

IEI *Epitome*



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Dr. Wooday P. Krishna, FIE

Member of the Council, The Institution of Engineers (India)

Delivered the **'Valedictory Address'** at *One day National Conference* on 'Advancements in Computer Science and Engineering' organised by New Horizon College of Engineering, Bengaluru on April 24, 2019.



Dr. G S Mukherjee, FIE

Scientist, Defence Research & Development Organization, New Delhi

Delivered an **'Invited Expert Lecture'** on 'Polymer Composite Materials for Applications in Advanced Technologies' during *All India Seminar on Advanced Materials and Machining* organised by The Institution of Engineers (India), Punjab and Chandigarh State Centre held during April 9-10, 2019 at the Department of Mechanical Engineering, Chandigarh Engineering College, Chandigarh.



Dr. Arvind Dhingra, MIE

Assistant Professor, Department of Electrical Engineering, Guru Nanak Dev Engineering College, Ludhiana



Appointed as **'Executive Director'** in Science & Technology Entrepreneurship Park, Guru Nanak Dev Engineering College, Ludhiana, Punjab on September 1, 2018.

Dr. C K Narayanappa, FIE

Associate Professor, Department of Medical Electronics, Ramaiah Institute of Technology, Bengaluru, Karnataka

• Participated as **'Jury Member'** for the National Science Day Competition event held at Department of Biotechnology, Ramaiah College of Arts, Science and Commerce, Bengaluru on February 28, 2019.

• Participated as **'Chief Guest'** in Valedictory Function of Students and Sports Association held at Government Polytechnic, Chikkaballapur, Karnataka on March 29, 2019.



Mr. Ajay Kumar Choubey, AMIE

Assistant Professor, Department of Mechanical Engineering, Sagar Institute of Research & Technology (SIRT), Bhopal, Madhya Pradesh



• Participated and presented paper on 'New Technique Micro-Mechanical Finite Element Simulation' in 5th International Conference on Advances in Engineering, Pharmaceuticals and Applied Science -2019 at SIRT Bhopal on February 22, 2019.

• Received **'Best Teacher Certificate'** at SIRT, Bhopal on March 15, 2019.

• Invited as **'VIP Distinguished Guest'** in *4th Series of National Round Table Conference* on 'Skilling in Higher Education - MP Edition' at BSNL Bhawan on March 27, 2019.

Prof. C Kayalvizhi, AMIE

Head, Department of Textile Technology, RVS College of Engineering, Dindigul, Tamil Nadu



Participated in one day 'National Level Workshop on Emotional Intelligence of Teachers in Higher Education' organized by RVS Institute of Management Studies, Dindigul, Tamil Nadu on March 15, 2019.

Mr. Amar Kumar Das, MIE

Assistant Professor, Department of Mechanical Engineering, Gandhi Institute for Technology, Bhubaneswar



Honoured with '**Sankarsan Jena Memorial Award**' for the year 2018 during 60th Annual Technical Session at Odisha State Center of The Institution of Engineers (India), Bhubaneswar for the paper entitled, 'Production of Pyrolytic Oil from Waste Plastics as an Alternative Transportation Fuel' on March 30, 2019.

Mr. Darshan J Mehta, AMIE

Assistant Professor, Department of Civil Engineering, Dr S & S S Ghandhy Government Engineering College, Surat, Gujarat



- Organized 1st National Conference on 'Emerging Research and Innovations in Civil Engineering' at Dr S & S S Ghandhy Government Engineering College, Surat during February 15-16, 2019.

- Invited as '**Keynote Speaker**' and '**Session Chair**' in 2nd National Conference on 'Recent Research and Development in Core Discipline of Engineering', held at Vadodara Institute of Engineering, Vadodara on April 2, 2019.

Mr. M Mahadeva, AMIE

Assistant Professor, Department of Civil Engineering, R N S Institute of Technology, Bengaluru, Karnataka



Invited as '**Technical Session Chair**' for 2nd National Conference on Recent Innovation in Engineering, Science, Humanities and Management (ESHM-19)' at School of Electronics and Communication Engineering, REVA University, Bangalore on March 29, 2019.

Dr. Damyanti G Badagha, AMIE

DST GUJCOST CO-PI, Applied Mechanics Department, Sardar Vallabhbhai National Institute of Technology, Surat, Gujarat



- Conferred with the '**Young Researcher**' in Civil Engineering Award from The Global Outreach Research & Education Association at India International Centre, New Delhi on January 31, 2019.

- '**Best Paper Award**' conferred by B K School of Business and Management, Ahmedabad, for the research paper entitled, 'Utilization of Waste Materials to Produce Economical Concrete : Achieved Goal for Environment Prevention and Sustainable Development' during 4th International Youth Symposium held at Ahmedabad during February 1-2, 2019.

Dr. Punith Kumar M B, AMIE

Associate Professor, PES College of Engineering, Mandya, Karnataka



- Invited as '**Judge and Review Member**' for The National Level Technical Fest URJA 2019 organized by the Department of Electronics and Communication Engineering, ATME College of Engineering, Mysore, Karnataka on March 21, 2019.

- Invited as '**Judge and Review Member**' for the National Level Paper Presentation 2019 organized by the Department of Electrical and Electronics Engineering, National Institute of Engineering Mysore, Karnataka on April 13, 2019.

Prof. Manoj Kumar, FIE

Department of Mechanical Engineering, Chandigarh University, Mohali, Punjab

Title of Paper : ‘Microstructural Evolution and High Temperature Oxidation Characteristics of Cold Sprayed Ni-20Cr Nanostructured Alloy Coating’, *Surface and Coatings Technology*, Vol. 362, 2019, pp.333-344



[<https://www.sciencedirect.com/science/article/abs/pii/S0257897219301306>].

Co-authors: S Swaminathan, Sung-Min Hong, Woo-SangJung, Dong-Ik Kim, Harpreet Singh, In-Suk Choi

Abstract

‘Mechanically alloyed Ni-20Cr (wt%) nanocrystalline powder was cold spray deposited on SA 516 Grade 70 steel. The microstructure and high temperature oxidation characteristics of Ni-20Cr nanostructured alloy coated steel have been investigated. The cyclic oxidation was conducted in air at 900°C for periods up to 50 h. The coated steel was examined prior to and after cyclic oxidation using SEM, EDX, FIB, TEM and SAED. The TEM analyses showed that the coating exhibits equiaxed nanoscale microstructure. Interestingly, the high temperature cyclic exposure significantly influences the grain growth despite the segregation and preferential formation of nano-islands of Cr₂O₃ within the coating matrix. Furthermore, the enhanced grain boundary diffusion of Cr in the nanostructured coating promotes the formation of denser Cr-rich protective surface oxide layer, which possesses a superior oxidation resistance, i.e. prevents the corrosion of substrate steel. The microstructural changes, crystallographic and chemical aspects of the Ni-20Cr nanostructured coating upon cyclic exposure are discussed in the context of its high temperature corrosion protection property.

Keywords: *High temperature corrosion; Oxidation; Nanocrystalline materials; Cold spray; Coating; TEM*

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Mr. Sunil Kumar Ahirwar, MIE

Assistant Professor, Department of Civil Engineering and Applied Mechanics, Shri G S Institute of Technology and Science, Indore, Madhya Pradesh



Title of Paper : ‘Experimental Study of Load and Settlement Behaviour of Bamboo Grid Reinforced Sand’, *8th International Conference on Case Histories in Geotechnical Engineering, American Society of Civil Engineers, USA,*

Geotechnical Special Publications, March 24-27, 2019.

[<https://ascelibrary.org/doi/10.1061/9780784482148.029>]

Co-author: JN Mandal

Abstract

The tridirectional bamboo grid is a new innovative reinforcement of the limited life geotextiles (LLGs) family. It is more stable than the bidirectional bamboo grid and capable of transferring the stresses uniformly in all directions. Experimental studies of the pressure settlement behavior of single layer bamboo grid reinforced sand are introduced in this manuscript. Various laboratory model tests were performed to assess the bearing capacities of reinforced sand with the tridirectional bamboo grid and bidirectional bamboo grid. In the present study, static plate load tests were conducted in a steel tank (0.7 m×0.7 m×0.6 m) on non-reinforced and reinforced sand in the laboratory. The square model footing of size 100 mm×100 mm was used for all laboratory model tests. Two types of geogrids, namely bidirectional and a tridirectional bamboo grid made of a bamboo material of different aperture shape were utilized in the model testing. The effect of aperture shape and placement of bamboo grid at different depth ratios u/B on the bearing capacity of reinforced sand was investigated. The pressure settlement behaviour of reinforced sand showed the placement of reinforcement beyond the zone of influence of depth ratio gives marginal improvement. The geometry of bamboo grid is more useful for improving the bearing capacity of reinforced sand. The experimental results indicate that the tridirectional bamboo grid provides better performance as compared to the bidirectional bamboo grid.

Keywords: *Grid systems; Soil stabilization; Load bearing capacity; Load factors*

E-mail of Author: skasgsits@gmail.com

Mr. C Akin, AMIE

Assistant Professor, Department of Civil Engineering, KCG College of Technology, Chennai

Title of Paper: 'Planning and Formulation of Environmental Management System for Indian Infrastructure Projects,' *International Conference on Civil, Architectural and Environmental Engineering, supported by International Academy of Science and Engineering for Development, New Zealand, December 10-12, 2018.*



[https://www.matec-conferences.org/articles/mateconf/pdf/2019/26/mateconf_jcmme2018_02017.pdf]

Co-authors: R Samuel Devadoss, V Vandhana Devi

Abstract

Every year the impact on natural environment is more due to consumption of natural resources for large infrastructure and construction projects. Even though by implementing modern construction techniques and low cost effective materials the volume of impact reduction is not efficient. India is a country which has enormous natural resources and it has been utilized for large infrastructure and construction projects which makes an environmental impact. This present paper focuses on planning and formulation of Environmental Management System (EMS) to reduce the environmental impact due to large infrastructure and construction projects. The planning of EMS is done based on the environmental impact checklist provided by Ministry of Environmental and Forest Climate change (MoEF&CC) under Government of India and the Formulation is done through PERT and CPM techniques which is to implement EMS in short duration to reduce environmental impact through large infrastructure and construction projects. Finally, the Planning and Formulation of EMS gives solution to reduce more volume of environmental impacts due to large infrastructure and construction projects.

Keywords: PERT; Environmental management system; CPM

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Mr. Ajay Kumar, MIE

Senior Section Engineer, O/o Chief Administrative Officer, South East Central Railway, Bilaspur, Chattisgarh



Title of Paper: 'Development of State and National Highways in India', *Annual Technical Volume, Civil Engineering Division Board, The Institution of Engineers (India), Vol.3, December 2018, pp.77-86.*

[[https://www.ieindia.org/webui/IEI-](https://www.ieindia.org/webui/IEI-Publication.aspx#annual-technical-volume)

[Publication.aspx#annual-technical-volume](https://www.ieindia.org/webui/IEI-Publication.aspx#annual-technical-volume)]

Abstract

The existence of roads in India is 5000 years back. In early stages of Indian history, Ashoka and Chandragupta made efforts to construct roads. But the real progress was made during the Mughal period. A number of roads were laid during the Sultanate and Mughal periods. Most of the present trunk routes follow the Mughal routes. These routes were essential for strengthening and consolidating the empire. One such road was constructed by Sher Shah Suri which connected Peshawar to Kolkata. It was named as Grand Trunk Road and joined Amritsar with Kolkata after partition of India in 1947. Presently, it is known as 'Sher Shah Suri Marg'. First serious attempt to develop roadways was made in 1943 known as Nagpur plan. The highlight of the plan was that no village in developed agriculture region should be more than 8 km from a major road or 3 km away from any other road while the average distance of villages from a major road should be less than 3.2 km. After achieving the objectives of the Nagpur Plan, another plan, known as 20 year road plan was drawn in 1961. Subsequently, National Highways Development Project (NHDP) has taken up a massive program for road building in the country launched on January 2, 1999. This was known as Golden Quadrilateral Super Highway, North-South and East-West Corridor and Port Connectivity. The now, India has road length of 75.01 km/100 sq km which desperately low as compared to 294.6km in Japan. Again India has low road length of 240.1 km /one lakh population as against 896.6 km in Japan. The future challenge in road sector revolves around building all-weather roads connecting each and every village to State Highway or a National Highways. It is imperative to strength the road infrastructure for carrying rapid increasing volumes of agricultural products to the consuming centers in the near future.

Keywords: Rural Development Plan; Urban Development Plan

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Mr. Sanjay Kumar Srivastava, MIE

Research Scholar, Department of Mechanical Engineering, Vaugh Institute of Agricultural, Engineering & Technology, Sam Higginbottom University of Agriculture, Technology & Sciences, Allahabad, Uttar Pradesh



Title of Paper: 'Design and Testing of Cooking Vessels of Solar Box Cooker for Evening Cooking', *International Journal of Mechanical Engineering and Technology*, Vol.10, No.3, 2019, pp.1931–1938.

<http://www.iaeme.com/ijmet/issues.asp?JType=IJMET&VType=10&IType=3>

Co-author: Ajeet Kumar Rai

Abstract

In the present work, an attempt has been made to design and test the performance of box type solar cooker with cooking pots of different materials filled with latent heat energy storage mediums to perform the cooking in sun shine and off sun shine conditions. The box type solar cookers are not common in use due to limited availability of solar energy. Latent heat energy storage materials are used to store solar energy available in day time to use in evening and off sunshine hours. Paraffin wax is used as energy storage material (PCM) to improve the performance of the system in off sunshine conditions. PCM filled aluminium pots are suitable for day time cooking. It is observed from full load test that the water temperature in PCM filled steel pots are maintained above 95°C for more than 3 hrs than PCM filled aluminium pots in off sunshine conditions.

Keywords: Box type solar cooker; Latent heat energy storage; Cooking vessel

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Dr. P. Suresh, MIE

Associate Professor, Department of ECE, Veltech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology, Avadi, Chennai



Title of Papers:

• 'Accelerating of Nano Particles in the Focal Region through Tightly Focused Cylindrical Vector Beam', Latin America Optics and Photonics Conference-2018, Lima Peru, November 12–15, 2018.

<https://doi.org/10.1364/LAOP.2018.Th3D.5>

Co-Authors: U. Saravanakumar, V. Karthikeyan, and M. Revathi

Abstract

We report a focus shaping technique for nano patterning and optical trapping of nano particles using generalized cylindrical vector beams. Cylindrical polarized light when tightly focused with high NA lens axicon generates highly confined longitudinally polarized focal spot with large depth of focus (DOF) which finds applications in nano patterning and optical trapping of high refractive index particles. We also found by properly tuning the azimuthal component of the cylindrical vector beam, the proposed high NA lens axicon can generate a sub wavelength flat top beam which is highly useful for nano lithographic applications.

Keywords : Cylindrical vector beams; Diffraction theory; High numerical aperture optics; Laser beams; Polarized light; Refractive index

E-mail of Author: suresh3982@yahoo.co.in

KIND ATTENTION

Those who are interested to publish Abstract of their papers in IEI Epitome, please send the Link, Abstract and Keywords along with the details of the paper, such as, Paper Title, Name of the Conference and Organiser, Place and Date, etc.

Activities by Institutional Members

**National Workshop on
'Tribology of Green Composites (TGC-2020)'**

to be organized at

K Ramakrishnan College of Engineering

Tiruchirapalli, Tamilnadu

July 04-05, 2019

☎ 09842927212; ✉ mechanand2003@gmail.com

**National Workshop on
'Hands on Experience in Welding Technology'**

to be organized at

Aditya College of Engineering & Technology

East Godavari District, Andhra Pradesh

July 12-13, 2019

☎ 9177314748; ✉ iei_coordinator@acet.ac.in

**National Conference on
'Advances in Electrical Technology for Green Energy'**

to be organized at

Christian College of Engineering & Technology

Bhilai, Chhattisgarh

July 12-13, 2019

☎ 9437146538; ✉ ritesh89pm@gmail.com

Activities by Institutional Members

National Level Workshop on 'Solar and Smart Energy System for Sustainable Environment'

to be organized at

Selvam College of Technology

Namakkal, Tamilnadu

July 25-26, 2019

☎ 9750939938; ✉ deanacademic@selvamtech.edu.in

National Seminar on

'Engineering Analysis with ANSYS Workbench (EAAW-2019)'

to be organized at

Swami Vivekananda School of Engineering & Technology

Bhubaneswar, Odisha

July 28-29, 2019

☎ 9439195483; ✉ croutray2017@gmail.com

National Conference on

'Application of Electronics and Instrumentation in Betterment of Human Health Care'

to be organized at

Hindustan Institute of Technology

Coimbatore, Tamilnadu

August 02-03, 2019

☎ 9629183233; ✉ luckshanthpaul@gmail.com

Activities by Institutional Members

International Conference on 'Biotechnology & Biological Sciences BIOSPECTRUM 2019'

to be organized at

University of Engineering & Management

Newtown, Kolkata, West Bengal

September 08-10, 2019

☎ 8017259210; ✉ dibyajit.lahiri@uem.edu.in

National Conference on

'Device Modeling and Soft Computing for Real-time Applications'

to be organized at

Mallabhum Institute of Technology

Bishnupur, West Bengal

September 13-14, 2019

☎ 9433782630; ✉ abhattacharya@mitbishnupur.ac.in

National Conference on

'VLSI, Communication & Computer Networks'

to be organized at

A M C College of Engineering

Bangalore, Karnataka

October 17-18, 2019

☎ 9884591122; ✉ drtkavitharaj@gmail.com

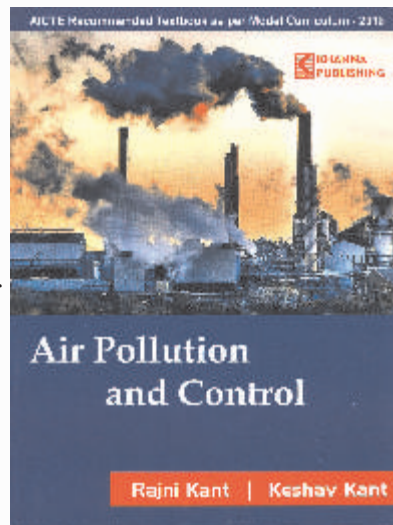


Air Pollution and Control

Rajni Kant, FIE and Keshav Kant, FIE

This book provides a rigorous and refreshing treatment of the subject covering present day technology and developments. It covers various new topics like bio aerosols or aeroallergens and hazardous air pollutants including diesel exhaust and dioxins.

The book is divided in various chapters covering all aspects of Air Pollution in various sectors relevant to Indian conditions. It in various sectors like power industrial, domestic transport aviation and marine transport), handling and disposal, etc. The pollutants, ill-effects, and safety and control of environmental impact reports, control measures. The authors section of readers including (i) Environmental and Mechanical branches of Engineering, (ii) operation and maintenance engineers of industries, electrical power plants, heat and power utilities; (iii) Aspirants for competitive examinations and (iv) General readers interested in the field.

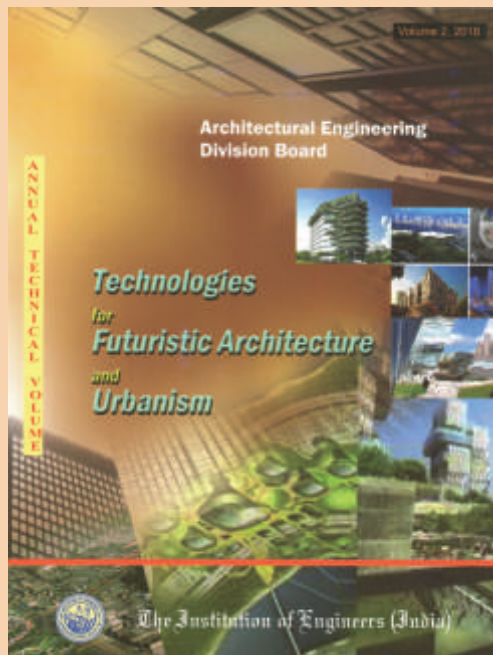


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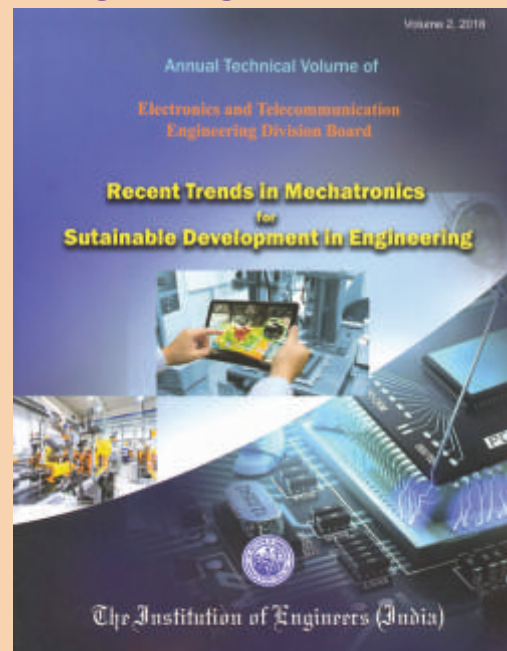
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