

ASCE

AMERICAN SOCIETY OF CIVIL ENGINEERS

INDIA SECTION

Issue 26, December 2013

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President's Message

Dear members,

At the outset, I wish you all a very happy and prosperous New Year 2014.

The year 2013 has been special for ASCE India Section in that we had elections for the positions of officers of India Section as well as regional level. The ASCE leadership visited India during August 2013 and stressed the important role of India and that of Indian Engineers in contributing to better engineering practice in India and elsewhere and is reflected in the demonstrated success of Indian Engineers in India and abroad. We also had good technical activities in the year and in the coming year 2014, a number of technical activities and programs are on the anvil and officers of the section, regions many members are actively involved in the process.

The December Issue of News letter of ASCE IS brings the news contents related to the activities organized in East and South Regions of the Section. Both Northern Region and Western regions are planning to have number of activities in the coming year. ASCE India Section been invited to participate in the Indian Engineering Congress of the Indian Institution of Engineers (IEI), the premier body of engineers in the country. Dr. Himansu K. Banerjee, Director Region 10 (International), American Society of Civil Engineers, represented President Randall Over of ASCE and, I as the Section President ASCE-IS and Mr. Sandip Kumar Deb, President of the ASCE-Eastern Region as member represented the Section in the megaevent. A few details of the event are presented in this Newsletter.

I do hope that all the regions (East, North, South and West) become active in organizing technical activities this year and also involve many professionals and students.

I wish to offer New Year wishes to you all once again and hope that the year brings in prosperity, success and happiness in all your endeavors.

Best regards

Yours sincerely
 Prof. G L Sivakumar Babu
 President, ASCE IS

IN THIS ISSUE

- 1 - President's Message
- 2 - Southern Region News
- 4 - Presence of ASCE IS in Indian Engineering Congress
- 5 - Tech Briefs
- 7 - Events

News from Regions

Southern Region News

One Day National Workshop on “An Insight into Bridge Engineering” Ghousia College of Engineering, Ramnagaram, Karnataka

The ASCE- Ghousia College of Engineering chapter was started in October 2012. Fifteen students have enrolled as members. Under the ASCE chapter, a one day national workshop was organized. The workshop was conducted on 12th November 2013 in the college seminar hall, Ghousia College of Engineering, Ramnagaram. There were 39 in house and 24 external participants, mainly comprising of M. Tech students and faculty. The program was inaugurated by the college principal.

The workshop was conducted in four sessions:

Session 1: “Bridge Engineering Overview of Alignment Selection, Analysis and Design Process” by Prof. Anantha Ramaswamy, IISc., Bangalore.

Session 2: “Bridge Engineering Capacity Assessment, Repair and Retrofit” by Prof. Anantha Ramaswamy

Session 3: “Foundations for Bridge Structures” by Prof. Shivakumar Babu, IISc., Bangalore and President, ASCE India Chapter. In addition to the lecture, he also enlightened about the ASCE activities and called upon students and faculty to become members and derive the benefits.

Session 4: “Maintenance and Rehabilitation of Bridges” by Sri Jaigopal, Managing Director, Struct Geotech Research laboratories Pvt. Ltd., Bangalore.

The workshop was self-supported by the department with financial assistance from the college management. Dr. Mohamed Ilyas



Anjum, Prof & HoD and Dr. N S Kumar, Professor, were the coordinators. All the participants expressed positive feedback towards overall conduction of the workshop.

National Seminar on “Computational Methods in Civil Engineering” -The Oxford College of Engineering, Bangalore

The Oxford College of Engineering, Bangalore conducted a national seminar on COMPUTATIONAL METHODS IN CIVIL ENGINEERING on 9-11-2013. This was organized by the Departments of Civil Engineering & Construction Technology and Management in association with American Society of Civil Engineers India section. TOCE-Civil has Started ASCE Students chapter which were inaugurated on the same day.

The seminar has portrayed the various computational methods in Civil Engineering Viz. Staad pro, CYPE, FEM, ANSYS etc. Four eminent personalities have delivered the speeches.

On bright Saturday morning, national seminar started with the ceremonial inaugural function. The dignitaries present on the Dias were Prof. G L Siva Kumar Babu ,President ASCE section and Professor at IISc, Bangalore, Former Vice Chancellor Dr. Rajashekariah, Dr. H.G Shekarappa, Registrar (Evaluation) - VTU, K P Pradeep - Secretary of Southern Region, ASCE India section (editor in chief Masterbuilder).

The function started by the invocation by Mr. Santhosh Haridas followed by the welcome speech by Dr. Amaranth K, Head of the Civil Engineering Department and also convener of Seminar who welcomed the gathering with warm wishes to all. This was followed by the lighting of the lamps which officially declared the inauguration of National Seminar and ASCE IS STUDENTS CHAPTER in the college.

Principal Dr. R. Nagaraj and Prof. B. K Raghuprasad President,





Southern Region of ASCE-IS and Prof of Civil Engineering, TOCE spoke on the occasion.

Prof. G L Sivakumar Babu, President ASCE India section and the chief guest of the seminar congratulated student members of the Oxford College ASCE student's chapter and advised to make best use of ASCE resources like ASCE website, webinars, publications, journals and forums, also highlight the benefits of student's chapter.

Technical session started by Mr. Ravee Kumar C K ,Principle Consultant, SAI Imagineering, who presented on use of Staad-pro and ETABS. He clearly demonstrated the applicability and limitation of both the softwares with the help of modeling, analysis and designing of one live project.

Mr. Anil S, Senior Structural Consultant, Sundaram Architects explained about use of ANSYS in Civil Engineering. He presented few case studies done on monumental masonry building like Tippusulthan rehabilitation works etc. He also explained the applicability of ANSYS and other software like Stadd-Pro and ETABS for different types of Structural Engineering problems.

The third keynote session was conducted by Dr. B. Shrihari Kumar Senior Consultant TCS, Bangalore who explained the basics of Finite element method in Structural Engineering. He emphasized on accurate estimation of forces on the structures created by nature as the structure has to stand against nature. He also explained various areas of applications of FEM Viz. aerodynamics, underground water currents, aircrafts analysis and design, nuclear reactors and many other Civil Engineering problems.

The concluding session was conducted by Mr. Amarnath S N from FE design who gave demonstration about the CYPECAD software & explained the analysis design, estimation, drafting of RC rebar in a typical four floor residential complex unit. He also explained about the advanced user capabilities of CYPECAD over other commercial softwares available in the market. The audiences were highly interactive and appreciated the presentation.

CADD Center- Koramangala- Bangalore gave the demonstration on the AutoCAD software. The Seminar ended with Vote of Thanks and felicitation to the Speakers.

Lecture

Professor Bellie Sivakumar, Associate Professor and Australian Research Council (ARC) Future Fellow at the University of New South Wales, Sydney, Australia and an Associate at the University of California, Davis, USA is one of the leading researchers in the world with expertise in studying the nonlinear dynamic properties of hydroclimatic systems, and has developed new methods for studying rainfall, river flow, sediment transport, and catchment classification, among others. He gave a lecture on Catchment Classification Framework in Hydrology: Role of System Complexity and Nonlinear Dynamic Concepts on 27th December 2013 in Department of Civil Engineering, Indian Institute of Science, Bangalore. The abstract of the lecture is as follows.

Abstract: The search for a generic modeling framework in hydrology is a long-standing problem. With our current practice of developing more and more complex models, which are largely catchment- or region- or process-specific, there is also an increasing emphasis and urgency on this issue. There have indeed been some attempts to provide guidelines for a catchment classification framework. Such attempts have investigated various ways, includ-

ing river regimes, hydroclimatic factors, hydrologic similarity indices, eco-hydrologic factors, and geostatistical properties, among others. Although useful in their own ways, they remain largely inadequate for a generic classification framework. In addition to the limitations that exist in each of the different forms, a coherent effort to bring these disparate forms together for a workable classification is also missing. This talk highlighted the challenges the existing approaches pose in the development of a generic catchment classification framework as well to offer possible future directions. It argues for an appropriate basis, a suitable methodology, and key components for such a framework. In particular, it discusses the vital role of system complexity as an appropriate basis for the classification framework and the potential role of nonlinear dynamics and other modern concepts of complex systems science for assessing system complexity. It also offers a three-step procedure for formulation and verification of a catchment classification framework.

The lecture is well attended by faculty and students, Prof. D. Nagesh Kumar, M. ASCE coordinated the program on behalf of ASCE SR.

Presence of ASCE IS in Indian Engineering Congress

The Institution of Engineers (India) which is the largest body of professional engineers and technologists in the country organized its flagship event, the 28th Indian Engineering Congress in Chennai during December 20-22, 2013 on the theme Engineering Advancements and Accelerated Nation Building and the mega-event is hosted by Tamilnadu State Centre. The event was inaugurated by the President Shri Pranab Mukherjee at the Hotel, the Leela palace. The ASCE has been invited to the mega-event and Dr. Himansu. K. Banerjee, Director, Region 10 (International),

American Society of Civil Engineers, represented President Randall Over of ASCE and, Prof. G L Sivakumar Babu as the Section President ASCE-IS and Mr. Sandip Kumar Deb, President of the ASCE-Eastern Region as member represented the Section in the megaevent. The ASCE delegation participated in the international meet of IEC consisting of invitees from different countries such as Australia, South Africa, UK, Srilanka, Taiwan, Nepal etc. The Section also organized a membership drive during the conference and there was considerable interest and many delegates visited the ASCE IS stall in the Exhibition area of the Congress. Many delegates also enrolled for membership of ASCE. Prof. G L Sivakumar Babu, President, India Section also gave a presentation on Sustainability aspects in Civil Engineering in the Civil Engineering colloquium of the Congress.



International Meet during the Indian Engineering Congress



View of the ASCE Stall in the IEC



Prof. G L Sivakumar Babu, delivering the invited Lecture



View of the ASCE Stall in the IEC



Dr. Himansu. K. Banerjee, and Prof. G L Sivakumar Babu with Ashok Kumar Basa, President of the Institution of Engineers.



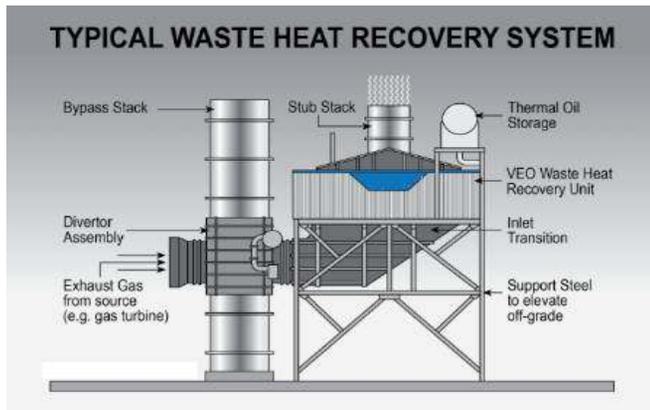
View of the ASCE Stall in the IEC

Tech Briefs

Industrial Heat Used to Make Waste Water Drinkable

Engineers from Siemens in Germany have built a demonstration plant which is capable of employing the low-temperature waste heat emitted by industrial processes for the conversion of waste water into potable water for consumption. The waste water flows into the prototype via insulated piping, where it traverses a series of heat exchangers which employ the excess heat generated by industrial equipment to bring the water to a higher temperature.

The waste water then enters an evaporator where it is converted into steam and channeled upward into a condenser via the use of an electric fan. The condenser will then be able to convert the steam back into pure water which is potable, as well as concentrated waste water which can be more conveniently disposed of. The chief advantage of the new prototype devised by the German engineers is its ability to utilize industrial waste heat lying within the low-temperature range of between 70 to 120 degrees Celsius, which is difficult to employ in an efficient manner despite containing valuable energy which can be applied to ancillary processes.



The key to this ability is the development by Siemens engineers of a heat pump which makes use of a special process fluid for the heat cycle and which is capable of pushing the temperature of moderate waste heat to as high as 140 degrees Celsius, thus increasing its range of potential applications. The heat pump can be used to give a boost to geothermal sources of heat as well as industrial waste heat, and for other purposes such as the provision of warmth to building. Potential applications for the water purification technology include the purification and conversion of waste water generated by the brewing industry or oil drilling operations.

Researchers now plan to expand the scale of the prototype with the construction of a pilot facility capable of processing 25 cubic metres of water per hour enough for the technology to be used for the treatment of the large volume of waste water generated by certain industrial processes, such as bottling in brewery operations.

Via: Siemens

New cooling technique could spell the end of the traditional AC



Efforts by the Scientists at the National Physical Laboratory (NPL) and Imperial College in Britain to achieve a breakthrough in cooling efficiency could spell the end of long-standing methods of refrigeration and air conditioning. The research team is attempting to apply the electrocaloric effect to the development of new cooling techniques that promise to be far more efficient, economical and environmentally friendly than conventional vapour-compression methods. The electrocaloric effect refers to changes in the temperature of materials which occur as a result of exposure to an applied electric field a mysterious phenomenon whose underlying mechanism has yet to be fully elucidated by scientists.

While electrocaloric materials were the object of keen interest within the scientific community as early as the 1960s and 1970s, they were never used for commercial purposes at the time due to inability to deliver significant change in temperature. Since the turn of the century, however, materials scientists have made major strides in developing the potential of electrocaloric materials, with researchers producing a ferroelectric polymer which is capable of 12 K of cooling in 2008.

If successfully developed as a viable cooling method, the electrocaloric effect would harbour major advantages compared to the vapour-compression methods which have been in vogue for over a century, yet fall significantly short of modern expectations with respect to efficiency and environmental impact. Electrocaloric cooling would dispense with the need for hazardous gases and would potentially be far more efficient, as the amount of energy required to generate an electric field is lower than that needed for the compression process.

The team of scientists at NPL and Imperial College are now confident that electrocaloric materials have finally reached the point



Tatiana Correia

where they can be applied to practical cooling purposes, with the potential to replace the conventional, time-honoured method.

Tatiana Correia, an NPL scientist who is the leader for the project, is confident the team will develop the first electrocaloric refrigerator capable of operating at close to room temperature within the next several years by building upon the extensive expertise that NPL has already amassed in the field. In order to support its endeavours, NPL is taking the lead on the METCO (Metrology of Electro-Thermal Coupling) project, which is being funded to the tune of millions of pounds by the European Metrology Research Programme.

The programme will bring together top research bodies and members of industry in Europe, to further research into the electrocaloric properties of different materials.

SkyCycle, proposals to create safe new cycle routes throughout London

Exterior Architecture, Foster + Partners and Space Syntax a team who share Lord Foster's passion for the benefits of cycling have jointly developed SkyCycle, a new approach to transform cycling in the capital. Following existing suburban railway corridors, a wide, secure deck would be constructed above the trains to create new cycle routes throughout London. The proposed SkyCycle network follows existing suburban rail services and provides over 220 kilometres of safe, car free cycle routes which can be accessed at over 200 entrance points. Almost six million people live within the catchment area of the proposed network, half of whom live and work within 10 minutes of an entrance. Each route can accommodate 12,000 cyclists per hour and will improve journey times by up to 29 minutes.

The Mayor's aim is for London to be the best major city in the world. However, the capital's transport network is at capacity and faces the challenge of population growth of 12 percent over the



next decade. The government has committed to investment in transport, through airport planning, high-speed rail, Thameslink and Crossrail. The Mayor's transport strategy also seeks to address the needs of pedestrians and cyclists in the city's crowded streets and in areas where the public realm is poor. The environmental and health benefits of cycling notwithstanding, the bicycle is a more efficient use of London's limited space we believe there is a pressing need for network modelling of new capacity for these active, self-determined modes of transport.

The SkyCycle approach is revolutionary, and has potential applications in cities around the world. Applying lateral thinking, Britain's engineering expertise and investment in transport technology could lead to the creation of an efficient platform building system.

As London's railway lines were originally built for steam trains, they follow contours that naturally reduce the amount of energy expended and avoid steep gradients. SkyCycle exploits this historic legacy. Associated benefits include the regeneration of the typically low value, often underutilised industrial sites next to railway lines; vertically layering the city to create new social spaces and amenities on these cycling high streets; and the integration of automated goods delivery networks.

Early studies of a SkyCycle system indicate that it provides capacity at a much lower cost than building new roads and tunnels. The possibility of the deck providing development opportunities for businesses along the route, particularly where it intersects with stations and bridges, has also been the subject of the study, exploring ideas for public/private commercial growth and regeneration. The SkyCycle study team will continue to further develop these scenarios, and the project has already been presented to the GLA, TfL and Network Rail, as well as to developers and contractors with specialist rail experience.

Events

ASCE Events

ASCE India Section Upcoming Activities

ASCE IS Board of Governor's face-to-face meeting

December 20, 2013
Chennai, TN

In Eastern Region:

Seminar on "Urban Water and Sanitation Perspectives in India: Doing the Right and doing it Right"
January 10, 2014, 6:30 pm to 9:30 pm
At Sir R N Mukherjee Hall of the Institution of Engineers, India, Kolkata

In association with Institution of Civil Engineers, UK, India Eastern Region and Architectural Engineering

Division of West Bengal State Center of the Institution of Engineers, India

National Convention of the Architectural Engineering Division of West Bengal State Center of the Institution of Engineers, India
When & Where: TBD

Other Events

International Conference on Trends and Challenge in Concrete Structures
Organised by: ICI - Ghaziabad
December 19-21, 2013
Ghaziabad, NCR Delhi, India

Arctic Technology Conference
February 10-12, 2014
George R. Brown Convention Center,
Houston

The Fourth International fib Congress 2014, Mumbai
February 10 - 14, 2014 | Renaissance Mumbai Hotel & Convention Centre, Mumbai

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