computer Engineering



Dr Nitin Kumar

Electrical Engineering



Dr Mohd Tariq

Electrical Engineering



Dr P Ponnurugan

Electrical Engineering



Mr Patel Gaurang Rohitbhai

Electronics & Telecom Engg



Dr Amol Choudhary

Electronics & Telecom Engg



Dr Abhay Deshpande

Electronics & Telecom Engg



Md Asim Iqbal

Environmental Engg



Dr M Jerold

Environmental Engg



Mr Prashant Basavaraj Bhagawati

Marine Engineering



Mr Jagadeesh Kadiyam

Mechanical Engineering



Dr C Syamsundar

Mechanical Engineering



Dr Sandeep Shrikrushna Joshi

Mechanical Engineering



Mr Vinod Mishra

Metallurgical & Materials Engineering



Dr (Ms) Pooja Devi



Mr Vikash Kumar

Mining Engineering



Dr Islavath Sreenivasa Rao

Production Engineering



Dr Sumit Chabri

Textile Engineering



Dr Pratick Samanta

Textile Engineering



Dr Vijaykumar Narayandas Baheti

Textile Engineering



Ms Urmila Das

Aerospace Engineering

Dr (Ms) Susmita Naskar

Chemical Engineering

Ms Swagatika Dash

Metallurgical & Materials Engineering

Dr Nikhil Dhawan

Memorial Lectures

Contd. from page 10

The 7th Dr K L Rao Memorial Lecture



Energy for Sustainable Economic Growth

The Dr K L Rao Memorial Lecture was instituted in the year 2015, in the memory of Late Dr Kanuru Lakshmana Rao, an eminent Civil Engineer, Former Union Minister of Government of India and Past President of The Institution of Engineers (India). The 7th Dr K L Rao Memorial Lecture was delivered by Dr Sunal Rai, Vice Chancellor, University of Petroleum and Energy Studies, Dehradun on the topic 'Energy for Sustainable Economic Growth'. Dr Rai in his lecture deliberated on the roadmap to achieve the five trillion economy goal, which include; create a globally competitive Indian industry, which should be modern, sustainable and inclusive, ensure connectivity through better infrastructure and energize growth engines through clean energy technologies. Dr Rai discussed the key objectives of National Energy Policy and mentioned that global energy markets are changing rapidly with the introduction of disruptive technologies in the energy sector. He discussed the future objectives of NITI Aayog and forecasted that urbanization is expected to increase with double share in manufacturing, shift

towards electric and hybrid vehicles and more energy efficient gaseous fuels, integration of more renewable and clean energy sources to comply with electric grid etc. Dr Rai further forecasted the scenario to explore the energy transition trends including low carbon technologies and energy storage by Lithium ion battery, hydrofuel etc. He also forecasted the hydrogen production scenario in future and role of natural gas in low-carbon energy transition. The speaker strongly recommended for low carbon development in the world cities, restore and protect agricultural and forest landscapes, more investment in clean energy, enhancement in energy efficiency, implementation of effective carbon pricing, ensure climate-smart new infrastructure, galvanize low carbon innovation and drive for low carbon growth. He deliberated on the major technologies of energy transformation and storage. He explained Energy Value Chain and mentioned that Green Energy Planning and rebuilding of resources are the principle propositions in the changed energy scenario.

Release of **Abhiyanta Bandhu** in the Congress



Release of book **Combating COVID-19: Role of Engineers and Doctors**



Release of **Annual Technical Volumes** of Engineering Divisions



The H Nandy Memorial Award

The Institution of Engineers (India) instituted the Award in the name of Late H Nandy, renowned Council Member, a doyen and eminent engineer in the field of Metallurgical and Materials Engineering and to be given away to a student who tops the list of Section B Examination of the Institution in the branch of Metallurgical & Materials Engineering. Considering both Summer and Winter examinations for the year 2019, **Mr Anshuman Kumar Singh** was selected for the award.

Future Electricity Systems: Challenges and Current Trends

The Thirty-sixth National Convention of Electrical Engineers and National Conference on the theme **Future Electricity Systems: Challenges and Current Trends** was organised by Jodhpur Local Centre during November 27-28, 2021 in hybrid mode under the aegis of Electrical Engineering Division Board [ELDB] IEI. The inaugural function was organised in physical mode and telecasted live on Youtube. Professor Santanu Chaudhury, Director, Indian Institute of Technology Jodhpur graced the inaugural function as Chief Guest. Mr Ravindra Kumar, Director, Defence Laboratory Jodhpur was present on the occasion and addressed the audience. Prof



(Dr) Sudhir Kumar Calla, Council Member IEI graced the function as the Guest of Honour. Professor Chaudhury, in his address highlighted the way technology is changing to develop the growth of future electricity systems. During his speech, he mentioned that now there is a need of people working in different branches of engineering to join hands for the development and growth of future electricity systems. Shri Ravindra Kumar in his address gave insights on how DRDO is developing technology that may help in expansion of future electricity systems. Dr Calla gave insightful comments on growth and future of electricity systems. Mr P Rajamani, Chairman, Electrical Engineering Division Board and Council Member, IEI graced the function with his virtual presence. Earlier, Dr Akhil Ranjan Garg, Chairman, Jodhpur Local Center, IEI delivered the welcome address. Dr Ghanshyam Prasad Vaishnav, Honorary Secretary, Jodhpur Local Centre proposed the vote of thanks. A Souvenir was released on the occasion.

On the occasion, Prof H P Khincha, Chairman, Karnataka State Innovation Council, Prof S Vathsar, Former Director, Extramural Research and Intellectual Property Rights (ER & IPR), DRDO, HQ, New Delhi, Er Hem Raj Sharma, Sr Ex. Vice President, Dhirubhai Ambani Solar Park, Rajasthan and Er Vinay Kumar Nama, IRSEE, Dy Chief Vigilance Officer, Indian Railways were felicitated as Eminent Electrical Engineering personalities.

The State of Art Lecture was delivered by Prof H P Khincha, Chairman, Karnataka State Innovation Council on the theme 'Accelerating World and Impacts'.

During the first day technical session, eight Papers were presented. Professor Jayashri Vajpai chaired this first Technical Session.

On the next day there were three Keynote Lectures delivered by Dr Deepak kumar M Fulwani, Associate Professor, Department of Electrical Engineering, IIT Jodhpur on the topic 'Control of DC Microgrids', Dr Rohit Bhakar, Associate Professor, Department of Electrical Engineering, MNIT Jaipur on the topic 'Primary Frequency Response in Low Inertia Power Systems', and Prof Dinesh Birla, Faculty, Rajasthan Technical University Kota on the topic 'Coordination of Time Overcurrent Relays in Power Networks'.

On the same day, the M S Thacker Memorial Lecture was delivered by Prof Jagdish Kumar, Professor and Head, Department of Electrical Engineering, Punjab Engineering College, Chandigarh. The proceedings of the day were divided into three sessions and in these three Technical Sessions, fifteen Papers were presented. Dr Prerna Jain, Associate Professor, Department of Electrical Engineering, MNIT Jaipur chaired the second Technical Session, Professor Avdhesh Sharma, Former Professor and Head, Department of Electrical Engineering, MBM Engineering College, Jodhpur chaired the third Technical Session and Prof (Dr) Sandip Mehta, Director, Jodhpur Institute of Engineering & Technology, Jodhpur chaired the fourth Technical Session.

During the Technical Sessions, Papers were presented on Influence of Time Delays on Performance Measures of Bioreactors; Electric Process Heater & Heater Control Methodology; Artificial Neural Network Strategy for A Li-Ion



Battery Management System; Effect of Temperature and Irradiance on Grid Connected Solar PV System; Performance Evaluation of Grid Connected Wind Farm with Variation in Wind Speed; Fractional Order Controller Based Performance Enhancement of Electric Vehicle System; Optimal Operation of Microgrid; Electrification and Power System Flexibility; Generation Flexibility of Power System; and so on.

More than 90 registered participants attended the National Convention in hybrid mode. In the Valedictory function, Professor Manoj Choudhary, Professor, Department of Electrical Engineering, Indian Institute of Technology Jodhpur was the Chief Guest.



IEI - Springer Journal



ISSN Print: 2250-2149
ISSN Online: 2250-2157

SCOPUS Indexed



ISSN Print: 2250-2483
ISSN Online: 2250-2491

SCOPUS Indexed



ISSN Print: 2250-0545
ISSN Online: 2250-0553

SCOPUS Indexed

Free e-access of
Journal papers for all
Corporate Members
of IEI log-in from
www.ieindia.org



ISSN Print: 2250-2122
ISSN Online: 2250-2130

SCOPUS Indexed



ISSN Print: 2250-2106
ISSN Online: 2250-2114

SCOPUS Indexed

Innovations in Thermal Science and Engineering

Tripura State Centre of the Institution, in association with National Institute of Technology Agartala, National Institute of Technology Arunachal Pradesh and Tripura Institute of Technology Agartala organised the Thirty-sixth National Convention of Mechanical Engineers during December 05-06, 2021 under the aegis of Mechanical Engineering Division Board [MCDB], IEI through hybrid mode at Agartala. A National Conference was organised on this occasion on the theme **Innovations in Thermal Science and Engineering**. Prof Pinakeswar Mahanta, Director, National Institute of Technology, Arunachal Pradesh graced the occasion with his august presence.



Er Narendra Singh

Er Narendra Singh, President, IEI inaugurated the National Convention and delivered the Inaugural speech. President, IEI opined that the theme of the National Convention was very much relevant to the current perspective of technological development in thermal science and heat transfer and the objective of the National Convention is to focus and discuss on the new technological developments on sustainable, environment friendly and cost-effective thermal science and engineering applications, which enables the practising professionals, researchers and students to be aware of the advanced technologies for green technology, application of renewable energy resources, thermal management etc.



Dr H O Thakare

Dr H O Thakare, President-Elect, IEI in his address mentioned the appropriateness of the theme and sub theme of the National Convention that leads to create proper ambience for applying new advent of technologies in the field of thermal science and engineering. He called upon the participants to utilise this platform to upgrade their knowledge base and provide significant inputs to develop meaningful new technologies and machineries in association with engineering institutions, research and industrial organisations, that leads to innovation and application of new technologies. Dr Thakare felt that the output of the National Convention results in dissemination of knowledge for betterment of society at large.

Mr Jagroop Singh, Chairman, MCDB, IEI in his address mentioned that thermal engineering and heat transfer are playing an increasingly critical role in the development and successful application of advanced technologies in different fields. From space stations to eradication of hazardous-waste, high-speed transport etc, there are a vast range of applications based on energy management, heat-flow control, and temperature control to successfully meet the design objectives and achieve commercial success. During the past few decades, engineers have addressed significant thermal management issues including reduced energy consumption, enhanced application of renewable energy, sustainable energy generation, storage and distribution etc.

Earlier, Mr Chinmoy Debnath, Chairman, Tripura state Centre, IEI welcomed the Guests, Speakers, dignitaries, Corporate members, participants and other stakeholders. Prof (Dr) Swapan Bhaumik, Chairman, Committee for Advancement of Technology & Engineering [CATE], IEI and Convener, Technical Committee briefed the august audience about the theme and welcomed the guests and speakers of the function.



Dr Nayani Kishore Nath

On the occasion, Dr Nayani Kishore Nath, Scientist G & Project Director, Project VEDA, Advanced Systems Laboratory, DRDO Hyderabad; Er Tarun Malik, Executive Director - Asset Manager, Oil & Natural Gas Corporation Limited, Tripura Asset; Prof (Dr) Rajat Gupta, Professor, Mechanical Engineering Department, National Institute of Technology Silchar

and Prof (Dr) Sekhar Datta, Professor, Mechanical Engineering Department & Principal, Tripura Institute of Technology Agartala, Tripura were felicitated as eminent engineering personalities for their immense contribution in the field of Mechanical engineering.



Prof Pinakeswar Mahanta

Prof Pinakeswar Mahanta, Director, National Institute of Technology, Arunachal Pradesh in his address highlighted the paradigm shift in the field of thermal science and engineering with the objective to increase energy efficiency and reduce greenhouse gas emissions to a great extent. He strongly advocated for power generation through nonconventional energy resources and significantly mentioned the issues of power load transition and balance. He further stressed on the application of digital technologies in conventional thermal power plants and development of human resource capital with appropriate skills to integrate digital transformation and power generation mechanisms to reduce carbon growth. He further discussed the applications of thermal science on agriculture including crop processing through renewable energy resources.

A Souvenir was released on the occasion in the august presence of the dignitaries on the dais. Dr Subhadeep Battacharjee, Honorary Secretary, Tripura State Centre, IEI proposed the vote of thanks.



Prof Suman Chakraborty

Dr Suman Chakraborty, Professor, Department of Mechanical Engineering & Dean, Sponsored Research and Industrial Consultancy, Indian Institute of Technology Kharagpur delivered the Dr S C Bhattacharyya Memorial Lecture on the topic 'Healthcare for the Underserved' and focused on the generic aspects of mechanical engineering on healthcare. He pointed out the lack of access to the basic healthcare facilities by the majority of rural population of the country and discussed affordable healthcare by means of envisaged ecosystem through a multidimensional approach with low cost theranostics, data research, deep science biology and clinical research. Prof Chakraborty discussed translational healthcare and the challenges including disruptive innovation diagnostics in terms of supply chain, skill requirement, cost etc. He discussed disease detection through dispersion of body fluid through printed paper channels for blood pathology, mobile app based detection through image analytics and machine learning etc.

Dr Nayani Kishore Nath, Scientist G & Project Director-VEDA, Advanced Systems Laboratory, DRDO Hyderabad delivered the Dr S P Luthra Memorial Lecture on the topic 'Thermal Design Challenges in Aerospace Systems'. Dr Nath deliberated on launch vehicle systems, aerodynamic /kinetic heating issues, base flow problems etc. He explained design and analysis of aerodynamic structure including the effect of heat transfer on structural materials for missile systems. He discussed on temperature estimation of Vehicle for Defence Application [VEDA] Telecomm and Antenna, heat flux calculations, application Merman band separation mechanism in multistage rocket motors, application of Ablation in aerospace design to cool and protect mechanical parts, that would otherwise be damaged by extremely high temperature, application of jet deflectors in long range missile system and so on.



Prof Gautam Biswas

Prof Gautam Biswas, J C Bose National Fellow and Professor, Department of Mechanical Engineering, IIT Kanpur delivered Keynote Address on the topic 'Dynamics of Vapour Bubbles in Film Boiling with and without External Electric Field'. In his lecture, Prof Biswas explained the buoyancy driven instability

Contd on page 19

Innovations in Thermal Science and Engineering

Contd from page 18

in film boiling. He discussed the Berenson Model, Taylor's most Dangerous wavelength, CLSVOF Algorithm, Void Fraction, Young's Method and so on. He explained Least Square Volume of Interface Reconstruction Algorithm (LVIRA), Continuous Surface Tension Force, Continuity Equation in liquid and vapour cells, Momentum Equations, analysis of single bubble formation through Ebullition Cycle, application of Electrohydrodynamic Model, Bubble Morphology, Bubble Geometry, study of bubble profiles etc.

Dr Sarit Kumar Das, Institute Chair Professor, Department of Mechanical Engineering, Indian Institute of Technology Madras in his State of Art Lecture explained two phase heat transfer in micro channels, effect of copper ageing on flow boiling characteristics in mini/micro channels, ageing of copper surface on Critical heat Flux during flow boiling in microchannels. He discussed experimental investigations, validation study of results, computation of heat transfer and pressure drop at different time intervals, surface characterization due to ageing, study of boiling curve etc.



Prof Sarit Kumar Das



Prof Avinash Kumar Agarwal

Dr Avinash Kumar Agarwal, SBI Endowed Chair Professor, Engine Research Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur delivered State of Art Lecture on the topic 'Future Prospects of Green and Environment Friendly Methanol Economy'. In his lecture, Prof Agarwal discussed the sustainable transport system, criteria to adapt new CO₂ free fuel alternative and recommended Methanol and Dimethyl ether (DME) as the potential future fuel with high Octane number and clean burning fuel. He also discussed the commercial production of Methanol through biomass, city garbage, kitchen waste that results in high fuel economy.



Prof (Dr) Rajat Gupta

Prof (Dr) Rajat Gupta, Professor, Mechanical Engineering Department, National Institute of Technology Silchar delivered State of Art lecture on the topic 'Experimental & Computational Analysis of Vertical Axis Wind Turbines' and discussed on working principle, applications, dimensions, configurations, classifications of wind turbines, aerodynamic research methodology in wind turbines, Turbulence Modelling etc. He explained the design, construction and materials of wind turbine rotors, testing of wind tunnels, wind speed data analysis, grid balancing, grid connectivity etc.

Prof Pinakeswar Mahanta, Director, NIT Arunachal Pradesh delivered lecture on the topic 'Prospect for Sustainable Renewable Energy Development in North-East India' and highlighted the constraints in energy generation in India, application of solar energy in hot water production for agricultural applications, high temperature applications, application of biomass to produce renewable energy, application of biogas to produce clean energy, adaptation of low carbon technology etc.

Dr Subrata Bhattacharya, Professor of Mechanical Engineering, Adjunct Professor of Computer Science, Computational Thermodynamics, Combustion, San Diego State University, USA delivered State of Art Lecture on the topic 'TEST: The Expert System for Thermodynamics: A Web – portal to make Thermodynamics Fun to Learn and Practice'. In his lecture, Prof Bhattacharya explained different thermodynamic modules based on Expert System, that facilitate prompt interpolation



Prof Subrata Bhattacharya

of different thermodynamic values, determination of thermodynamic properties, graphical representation of different thermodynamic cycles etc. He explained the interactive problem solving modules, outcome based learning system, conversion of thermodynamic units and so on.



Prof Sameer Khandekar

Dr Sameer Khandekar, Professor, Sir M Viswvaraya Chair, Department of Mechanical Engineering, Indian Institute of Technology Kanpur delivered State of Art Lecture on the topic 'Two-phase Passive Systems for Thermal Management of Electronics'. In his lecture, Prof Khandekar principally focused on application of heat pipes in electronic thermal management, energy systems etc. He discussed further on Loop Heat Pipes, Pulsating Heat Pipes and its applications on Air Cooled and Liquid-Liquid heat Exchangers, Integral Thermal spreaders, Embedded Thermal radiators etc.

Prof Xiaolin Wang, Associate Head of School (Research), School of Engineering, College of Sciences and Engineering, University of Tasmania, Hobart, Australia delivered State of Art Lecture on the topic 'Combined Compressed Air and Pumped Hydro Energy Storage' and mentioned that energy conversion processes are often accompanied by environmental pollution. He focused on the challenges associated with standalone energy supply to meet the energy demand and advocated for energy storage in the form of electrochemical or mechanical energy. He further explained hydro energy storage, compressed air energy storage, heat transfer analysis during energy storage, computation of polytropic index during expansion and compression process etc.



Prof Xiaolin Wang

Dr Bidyut Baran Saha, Multiscale Science and Engineering for Energy and Environment Thrust, WPI-I2CNER (International Institute for Carbon-Neutral Energy Research), Kyushu University, Japan delivered State of Art Lecture on the topic 'Pathway towards Net-Zero Emissions utilising the Adsorption Science and Engineering'. In his lecture, Dr Saha focused on the advancement of low carbon emission and cost effective energy systems to improve energy efficiency and reinforce low carbon intensity. He explained Adsorption Heat Pumps (AHPs), production of biofuel through fast algae cultivation, structural analysis and applications of Aluminium Fumarate, one of the highly functional adsorbent materials towards the realisation of sustainable heat pumps etc.



Dr Bidyut Baran Saha

Dr Anutosh Chakraborty, Associate Professor, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore delivered State of Art Lecture on the topic 'Adsorption Heat Transformation for Cooling and Desalination'. Dr Chakraborty analysed the sustainable systems based on adsorption phenomena, which resulted in Adsorption Cooling, Water Harvesting and Adsorption desalination. He further highlighted the application of functional adsorbents and explained Adsorption heat transformation, Metal Organic Framework Synthesis, thermodynamic modelling, energy balance of Adsorption Heat Transformation etc.



Dr Anutosh Chakraborty

Prof (Dr) Bharat Raj Singh, Director General (Technical), School of Management Sciences, Lucknow and Former Chairman, Uttar Pradesh State Centre, IETI deliberated lecture on the topic 'Novel Air Engine for Transport

Contd on page 20

Innovations in Thermal Science and Engineering

Contd from page 19

Sector towards Sustainable Development' and discussed on excessive emission of greenhouse gases, global warming, status of emission, energy storage system, cost effectiveness etc.



Mr Pradeep Chaturvedi

Mr Pradeep Chaturvedi, Member, MCDB, IEI in his address deliberated on environmental issues, alternative energy supply, net zero emissions and carbon neutrality, challenges for thermal engineering professionals to explore alternative fuel sectors with higher fuel economy. He also discussed the efficiency of supercritical power plants and advocated for a more coordinated effort for the engineers, policy makers, R & D to facilitate more

start ups in the power sector.

Further, during the technical sessions, Mr M Ashok Kumar, Ramco Institute of Technology presented Paper on the topic 'Performance Comparison of Closed loop Heat Pump Dryer with Bed, Tray and Bed-Tray Dryer for Curry Leaves'. Mr Anil S Katarkar, PhD Scholar, Mechanical Engineering

Department, NIT Agartala presented Paper on the topic 'Experimental Investigation of Pool BHT Performance of R-1416 on Micro/Nano-Porous Copper Coating Prepared by a Two-Stage Electro-deposition Method'. Mr B Kamble presented his Paper on the topic 'Innovative Low-cost Vibration Monitoring System to Unleash the Power of Condition Monitoring'.

A Panel Discussion was organised on the theme of the National Conference. Prof Pinakeswar Mahanta, Director, National Institute of Technology Arunachal Pradesh moderated the Session. Prof (Dr) K Palani Kumar, and Dr Enti Ranga Reddy, Members, MCDB, IEI, Prof (Dr) Kisor Ray, Director General, Techno-India Group, Kolkata, Dr R Venkatesan, Scientist G & Head, Ocean Observation Systems, National Institute of Ocean Technology, Chennai and Mr Sanjay Sen, Chief General manager, MECON Limited and Member, ENDB, IEI graced the occasion as Panellists and addressed the audience.

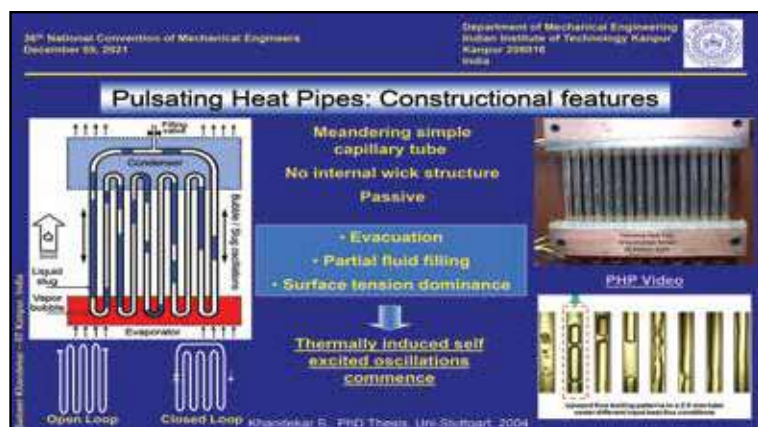
During the Valedictory function, Prof S C Sharma, Director, National



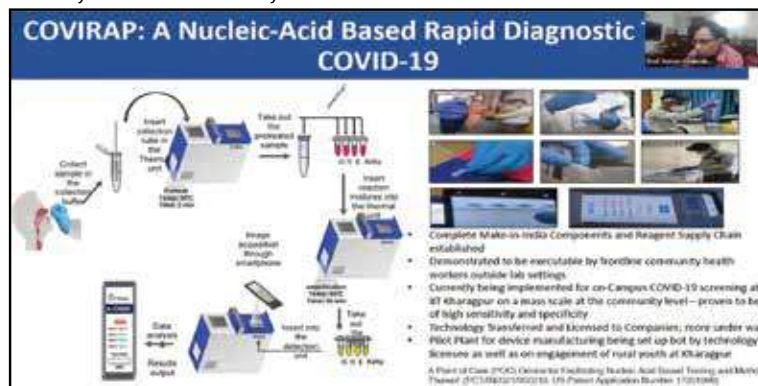
Prof S C Sharma

Assessment & Accreditation Council (NAAC), Bangalore graced the event as Chief Guest. Prof (Dr) Sekhar Datta, Principal, Tripura Institute of Technology, Narsingarh and Shri N C Sharma, Director, Higher Education, Government of Tripura graced the occasion as Special Guests and addressed the audience. Prof Sharma, in his address highlighted the wide application domain of thermal science and engineering, wide range of applications of solar power, opportunities for further research and

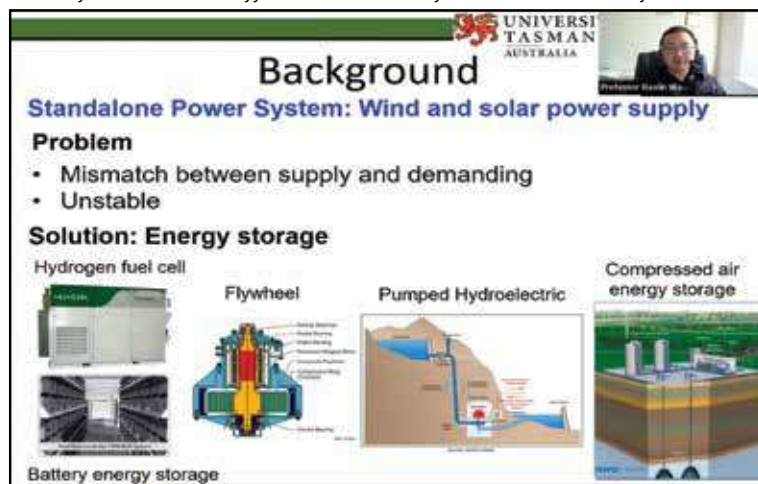
development in solar fuel technology, thermal energy storage system etc. He further discussed different issues on thermal management, application of thermal energy for healthcare applications, exploration in the alternate fuel sector and so on. Earlier, Mr Chinmoy Debnath, Chairman, Tripura State Centre, IEI delivered the welcome speech. Dr Subhadeep Bhattacharjee, Honorary Secretary, Tripura State Centre, IEI proposed the vote of thanks. The event was well attended from different corners of the country.



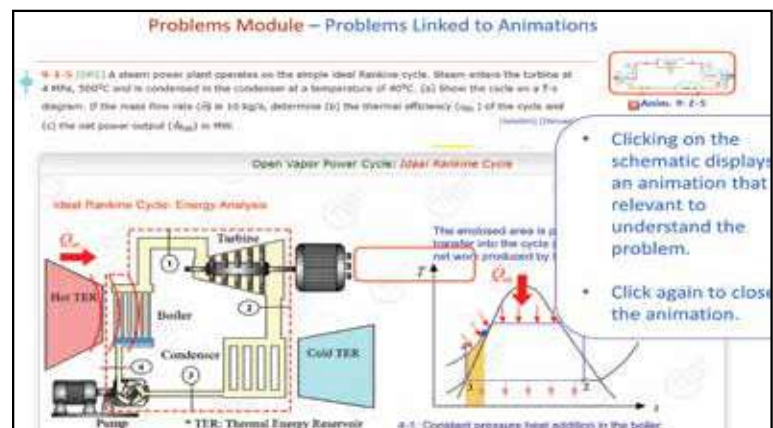
Courtesy: State of Art Lecture by Prof Sameer Khandekar



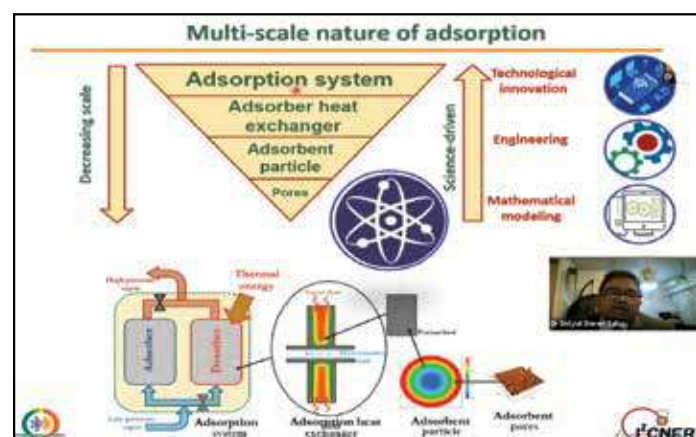
Courtesy: Dr S C Bhattacharyya Memorial Lecture by Prof Suman Chakraborty



Courtesy: State of Art Lecture by Prof Xiaolin Wang



Courtesy: State of Art Lecture by Dr Subrata Bhattacharyya



Courtesy: State of Art Lecture by Dr Bidyut Baran Saha

IEI Celebrates Energy Conservation Day

The Institution of Engineers (India) celebrated Energy Conservation Day all over the country on 14 December, 2021. Brief account of the celebration as received from various Centres are reported hereunder.

STATE CENTRES

Bihar

Bihar State Centre, IEI observed Energy Conservation Day on 14 December 2021 at Patna. Keynote speaker of the event, Dr Naveen Kumar Nishchal, Associate Professor, Department of Physics, Indian Institute of Technology Patna emphasized on generation of solar energy and LED lighting as the best energy conservation method. He further explained optics based remote source lighting to achieve energy conservation through holographic solar panels and fiber and artificial lighting system design to supplement day light. Dr Arun Kumar Shrivastava, Council Member, IEI was present during the function. Earlier, Mr Bhupendra Nath Singh, Chairman, Bihar State Centre and Council Member, IEI welcomed the gathering and deliberated various aspects of energy conservation for sustainable development and the benefits of energy efficient devices. Mr Dilip Kumar Jha, Honorary Secretary, Bihar State Centre, IEI proposed the vote of thanks.



Jharkhand

Jharkhand State Centre, IEI observed Energy Conservation Day on 14 December 2021 through hybrid mode at Ranchi. Mr Vimal Kumar Singh, General Manager (E&M/HoD), Central Coalfield Limited graced the function as Chief Guest and Mr Subhas Biswas, General Manager (E&M), Central Mine Planning & Design Institute Limited, Ranchi as Guest of Honour & Keynote Speaker. Mr Mukund Verma, Jharkhand Renewable Energy Development Agency deliberated lecture on Energy Conservation Building Code and Echo Niwas Sambhita 2018. Chief Guest, Mr Singh in his address outlined the future plan of mining industry towards conservation of energy and development of nonconventional energy resources. Keynote speaker, Mr Biswas in his address highlighted the importance of industrial awareness and judicious approach towards selecting specific machineries rating. Earlier, Mr Mohammad Iqbal Alam, Chairman, Jharkhand State Centre and Council Member, IEI delivered the welcome address and Mr Manoj Kumar, Honorary Secretary, Jharkhand State Centre, IEI proposed the vote of thanks at the end of the session.



Karnataka

Karnataka State Centre, IEI, in association with BNM Institute of Technology, Bangalore observed Energy Conservation Day on 14 December 2021 at Bengaluru and organised one day national symposium on 'Energy Conservation Awareness & Practices' at BNMIT, Bengaluru. The National Symposium was inaugurated by the Guest of Honours of the event, Mr Narayana Rao R Maaney, Secretary, BNMEI and Prof. T J Ramamurthy, Director, BNMIT and in the august presence of Dr Enti Ranga Reddy, Honorary Secretary, Karnataka State Centre & Council Member, IEI. On the occasion, Mr Madhav Kamath, Senior Advance Software Engineer, Honeywell deliberated technical talk on the topic 'Energy Conservation Awareness & Practices'. Mr Krishna Kulkarni, Vice President, Business Development, Integrum Energy Infrastructure Private Limited deliberated lecture on the topic 'Decarbonization of Electricity and Cost Optimization'. Mr Paresh N R, Senior Manager – Operations, Orb Energy Private Limited, enlightened

the audience on the topic 'Energy Conservation Opportunities through Solar'. Mr C Balasubramanya, International Trainer & Freelancer delivered technical talk on the topic 'Conservation of Energy by Employing Smart Metering Solutions'. Mr V Suresh Babu, Assistant Director, National Power Training Institute discussed on 'Applications of Energy Storage Systems for Grid Operations' and Mr T Senthil Kumar, Area Convenor, The Energy and Resources Institute (TERI) covered the topic 'Energy Management in Industries'. At the end, Dr Enti Ranga Reddy, Honorary Secretary, Karnataka State Centre, IEI proposed the vote of thanks.

Punjab & Chandigarh

Punjab & Chandigarh State Centre, IEI observed Energy Conservation Day on 14 December 2021 through online mode. Chief Guest of the event, Mr Jotinder Singh, Engineer-in-Chief (Retd), Punjab State Electricity Board in his deliberation focussed on conservation of energy through energy management and stressed for adopting star labelled appliances. Keynote speaker of the event, Mr K K Mahajan, Ex-senior Executive, Tata Chemicals Limited, Gujarat touched upon various aspects of energy conservation and efficiency; sustainable use of energy resources; impacts of fossil energy usage in terms of carbon emission, global warming and climate change; use of renewable energy and resources. Earlier, Mr Sukhvir Singh Mundi, Chairman, Punjab & Chandigarh State Centre and Council Member, IEI welcomed the Chief Guest, Keynote speaker and other participants. At the end, vote of thanks was proposed by Dr Baljit Singh, Honorary Secretary, Punjab & Chandigarh State Centre, IEI.

LOCAL CENTRES

Ahmednagar

Ahmednagar Local Centre, IEI observed Energy Conservation Day on 14 December 2021 in online mode. On the occasion, Mr Pramod Daspute, Certified Energy Auditor and External Faculty at Petroleum Conservation and Research Association delivered the lecture on the theme 'Industrial Energy Conservation and Audit'. During his presentation, he highlighted the importance of Energy Audit for conservation of energy. Mr Manohar Mukund Anekar, Chairman, Ahmednagar Local Centre, IEI delivered the presidential address. Mr Abhay Krishnarao Raje, Honorary Secretary, Ahmednagar Local Centre, IEI welcomed all and Dr D B Karanjule, Convener of the event proposed the vote of thanks.

Aurangabad

Aurangabad Local Centre, IEI observed Energy Conservation Day on 14 December 2021 by organising a technical webinar on the topic 'Rational Design of Materials and Molecules for Solar Energy Devices'. On the occasion, Dr Surya Prakash Singh, Principal Scientist, Polymers and Functional Materials Department, CSIR-Indian Institute of Chemical Technology, Hyderabad deliberated lecture on the topic. Earlier, Dr Uttam Baburao Kalwane, Chairman, Aurangabad Local Centre, IEI welcomed the dignitaries and participants of the webinar. At the end, vote of thanks was proposed by Dr Ravindra R Deshmukh, Honorary Secretary, Aurangabad Local Centre, IEI.

Bareilly



Bareilly Local Centre, IEI observed Energy Conservation Day on 14 December 2021 on the topic 'Importance of Energy Conservation' at Bareilly. On the occasion, Mr

Yatis Vats, Retired Chief Engineer, Uttar Pradesh Power Corporation Limited (UPPCL), Uttar Pradesh deliberated lecture on the topic. Mr Subhash Mehra, Immediate Past Chairman, Bareilly Local Centre, IEI talked about the fossil fuels. Mr H C Gupta, Mr K B Agrawal and Mr Suresh Chandra Sundrani also shared their views and experiences on the topic. The proceeding of the event was briefed by Mr Mahendra Kumar Agrawal, Honorary Secretary, Bareilly Local Centre, IEI and at the end, he proposed the vote of thanks.

Belagavi

Belagavi Local Centre, IEI observed Energy Conservation Day on 14 December 2021 and a technical webinar was organised on the theme 'Go Green: Talk on Energy Conservation Day 2021'. Prof (Dr) Suresh D Mane, Principal, Girijabai Sail Institute of Technology, Karwar was the Chief Guest and delivered Keynote address. Earlier, Dr Devendrappa Kenchakkanavar Veeranna, Honorary Secretary, Belagavi Local Centre, IEI welcomed all present in the webinar. Mr R T Jangal, Chairman, Belagavi Local Centre, IEI presided over the function. At the end, Honorary Secretary, Belagavi Local Centre, IEI proposed the vote of thanks.

Bhimavaram

Bhimavaram Local Centre, IEI observed Energy Conservation Day on 14 December 2021 and organized a Seminar at Sir C R Reddy College of Engineering, Eluru. Guest Speaker of the event, Mr Mehul Tatia, Counsellor - Energy Efficiency CII-Godrej GBC explained the concept of Sustainable Energy Management and Conservation. Dr K Ventakeswara Rao, Principal, Sir C R Reddy College of Engineering also addressed the gathering. Prof (Dr) K Brahma Raju, Council Member, IEI explained energy needs and its importance in human life. Earlier, Mr Vegesna Kasi Viswanadha Raju, Chairman, Bhimavaram Local Centre, IEI delivered the welcome address. Mr Karanam Suresh Babu, Honorary Secretary, Bhimavaram Local Centre, IEI stated that the increase in the use of Air Conditioners & Refrigerators leads to depletion of ozone layer. and technical procurement of these equipment should be based on BEE ratings.

Bokaro Steel City

Bokaro Steel City Local Centre, IEI observed Energy Conservation Day on 14 December 2021 at Bokaro. Chief Guest of the function, Mr P K Baishakhiya, Chief General Manager, Energy Management Department, SAIL, Bokaro Steel Plant in his inaugural address, discussed on energy conservation in steel industry. Further, he explained installation of floating solar energy plant in the cooling ponds of steel plant covering large area. During the technical session, Mr Nitesh Ranjan, AGM, Environment Department, SAIL, Bokaro Steel Plant and Mr C P Sahay, Ex-Deputy General Manager, Traffics Department, SAIL, Bokaro Steel Plant presented papers. Earlier, Mr Navin Prakash Srivastava, Chairman, Bokaro Steel City Local Centre, IEI welcomed the dignitaries. At the end, the vote of thanks was proposed by Mr Yogendra Nath Singh, Immediate Past Chairman, Bokaro Steel City Local Centre, IEI.

Coimbatore

Coimbatore Local Centre, IEI observed Energy Conservation Day on 16 December 2021 through online platform and organised a technical webinar in association with the Hindusthan College of Engineering and Technology, Coimbatore. Guest speaker on the occasion, Mr Ashok Sethuraman, BEE Accredited Energy Auditor, Coimbatore deliberated lecture on the topic 'Opportunities for Engineers in Energy Conservation Segment'. Dr N P Ananthamoorthy, Professor & Head, Department of Electrical and Electronics Engineering, Hindusthan College of Engineering and Technology, Coimbatore also addressed the audience. In the beginning, Prof (Dr) S Shanmugam, Chairman, Coimbatore Local Centre and Council Member, IEI welcomed the Chief Guest, dignitaries and participants of the webinar. The webinar was concluded with vote of thanks proposed by Dr J Krishnamoorthi, Honorary Secretary, Coimbatore Local Centre, IEI.

Faridabad

Faridabad Local Centre of the Institution observed Energy Conservation Day on 11 December 2021 and a webinar was organised on the occasion. Dr P P Mittal, Director, A-Z Energy Engineers (P) Limited; Mr Money Khanna, Project Engineer, Punjab Energy Development Agency, Chandigarh; Mr K K Mahajan, Ex-Senior Executive, Tata Chemicals Limited, Gujarat and Mr Ankur Mittal, Group Manager & Program Leader – Energy Management, National Council for Cement and Building, Faridabad spoke on the occasion. The moderator of the programme was Mr Pradeep Mallah, CEO, Technopan Industries, Faridabad. Dr P P Mittal deliberated on the role of energy conservation in Indian perspective. Mr Money Khanna discussed on Energy Conservation Building Code. Mr K K Mahajan stated the scope of Energy Conservation Act. Mr Ankur Mittal in his address mentioned that energy conservation results increase in financial capital, environmental value, national security etc. While moderated the webinar session, Mr Pradeep Mallah focussed on energy storage as the most sustainable option to enhance energy output. Earlier, Mr Sandeep Handa, Chairman, Faridabad Local Centre, IEI delivered the opening remarks. Mr Kuldip Raj Gupta, Honorary Secretary, Faridabad Local Centre, IEI proposed the vote of thanks.

Ghaziabad

Ghaziabad Local Centre, IEI observed Energy Conservation Day on 14 December 2021 at Ghaziabad. Dr C S Azad, Consultant & Energy Auditor



was the Chief Guest and Mr V Gupta, President, Solar Promotion Society was the Keynote speaker of the event. Mr R R Tanwar, Council Member, IEI was present on the occasion.

Mr Raghunandan Prasad Sharma, Chairman, Ghaziabad Local Centre and Council Member, IEI delivered the welcome address. Mr Ashok Kumar, Honorary Secretary, Ghaziabad Local Centre proposed the vote of thanks.

Jammu

Jammu Local Centre observed Energy Conservation Day through hybrid mode on 14 December 2021 at Jammu. On the occasion, Mr Shafqat Nabi Mughal, Assistant Professor/HoD, Department of Electrical Engineering, Baba Ghulam Shah Badshah University, Rajouri, J&K made a presentation on 'Energy Conservation'. Earlier, Dr (Prof) Sanjay Khar, Chairman, Jammu Local Centre, IEI apprised the audience about the topic and presented the welcome address. Mr Chanchal Paul Sharma, Honorary Secretary, Jammu Local Centre, IEI proposed the vote of thanks.

Kadapa

Kadapa Local Centre, IEI jointly with Global College of Engineering & Technology observed Energy Conservation Day on 14 December 2021 at Kadapa. The speaker, Mr Y Hari Kumar, Deputy Executive Engineer, Andhra Pradesh Southern Power Distribution Company Limited [APSPDCL], Kadapa deliberated lecture on the theme of the day. In the beginning, Mr N Bramhananda Reddy, Chairman, Kadapa Local Centre, IEI delivered the welcome address.



Kalaburagi

Kalaburagi Local Centre, IEI observed Energy Conservation Day on 14 December 2021 at Kalaburagi. Guest Lecturer on the occasion, Dr Dinesh Rangappa, Professor and HoD, Department of Nano-technology,

Visvesvaraya Technological University, Kalaburagi deliberated lecture on the topic 'Lithium Ion Batteries'. In the beginning, Mr Hanmayya Belure, Honorary Secretary, Kalaburagi Local Centre, IEI delivered the welcome address. Mr Subhash Sugoora, Chairman, Kalaburagi Local Centre, IEI, presided over the function.

Kanpur

Kanpur Local Centre, IEI observed Energy Conservation Day on 14 December 2021 at Kanpur. Guest Speaker on the occasion, Ms.



Khushnuma Parveen, Faculty, Eminent Study Zone, Kanpur delivered lecture on the topic 'Energy Conservation Techniques and Government Initiatives'. The speaker

in her address explained energy conservation as an important element of energy policy, which leads to upgradation of environmental quality, national financial security and developed economy. For a developing country like India, the energy criteria decided the growth of the country; as the purpose of energy sector not only to provide and transit clean energy but also to plan sustainable development of energy worldwide. Earlier, Prof Pradeep Kumar, Past Chairman, Kanpur Local Centre, IEI welcomed the Guest Speaker, dignitaries and participants. The programme was concluded with vote of thanks proposed by Mr Rama Kant Yadav, Honorary Secretary, Kanpur Local Centre, IEI.

Kanyakumari

Kanyakumari Local Centre, IEI in association with St. Xavier's Catholic College of Engineering, Nagercoil observed Energy Conservation Day on 14 December 2021 at Nagercoil on the topic 'Conserve Energy



Save Planet'. Dr M Marsaline Beno, Vice Principal and Dean of Academic Affairs, St Xavier's Catholic College of Engineering, Kanyakumari delivered the Keynote address and explained the need for energy conservation to save the scarce and fast depleting fossil fuels, to protect the environment from pollution and to minimise the gap between demand and supply. Dr J Maheswaran, Principal, St Xavier's Catholic College of Engineering, Kanyakumari in his address expressed concern on future global warming and climate change, which have severe impact on environmental aspects. Dr S Arumuga Perumal, Chairman, Kanyakumari Local Centre, IEI in his address explained energy conservation as the design and practice of using less energy. He further opined that budding engineers should come forward to design IoT based smart product and service to reduce the energy level in the future. Mr S Natarajan, Honorary Secretary, Kanyakumari Local Centre, IEI expressed his opinion regarding energy saving.

Kochi

Kochi Local Centre, IEI observed Energy Conservation Day on 14 December 2021 through online mode. Chief Guest of the session, Mr Varghese Joy, Former Scientist-G & Deputy Director General, Bureau of Indian Standards delivered lecture on 'Implementing International Energy Management System Standards for efficient Energy Management and Conservation'. In his address, he pointed out the significance of energy conservation in India in the present context and the government's initiatives to improve energy performance in various sectors including industry, domestic and commercial areas. He also pointed out that thermal energy sector has major share in energy production, which has a direct effect on exploitation of natural resources and emission of greenhouse gases and impact on the environment could be minimised only if we depend more and more on renewable energy and reduce the dependency on inefficient production of thermal energy. Earlier, Mr P A Salahuddeen, Chairman, Kochi Local Centre

and Council Member, IEI delivered the welcome address. Mr M P Eldhose, Former Honorary Secretary, Kochi Local Centre, IEI introduced the Chief Guest. Mr K S Babu, Honorary Secretary, Kochi Local Centre, IEI proposed the vote of thanks.

Kollam

Kollam Local Centre, IEI jointly with Energy Management Centre, Thiruvananthapuram observed Energy Conservation Day on 11 December 2021 at T K M College of Engineering, Kollam. Hon'ble Minister for



Electricity, Government of Kerala, Mr K Krishnankutty inaugurated the event with his virtual presence. During the technical session, Prof V K Damodaran, Chairman, Centre of Environment and Development, Trivandrum

deliberated on 'Next Notch in Energy Efficiency through Electric Vehicles'. Mr A M Narayanan, Energy Policy Practitioner delivered lecture on the topic 'Energy Efficiency: Pathway to Energy Transition'. Mr Jayan P P, Joint Director, Power Electronics Group, CDAC, Trivandrum delivered on 'Application of Energy Efficiency and Renewable Energy in Houseboat' and Dr Biju K, HoD, Department of Electrical & Electronics Engineering, College of Engineering, Munnar deliberated on 'Power Converters for Electric Vehicle'. In the beginning, Mr K Rajan, Chairman, Kollam Local Centre, IEI welcomed all. The session was concluded with vote of thanks proposed by Dr (Prof) Ms Sheeba R, Honorary Secretary, Kollam Local Centre, IEI.

Munirabad

Munirabad Local Centre, IEI observed Energy Conservation Day on 14 December 2021 at Munirabad in association with Government Engineering College, Gangavathi. Dr Nagaraj B Patil, Principal, Government Engineering College, Gangavathi graced the occasion as Chief Guest. Prof (Dr) Vinay H B, Department of Mechanical Engineering, Government Engineering College Gangavathi was the Keynote speaker of the event. Dr Koppal Veeresh, Chairman, Munirabad Local Centre, IEI welcomed all and emphasized the importance and need of the conservation of energy.

North Bengal

North Bengal Local Centre, IEI observed Energy Conservation Day on 14 December 2021 at Jalpaiguri and a table discussion was organised on the occasion. Prof (Dr) Sudip Mukherjee,



Chairman, North Bengal Local Centre, IEI, Mr Chinmoy Ghosh, Honorary Secretary and Mr G Bairagi, Committee Member of the host Centre were present in the discussion and share their views. Mr G K Panda, Mr P K Saha, Mr Nimai Mukherjee, Mr S Konar, Mr Santanu Das and Mr N C Sadhukhan also join the discussion and share their thoughts.

Ranipet

Ranipet Local Centre, IEI observed Energy Conservation Day on 14 December 2021 through online mode. Speaker, Dr M Thirugnanasambandam, Certified Energy Auditor, BEE, Government of India deliberated lecture on the topic 'Energy Management System – ISO 50001'. He explained the ISO 50001:2018 framework, scope, application, companion Standards of ISO 50001, etc. At the beginning, Mr M Salai Manalan, Chairman, Ranipet Local Centre, IEI delivered the welcome speech. At the end of the session, Mr S Vivek, Honorary Secretary, Ranipet Local Centre proposed the vote of thanks.



The Institution of Engineers (India)

IEI YOUNG ENGINEERS AWARD 2022-2023

Notification

The Institution of Engineers (India) is a multi-disciplinary professional body of engineers with 15 engineering disciplines and over 9,00,000 members in India and abroad. The Institution was established in 1920 and was incorporated by Royal Charter in 1935. It has been in the forefront of engineering profession addressing the socio engineering problems for progress of the country. IEI functions among professional engineers, academicians, research workers to update their professional knowledge through continuous professional development. With its large international linkages and a network of 125 Centres in India and Six Overseas Chapters, the Institution has built up wide reach and large infrastructure to meet its objectives of promoting engineering in all aspects.

With a view to promote the pursuit of excellence in the field of engineering, IEI has instituted 'IEI Young Engineers Award'. The Award consists of a Plaque and a Certificate. The purpose of the Award is to recognize outstanding achievements/contributions made by young engineers in engineering research, excellence in engineering technology development, technology transfer, etc. Any engineer citizen of India not older than 35 years of age as on March 31, 2022 is eligible for the Award. The IEI Young Engineers Award is presented to awardees for all the 15 Engineering Divisions of the IEI during the respective National Conventions. The awardees attending the National Convention will be provided with free accommodation & their traveling expenses (AC-3 Tier train fare by shortest route) will be reimbursed on production of original documents.

The Application Proforma may be downloaded from IEI website (<https://www.ieindia.org>). Soft copy of the filled-in application proforma should be forwarded to award@ieindia.org by March 31, 2022. Further, six copies of the duly filled application form, along with all supporting documents, endorsed by appropriate authority should be sent to the below mentioned address so as to reach us latest by **April 10, 2022**:

Director (Technical)

The Institution of Engineers (India)
8 Gokhale Road, Kolkata 700020

The envelope containing the application should be superscribed at the top as 'IEI Young Engineers Award 2022-2023' and name of the engineering division under which the applicant desires to be considered for the Award.

Superannuation from IEI



Dr Hariram Prasad Yadav, Director, HQ Cell, New Delhi, IEI will be superannuating from the services of IEI on January 31, 2022. He joined the Institution on July 27, 1992 and rendered his services to the Institution over a period of 29 years. He also served as Secretary & Director General of the Institution from October 2020 to July 2021.

IEI wishes Dr Hariram Prasad Yadav and his family a happy and healthy life in the future.

Mr Pabitra Bhowmik, an employee of the Institution HQ will be superannuating from the services of IEI on January 31, 2022. He joined the Institution on February 01, 1993 and rendered his services to the Institution for a period of 29 years.

IEI wishes Mr Pabitra Bhowmik and his family a happy and healthy life in the future.



IEI NEWS

ISSN 0971-3352

Owner : The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700 020
Printer : Maj Gen MJS Syali, VSM (Retd), Secretary & Director General
Publisher : Maj Gen MJS Syali, VSM (Retd), Secretary & Director General
Published from : 8 Gokhale Road, Kolkata 700 020
Printed from : M/s Florence Offset Process Pvt. Ltd.
6A S N Banerjee Road, Kolkata 700013
Editor : Maj Gen MJS Syali, VSM (Retd), Secretary & Director General

President : Dr Hemant Omkarrao Thakare

Editor : Maj Gen MJS Syali, VSM (Retd)

Associate Editor: Dr N Sengupta

Special Contributors: Mr S Chakraverty,
Mr Kingshuk Sen, Ms A Dutta, Mr P Chakraborty,
Ms H Roy, Mr S Bagchi

The Institution of Engineers (India) as a body accepts no responsibility for the statements made by individuals. Reprints of any portion of the publication may be made provided reference thereto is quoted.

Telephones: 91-33-40106299/248/213/301; Web: <http://www.ieindia.org>; E-mail: iei.technical@gmail.com