

October - November - December 2018

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INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

## IIT Bombay Celebrates Its Diamond Jubilee Annual Alumni Day

\* Three alumni members were presented with Distinguished Service Awards

\* Six alumni members were presented with Chapter Service Awards

\* The Silver Jubilee batch of 1993 pledged Rs. 25 crore towards the Legacy Project

\* Logo and website of Parimal and Pramod Chaudhari Centre for Learning and Teaching unveiled

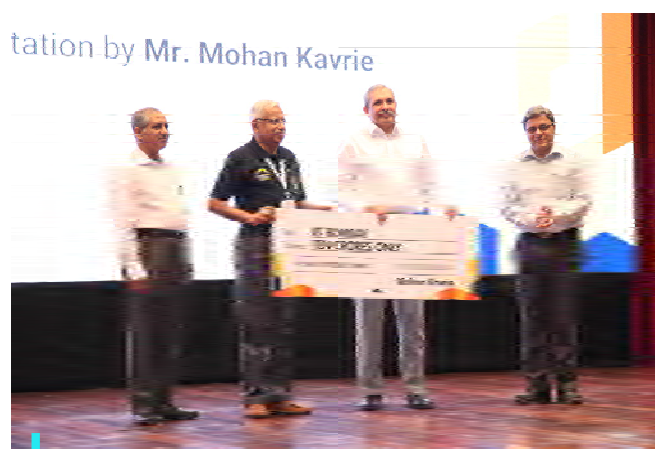
IIT Bombay celebrated its annual Alumni Day on December 23, 2018. The function started with a warm welcome by Prof. Suhas Joshi, Dean (Alumni & Corporate Relations). Prof. Devang Khakhar, Director, IIT Bombay gave the visiting alumni an overview of the Institute and its growth over the years.

In his address, Prof. Khakhar informed how the Institute is growing from strength to strength. *"Today, IIT Bombay is the leading academic Institution in the field of research and development. IIT Bombay alumni have made significant contributions towards the growth of the Institute. Our aspiration is to see IIT Bombay among the top ranks of technical universities in the world and we need continued support from our alumni to realize this dream,"* he said.

As a part of the function, **Distinguished Service Awards** were bestowed on three alumni this year, who besides being achievers in their own chosen domains, have contributed in a notable and sustained manner to the progress of the Institute. The award, instituted in the year 1999, consists of a certificate, memento and an uttaria. **This year, the award was conferred on Mr. D.C. Agrawal (BTech., 1969), Dr. Rajkumar P. Singh (MTech., 1975) and Mr. G. Ravishankar (BTech., 1990).**



Mr. Pramod Chaudhari, Executive Chairman, Praj Industries Ltd. and an IIT Bombay alumnus, presenting the final installment cheque of Rs.1 crore for the Parimal and Pramod Chaudhari Centre for Learning and Teaching (PPCCLT) at IIT Bombay. The logo and website of PPCCLT was unveiled by the Director during the function



Mr. Mohan Kavrie, MD of Supreme Nonwovens Industries Pvt. Ltd. and IIT Bombay alumnus, and Director of IIT Bombay Prof. Devang Khakhar signing an MoU for the upcoming Alumni Centre. Mr. Kavrie presented a cheque of Rs.10 crores for the same

The **Chapter Service Awards**, instituted during the Diamond Jubilee year celebrations, was conferred on **Mr. R. Srinivasan (BTech., 1973)**, **Mr. Sanjiv Sood (BTech., 1983)**, **Mr. Deepam Morparia (BTech., 1985)**, **Mr. Nitesh Dixit (BTech., 2003)**, **Mr. Sanjay Bhandari (BTech., 2004)** and **Mr. Santosh C. Bhoosthali (MTech., 2007)**. The award was conferred on select alumni who have contributed in a very notable and sustained manner to the progress of the Chapter and also to the progress of the Institute. It consists of a certificate, memento and an Uttaria.

**The Silver Jubilee Batch (class of 1993) pledged a sum of Rs. 25 crore towards the Legacy Project.** A Legacy Project is a project adopted by the batch celebrating its Silver Jubilee anniversary, for the betterment of the Institute and of the people associated with it, as a way of giving back to the *alma mater* and to leave behind a lasting legacy and remembrance of their silver jubilee reunion.

The batch of 1993 raised a record amount of pledges for the Legacy Project. They would be looking forward to deploying these funds in a number of projects largely related to student well-being, including scholarship programs for deserving students, upgradation of study facilities across the hostels, supporting the ongoing institute efforts for student counselling, amongst other things.

Mr. Vinod Sarma from Golden Jubilee Batch (Class of 1968) and Mr. Ashutosh Gore (Class of 1998) also spoke during the function.

A large number of alumni members and their family members participated in the celebrations this year.



Alumna Ms. Anuradha Narasimhan moderated fireside chat with Mr. Bhavish Aggarwal, Co-founder, Ola Cabs, from the Decennial Batch (Class of 2008)



Class of 1998 pledged a sum of Rs. 1.6 crore this year



The Silver Jubilee Batch (class of 1993) pledged a sum of Rs. 25 crore towards the Legacy Project

## Foundation Stone Laying Ceremony Of Rahul Bajaj Technology Innovation Centre



*Unveiling of plaque of Rahul Bajaj Technology Innovation Centre by Mr. Rahul Bajaj, Chairman of Bajaj Group in the presence of Institute functionaries and dignitaries*

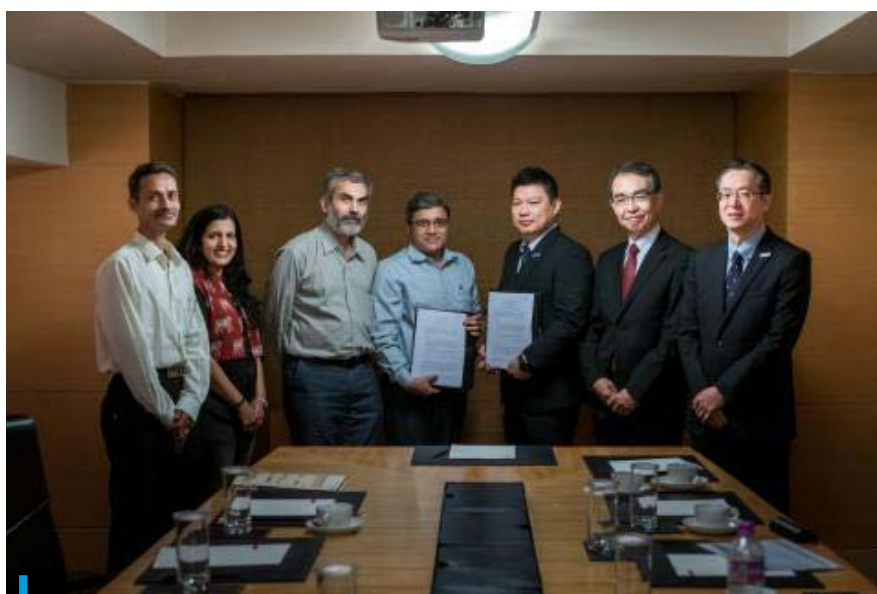
The foundation stone laying ceremony of Rahul Bajaj Technology Innovation Centre at IIT Bombay was held on November 14, 2018. Chief Guest Mr Rahul Bajaj, Chairman of Bajaj Group, unveiled the plaque and 3D model of the Rahul Bajaj Technology Innovation Centre.

Mr. Niraj Bajaj, Promoter Director of Bajaj Group of companies and Trustee of Bajaj Group Charitable Trust, Ms. Kriti Bajaj, daughter of Mr. Niraj Bajaj, Former Director of IIT Bombay Prof. Ashok Misra, Prof. Devang Khakhar, Director, Prof. A.K. Suresh, Dy. Director (AIA), Prof. P.V. Balaji, Dean (R&D), Prof. B.V.S Vishwanadham, Dean (IPS), Prof. Suhas Joshi, Dean (ACR), Prof. G.V. Sreekumar, Head of IDC School of Design, Prof. Umesh Bellur, Professor In-Charge, SINE and Prof. Milind Atrey, Department of Mechanical Engineering were also present on the occasion among others.

## IIT Bombay And NEC Sign MOU For Joint R&D To Address Social Challenges In India

NEC Technologies India (NECTI), a subsidiary of NEC Corporation, entered into an agreement with IIT Bombay on December 7, 2018 to explore joint research and development in the field of Big Data Analytics, Internet of Things (IoT) and Artificial Intelligence (AI), with an aim to solve a broad range of social challenges in India.

Dr. Akihiko Iketani, Head of NECTI's NEC Laboratories India (NLI) and Dr. Suhas Joshi, Dean of 'Alumni & Corporate Relations' and 'Rahul Bajaj Chair Professor' at the Department of Mechanical Engineering, IIT Bombay signed a Memorandum of Understanding (MoU) in Mumbai on December 7, 2018 on joint R&D.



*NEC Technologies India signs MoU with IIT Bombay*

Under this MoU, the IIT Bombay and NECTI will jointly work on value creation for major government initiatives across smart cities, logistics and transportation domain, by leveraging advanced technologies. One of the areas this joint R&D aims to explore is the use of big data analytics to optimize the movement of logistics containers across the country, which can result in shorter times for the delivery of goods and lower logistics cost.



## Techfest 2018 Draws A Huge Crowd



*His Holiness The 14th Dalai Lama, recipient of the Nobel Peace Prize 1989, spoke on the "Relevance of ancient Indian education system in the modern world".*

The 22nd edition of Techfest, Asia's largest science and technology festival, was held during December 14 to 16, 2018. The festival attracted a large crowd and impressed one and all with its grandeur. It has always been an ideal platform for each and every tech-savvy person, irrespective of whether the person wishes to display his expertise or gain from the intricate details about the technology on display.

The major attractions this year were the lectures by the world-renowned personalities who shared their rich experience and profound knowledge.

Exhibitions at Techfest are one of the rare avenues where one can see and experience the grandness of what the world calls modern science and technology. Following were the major attractions showcased during Techfest this year:

**Furhat robotics:** AI powered Robot from Sweden capable of Human interaction

**Exhibitions** by Defense Research and Development Organisation (DRDO) and Indian Army

This year, Techfest achieved a record footfall of 1,55,000 with an outreach to 2500 national colleges and 500 international ones.

The fest comprised of a series of lectures, summits

and competitions at the Institute campus as well as exhibitions by students from institutes around the world. Techconnect exhibited the development and research activities of IIT Bombay's students. The festival witnessed exhibitions, war of robots, sessions, talks on advancement of science and technology, gaming competitions and a display of various creations and experiments.

The annual science and technology festival also witnessed lectures by Rajagopala Chidambaram, Ex-Director of BARC; Henry Schaefer, Graham Purdue Professor in Chemistry; John C. Mather, Nobel Prize in Physics in 2006; Anima Anandkumar, Director of ML Research, NVIDIA; Varun Gandhi, Member of Parliament, Lok Sabha; Alok I Ranjan, Country Lead, Nutrition Bill & Melinda Gates Foundation; Shanta Devarajan, Senior Director for Development Economics and Acting Chief Economist of the World Bank; Simon Taufel, retired Australian cricket umpire and former member of the ICC Elite umpire panel; and Ashish Chauhan, MD and CEO of Bombay Stock Exchange and others.

One of the major attraction at the Techfest was the 1st edition of International Full Throttle, with world-class racing tracks and participation from three international drivers ranked 9th, 19th and 38th in the world.





*Dr. Viral V. Acharya, Deputy Governor, RBI spoke on the relation between finance and education. He said, "Growth is limited to skills and skills to education and imagination".*



*Mr. Varun Gandhi, Member of Parliament, Lok Sabha spoke during Techfest*



*Gaur Gopal Das, a well - known motivational speaker associated with ISKCON spoke on "A positive attitude is a key to success in life".*



One of the star attractions at Techfest was the Android U lifelike humanoid robot from A-Lab in Japan, which is able to interact and converse with humans. Its outer shell is covered in a unique material that is similar in look, texture and elasticity to human skin



An Army officer demonstrated one of the many indigenously developed weapons at TechFest. The exhibition grounds featured extensive exhibits from the Indian Army and the Defence Research and Development Organization (DRDO), including guns, rocket launchers and scale models of military vehicles



A football-playing humanoid robot from B-Human in action at the Techfest exhibition. The German team was part of a collegiate project at the Department of Computer science of the University of Bremen. It is a six-time world champion of the RoboCup Standard platform League and has won the RoboCup German Open eight times in a row



International Robowars, the biggest crowd-puller at Techfest each year, took place at IIT Bombay's open-air amphitheatre through the weekend, with teams from around the world and their robots





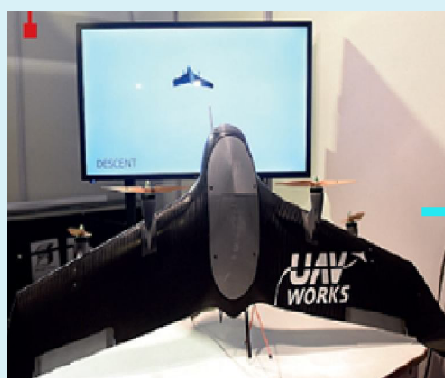
A student experienced a 3D-printed bionic arm at the Techfest exhibition. The arm is based on the open-source Hackberry platform, which its developers hope will be adopted by engineers around the world to develop robotic arms in various fields, from search and rescue operations to aiding people with disabilities

A team from the IDC School of Design, led by Prof. Nishant Sharma designed this tricycle. It is lightweight, weatherproof and equipped with a dual hand peddle. This tricycle hopes to change the way paraplegics commute



For tea stalls, which are very common across India, IIT Bombay's Solar Urja Lamp (SoUL) led by Prof. Chetan Solanki, Dept of Energy Science and Engineering, has designed a tea stall which runs entirely on solar energy. The stall, which has solar panels above it, has a hot-plate on which 200 cups of tea can be made per day using 800WP

TechConnect - Exhibition by students of IIT Bombay showcasing research work



This UAV (unmanned aerial vehicle) from Spain's UAV Works is capable of vertical take-off and landing (VTOL) and can be used for various purposes, including delivering packages to rural or hard-to-reach places, remote surveillance, and 3D topography and surface mapping through photogrammetry techniques





## Mood Indigo, Asia's Largest College Cultural Fest, Is A Hit

The 48<sup>th</sup> Mood Indigo, the annual cultural festival of IIT Bombay was held during December 27 - 30, 2018. Spread over four days, the annual extravaganza saw participants across the world display their talents in a range of competitions including music, dance, design, drama, concerts and more. Themed on '**Montage of Dreams**', the fest had multiple events to keep the audience engaged.

The fest witnesses a footfall of approx. 1,45,000 students from colleges across the country in its last edition. With personalities like Kiran Bedi, Smriti Irani, Abhishek Upmanyu, Kunal Kamra, Salim Sulaiman and international artists from 20 different countries, Mood Indigo 2018 proved to be a cultural extravaganza. Classical singer Kaushiki Chakraborty graced the opening ceremony of Mood Indigo 2018.

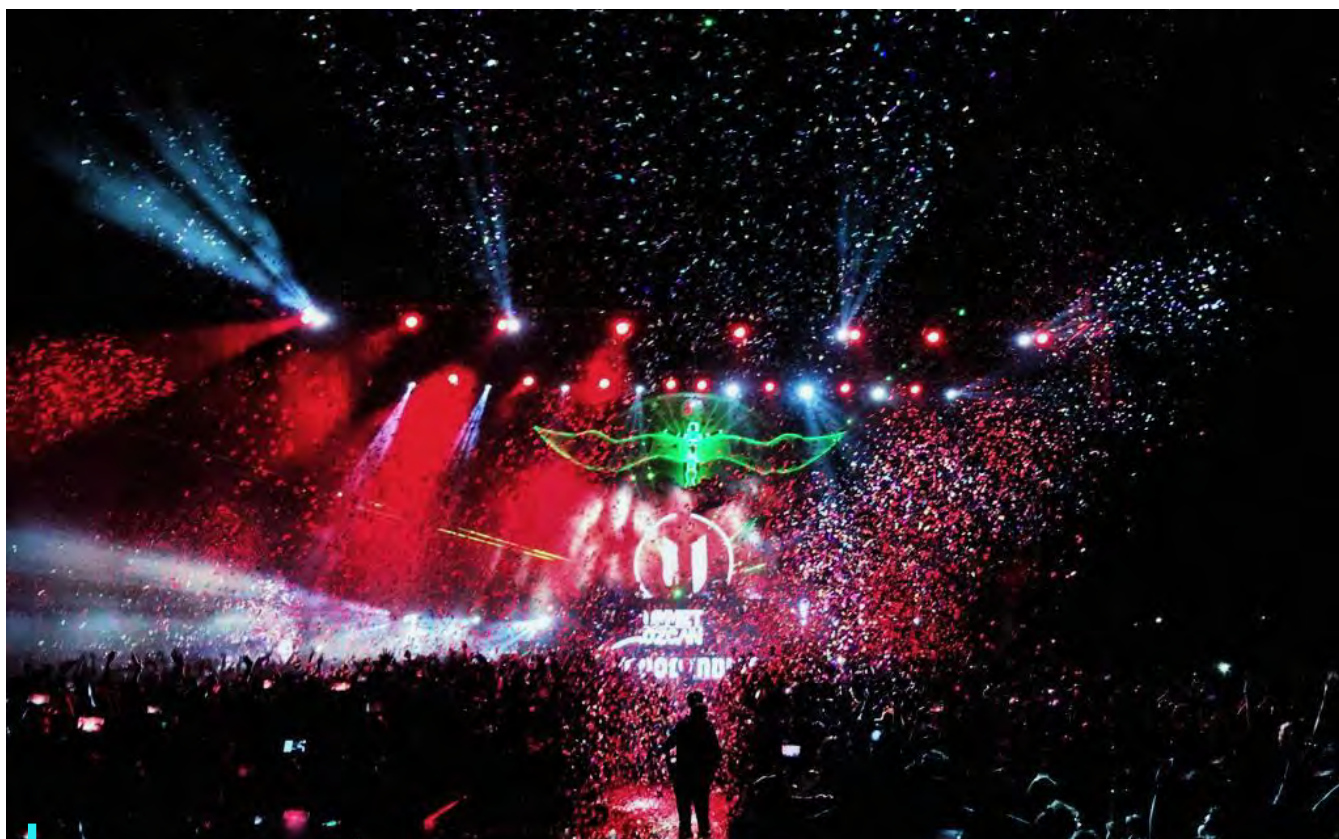


Member of the Parliament and Union Textile Minister of India Ms. Smriti Irani addressing students on the second day



The literary fest of Mood Indigo was humbled to have the very intellectual, profound and inspiring Puducherry Lt Governor and former IPS officer Ms. Kiran Bedi. She gave an extremely resourceful and enlightening talk on values to be incorporated in student life and gave deep insights into some educational reforms





EDM Nite attracted a lot of dancing feet



Papon, singer, multi-instrumentalist, composer and record producer kept the audience swaying





Mood Indigo's Humorfest was graced by the comical performance of the very prominent and talented Abhishek Upmanyu

Mood Indigo's literature festival called upon Yogendra Yadav, President of the Swaraj Party, and the spokesperson of the Indian National Congress, Priyanka Chaturvedi, for a talk show. They had an enlightening discussion on political state of the country and upcoming elections



Norwegian metal band 'Leprous' enthralled audiences



Mirchi Murga's RJ Naved had the audience bursting into laughter with his witty remarks and his hilarious, albeit insightful, take on life.





Concert by music composer-singer duo Salim-Sulaiman was a hit



She's Got the Look is all about beauty, a competition tailor-made for those who aspire to be the next glamour-exuding diva



Humour-packed play "The Shrink and the Nut" by YouTube star Atul Khatri and Dr. Anjali Chhabria, a famous psychiatrist, left a deep impression on the minds of the audience



Choreonite - the flagship dance competitions



Vogue, an inter-college fashion contest, showcased the fashion trends amongst the youth

## Conference on Carbon Capture, Storage And Re-Use In India

The Carbon Capture, Storage and Reuse (CCUS) in India conference was held at IIT Bombay on October 11-12, with the theme "Is India CCUS Ready?". It was jointly organised by Prof. Vikram Vishal, Department of Earth Sciences, IIT Bombay in association with Mr. Karl Jeffery from the the Carbon Capture Journal, UK. The conference also acted as a curtain raiser for the prestigious 36<sup>th</sup> International Geological Congress (IGC) to be held in Delhi from March 2-18, 2020.

The inaugural session of the conference was graced by the presence of **Prof. Swati Patankar**, Dean (IR), **Prof. S. C. Patel**, HOD, Department of Earth Sciences along with **Mr. Karl Jeffery**, conference co-producer and the speakers. The session began with British Geological Survey CO<sub>2</sub> storage team lead **Jonathan Pearce** who provided a review of

the status of CCUS in Europe in the context of achieving the Paris 1.5°C target. This was followed by a talk by **Dr. Peter Warren**, delegate from Department for Business, Energy & Industrial Strategy (BEIS), UK Government. He talked about UK's International CCUS programme and opportunities in India. Padma Shri awardee **Prof. V. P. Dimri** as the plenary speaker elaborated on potential CO<sub>2</sub> traps in India from a geological perspective. Students from India and abroad presented their papers on Carbon Capture and Carbon Storage and Reuse during poster competition held on the first day of the conference.



*Prof. Vikram Vishal with Prof. S.C. Patel, Head, Department of Earth Science*



*Attendees at the inaugural session of the CCUS conference*

An overall positive and optimistic outlook towards CCUS in India was evident from the participants of the conference. The **Deep Dive panel discussions** furthered the idea of a nodal CCUS "Center of Excellence" in India that would help in accelerating the growth and managing efficiently the various carbon capture and storage projects foreseeable in the near future. A total of 29 talks, 15 posters, 6 session summary discussions, 2 deep dive panel discussions and audience questionnaire surveys were conducted during the conference. 174 participants attended the event over two days.



## Unique Mega-Event on 'Student Solar Ambassadors' Workshop at IIT Bombay

Indian Institute of Technology Bombay, as part of its Diamond Jubilee celebrations, organized an unique one-day training workshop called '*Student Solar Ambassador Workshop*' on Gandhi Jayanti on October 2, 2018 wherein approx. 1.25 lakh students across the country learnt to make their own solar study lamp. The SoULS initiative of IIT Bombay led by Prof. Chetan S Solanki was a landmark feat.

The students, spread across the country, were trained on solar lamp assembly by over 1500 trainers at 823 training centres. This was organized jointly by MNRE, IIT Bombay, State Rural Livelihood Missions (SRLM), SoULS and Techfest, IIT Bombay. This event is a part of the SoULS' objective of generating awareness on clean energy among the young generation to make them leaders of tomorrow who will advocate clean energy for a sustainable planet.

Over 5,700 students from 120 schools had gathered at the IIT Bombay campus as part of Student Solar Ambassador Programme to assemble solar lamps. These students were trained by 350 special trainers to make solar lamps and use them for study.

The event was graced by the Chief Guest Dr. Anil Kakodkar, Padma Vibhushan, Ex-Chairman of BoG of IIT Bombay, Ex-Chairman Atomic Energy Commission of India and Mr. Vinod Tawde, Maharashtra Education Minister.

Prof. Devang Khakhar, Director, IIT Bombay said, "*SoULS initiative of IIT Bombay has made an exemplary contribution to mobilise solar power and bring this technology to the millions at grass-root level through involvement of local communities.*"



Students make their own solar lamp for studying

## Dedication of 2 TPD Capacity Biomethanation plant to Hostel :12,13 And 14 IIT Bombay Campus – Legacy Project Initiative Class of 1990



On December 5, 2018, Prof. Devang Khakhar, Director IIT Bombay inaugurated 2 tonnes per day capacity Biomethanation plant in the presence of Prof. B.V.S. Viswanadham, Dean (IPS), Prof. Suhas Joshi, Dean (ACR), Ms. Anu Narasimhan and Mr. Ravi Shankar, alumni, Class of 1990 and Dr. B.S. Patil, Public Health Officer, IIT Bombay. This state of the art plant treats 2 tonnes per day food waste generated from the mess for hostels 12, 13 and 14 and other nearby hostels. This plant replaces 25% of LPG gas cylinder's requirement for cooking food in hostel for students. IIT Bombay remain profoundly thanks alumni of Class of 1990 for this wonderful green initiative. With this initiative, there will be considerable reduction in waste disposal and lead to generation of sustainable renewable energy.



## Eminent Scientists Participate In Proteomics Workshops



Proteomics is the study of entire protein complement of an organism. Advancements in proteomics have been phenomenal over the last decade with several promising high-throughput technologies emerging at the forefront of various applications. Owing to the rapid advancements in state-of-the-art proteomics technologies, continuous expansion of our scientific understanding, and challenges associated with omics research, it has become essential to keep up with current trends and advances in proteomics research. In this light, three workshops were conducted at IIT Bombay, where eminent scientists and researchers from India and abroad had shared their knowledge and expertise to train the participants and familiarize them to the vast applications of proteomics.

### **Basics and Advanced Proteomics Approaches (December 3 -14, 2018)**

The DST supported programme was specially designed for Scientists/Technologists who are actively involved in research and development activities. The overall goal of the programme was to develop an educational training program on diverse proteomic technologies and offer hands-on training on the cutting edge proteomics technology to benefit the scientists in their research skill enhancement and keep them abreast with the last technological advancements in the field of science. 25 scientists were selected for this program.

### **Cancer Proteogenomics Workshop (December 6 -11, 2018)**

This training program utilized advanced genomic and proteomic technologies and their data from high-quality human biospecimens to identify potentially actionable therapeutic molecular targets. This IUSSTF funded training program was a collaborative effort by experts in the fields of proteomics and proteogenomics in Cancer research from the Broad Institute of MIT and

Harvard (**Convener, USA: D. R. Mani**) and Indian Institute of Technology Bombay (**Convener, Prof. Sanjeeva Srivastava, Department of Biosciences and Bioengineering**). The program comprised interactive lectures with case studies, hands-on sessions and demonstrations on proteogenomics aimed at accelerated understanding of cancer. Over 200 participants attended this training program.

### **Cancer Moonshot India Program (December 7)**

The Cancer Moonshot aims to accelerate cancer research to make effective therapies available to more patients, while also improving early and accurate detection.

Similar to the Cancer Moonshot project of USA, to expedite cancer diagnosis and treatment, we have initiated the Cancer Moonshot India project. India has now become the 12th country to join the International Cancer Proteogenome Consortium (ICPC) of the National Cancer Institute (NCI), U.S. The Indian Institute of Technology Bombay aims to study proteomics and the Tata Memorial Hospital (TMH), Mumbai, aims to study the genomics of three cancers: breast, cervix and oral. Dr. Henry Rodriguez, Director, NCI Office of Cancer Clinical Proteomics Research inaugurated this event and delivered a speech to the gathering, which included distinguished clinicians from ACTREC, TMC and KEM hospitals; key industry leaders; and scientists working in genomics and proteomics area.

### **Trans-Proteomic Pipeline (December 12 - 14, 2018)**

The TPP workshop was scheduled from December 12 - 14, 2018. This advanced mass spectrometry data analysis workshop was supported by IUSSTF joint virtual center grant and conducted by Institute for Systems Biology scientists.

## National Conference on Chemical Process Simulation 2018

The FOSSEE team in association with the Dept. of Chemical Engineering organized the **National Conference on Chemical Process Simulation-2018 (NCCPS - 2018)** on November 26, 2018 at IIT Bombay, during the occasion of the Diamond Jubilee celebrations of IIT Bombay. The National Conference on *Chemical Process Simulation-2018* is a confluence of academia and industry which is an excellent opportunity for fostering academic and industrial collaborations and also a place to meet the experts in Chemical Process Simulation. Approx. 80 participants from academia and industry attended the conference. A job fair was also organized in connection with the conference. Three companies, TCS Engineering & Industrial Services, Anukoolan Solutions and Ingenero Inc., participated in the job fair and were positive to recruit around 6 conference attendees. The conference was organized by

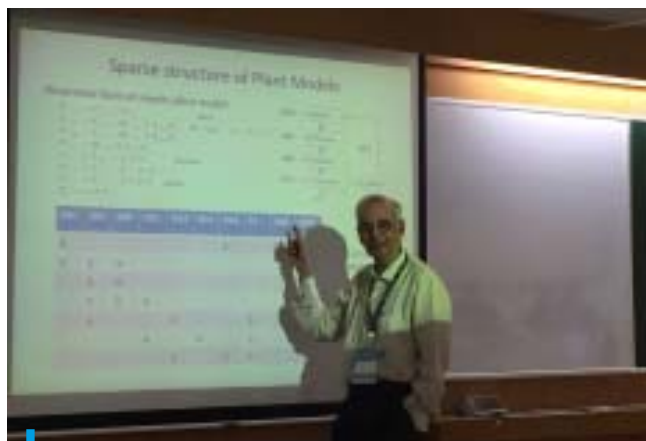
**Prof. Kannan M. Moudgalya**, Dept. of Chemical Engineering, IIT Bombay. The objectives of NCCPS - 2018 were to bring together students and faculty working in the area of process simulation; retain the interest of students interested to work in core areas; enhance their employment potential in core industry; identify suitable candidates for recruitment, thereby helping the industry.

The conference witnessed two keynote speakers:

**Prof. K. P. Madhavan** is Emeritus Professor at the Dept. of Chemical Engineering at IIT Bombay. He has served the department since 1960s in several eminent positions such as Head of Chemical Engineering and Dean (R&D).

**Mr. Alok Pandit** is presently leading a team of professionals as the founder director of Equinox Software and Services Private Limited in the area of IT enabled Chemical Engineering services. He worked as the Country Head and Vice President for Aspen Tech India, leading the business in India and Southern Asia, before starting Equinox.

The conference proceedings has been published in hard copy with ISBN number. The proceedings comprises of two chapters. Most of the first chapter have been written by students and faculty of colleges in India. Moreover, they also contributed to the 100 flowsheets summarized in the second chapter. These proceedings are released under Creative Commons CC-BY-SA License.



Keynote speaker Prof. K. P. Madhavan, Emeritus Professor at the Department of Chemical Engineering, during National Conference on Chemical Process Simulation 2018

## Ms. Apeksha Fernandes Sets New Records

Ms. Apeksha, daughter of Prof. B.G.Fernades, Head, Department of Electrical Engineering studying in the 8th standard at Bombay Scottish School Powai, has performed very well in swimming in the recently held School Games nationals. These games were conducted by School Games Federation of India and held in Delhi in the second week of December. In the three individual events (200 m Butterfly, 200 m individual medley and 200 m breast stroke) that she took part in, she won gold medals and set new records in each one of them. In the two relay events (4\*100m free style and 4\*100 m medley) that she participated in, her team won a gold and a silver medal. Based on her performance she has been also selected for the Khelo India Games recently held in Pune.

Earlier, she won 3 gold medals in the individual events (400 m and 200 m Individual medley, and 200 m butterfly) and two gold medals in the relay events (4\*100 m free style and medley) in the national swimming event conducted by the Swimming Federation of India. In addition to her hard work, the dedication and rigorous training provided by Dr. P. Mohan Reddy, Sr.Sports Officer, IIT Bombay Gymkhana pushed her to success.



## Hon'ble Vice President Inaugurates AFITA/ WCCA 2018 Conference



Inauguration of the premium International conference AFITA/WCCA 2018 by the Hon'ble Vice President of India Shri M. Venkaiah Naidu

Hon'ble Vice President of India **Shri M. Venkaiah Naidu** inaugurated the premium International conference **AFITA/WCCA 2018** during October 24-26, 2018. Hon'ble Governor of Maharashtra **Shri CH Vidyasagar Rao** and Minister of Technical and Higher Education, Govt. of Maharashtra **Shri Vinod Tawde** were the Guests of Honour. Prof. A.K. Suresh, Dy. Director (AIA) delivered the welcome address. AFITA/ WCCA 2018 marks the coalescence of two eminent symposiums AFITA (the Asia-Pacific Federation for Information Technology in Agriculture) and WCCA (World Congress on Computers in Agriculture), conducted annually by their respective scientific bodies – AFITA and INFITA (the International Network for Information Technology in Agriculture).

As goes with the names, both the federations concur and work toward apprising the world of "Why Agriculture today is Agriculture + Technology?" These two scientific federations have been significantly contributing for the common cause of agricultural development through Information Technologies. Through this conference, they aimed to weave consolidated ideas, research outcomes, innovations and inventions to transform the agricultural revolution with ingenuity. It was organized by INSAIT (the Indian Society of Agricultural Information Technology) and was hosted at the Victor Menezes Convention Centre by CSRE as a marquee event of IIT Bombay's Diamond Jubilee celebrations. The Organising Chair was **Prof. J. Adinarayana**, Head, CSRE, IIT Bombay and President AFITA.

This premium co-located event was assiduously convened to deliberate over the '*Research Frontiers in Precision Agriculture*' through the state-of-the-art developments in ICTs, IoT, sensor networks, image

processing, machine learning, big data analytics, geospatial technologies, etc. in agricultural applications, which subsequently metamorphose into precision agriculture. AFITA/ WCCA 2018 was attended by over 200 delegates from around 16 countries across the globe. There were sessions (both oral and poster) on Precision Agriculture, Farm Machinery and Robotics, Machine Learning and Big Data analytics in agriculture, etc. including special sessions and workshops on Imaging Spectroscopy for Smart Agriculture, IoT technologies and services for digital farming, ICT applications in Agriculture and Social Sciences, Web API, FAIR Data and Interoperability, etc. The convention particularly focused on conscientiously deliberating the judicious amalgamation of technologies with the prevailing farming methods, which could benefit farmers with tangible solutions.

Several highly-acclaimed academicians, scientists, researchers, industrialists and students participated in the conference deliberations. Notably, the plenary speaker Dr. Trilochan Mohapatra (Secretary, DARE and DG, ICAR) and the key-note speakers viz. Prof. Seishi Ninomiya (the University of Tokyo, Japan), Prof. Kiyoshi Honda (Chubu University, Japan), Prof. Dr. Michael Clasen (University of Applied Sciences and Arts Hanover, Germany) and Prof. Soumik Sarkar (Iowa State University, USA) made quite insightful presentations. The most significant and overwhelming speech was rendered by the esteemed Vice President of India, who emphasized on generating "*information with confirmation would be more powerful than ammunitions*" in helping farmers with increased productions from marginal landholdings.



## Fluid Mechanics and Fluid Power Conference



Dignitaries on the dais (from L-R) Prof. Amitabh Bhattacharya, Dept of Mechanical Engineering; Prof. BVSSS Prasad, President NSFMP Society & Professor, IIT Madras; Dr. B. N. Suresh, President, Indian National Academy of Engineering (INAE); Prof. A. K. Suresh, Dy. Director (AIA), IIT Bombay; Prof. Krishnendu Sinha, Co-organizing Secretary of FMFP2018 & Professor IIT Bombay

Dr. B. N. Suresh (President, Indian National Academy of Engineering (INAE)) delivering 'Prof. Subir Kar Plenary Talk' during the conference



The Department of Mechanical Engineering at IIT Bombay organized 7th International and 45th National Fluid Mechanics and Fluid Power Conference from December 10-12, 2018 at its campus. **Prof. Amit Agrawal**, Institute Chair Professor, Department of Mechanical Engineering was the co-ordinator of the workshop.

Since the inception of this conference in 1969, it is almost an annual occurrence under the aegis of the National Society for Fluid Mechanics and Fluid Power in various parts of the country. The conference aimed to bring together researchers working on various aspects of Fluid Mechanics and Fluid Power to discuss their work and learn through interactions and brainstorming sessions. More than 600 papers in 36 different tracks were presented during the 3 days of the conference. These papers were selected, after a rigorous review process, from an initial submission of about 850 papers.

This edition of FMFP featured keynote talks by illustrious and renowned scientists. **Dr. B. N. Suresh**, President of the Indian National Academy of Engineering and Former Director, Vikram Sarabhai Space Centre delivered Prof. Subir Kar plenary lecture entitled *Progress, Challenges and Gap Areas in Fluid Mechanics*. **Prof. Kerry Hourigan**, Professor at Monash University, Australia and Associate Editor, Journal of Fluids and Structures delivered a plenary lecture entitled *Fluid Structure Interaction of Spheres*. Prof. D. V. Khakhar, Director, IIT Bombay delivered Prof. Aswatha Narayana plenary lecture.

## 200 Participants Attend SciPy India 2018



Free and Open Source Software for Education (FOSSEE) organized SciPy India 2018 at IIT Bombay during December 21-22, 2018. The FOSSEE Project promotes the use of the FOSS tools to improve the quality of education and research. SciPy India conference aimed at providing opportunities to spread the use of the Python programming language in the Scientific Computing community in India. The conference objective was to combine education, engineering, and science with computing through the medium of Python. The conference featured a variety of workshops in two parallel tracks; Basic and Advanced level, invited talks, and paper presentations.

**Prof. Prabhu Ramchandran**, Department of Aerospace Engineering, IIT Bombay, Co-Chair of Scipy India 2018 co-ordinated the event. The conference witnessed an informative talk on Best Practices and Resources for Scientific Computing by keynote speaker, Dr. Kathryn D. Huff, Assistant Professor, University of Illinois at Urbana-Champaign. Dr. Ajith Kumar (RF & Electronics Lab, IUAC), invited speaker, presented a talk on Python for Education. The conference was a success and was attended by around 200 participants.

## IIT Bombay PhD Students Bags The Award Of The Best Innovator (1st Prize - Platinum Category) At The Big Idea Summit

Mr. Nikhil Jain and Ms. Sukanya Dikshit, PhD students from IIT Bombay Monash Research Academy have won the first Prize as the **Platinum Innovator** in a National Level Summit - The Big Idea Summit.

The Big Idea Summit was organized by Bhanushali Chamber of Commerce and Shri Kutchi Bhanushali Seva Samaj Trust and supported by Tata Centre, IIT Bombay and many other academic and industry partners.

Students presented the idea of using waste to create bio-plastics and have developed prototypes of how agricultural waste, food waste, paper and sugar industry waste, slaughter house waste can make 100% bio-degradable and bio-compatible plastic. The students have come up with the solution to use only waste resources like agri-waste to create bioplastics.

### This solution will solve:

- a huge issue of plastics in disposables and one time usage of plastics.
- tackle the air pollution seen in union-territory like New Delhi due to burning of agricultural waste.



IIT Bombay PhD students receiving the prize at the Big Idea Summit

- tackle the issue of micro plastics as the innovation is easily digestible by marine and humans.

The students are very positive about the cost comparison and stated that it will be much lower than other alternatives of plastics, currently available and will be comparable to conventional plastics.



## Research in focus

## Nanobubbles To Aid Drug Delivery To Tumours

Scientists develop a carrier that can deliver drugs more efficiently when triggered by ultrasound.

Even though the first medical description of cancer was written in Egypt around 1600 BC, scientists all over the world are still looking at a comprehensive treatment to treat this often-fatal disease. One major challenge is that drugs used in chemotherapy affects healthy cells too as they do not selectively attack cancer cells, and many of them fail to penetrate into all the cells of a tumour. In a recent study, researchers from the Indian Institute of Technology Bombay (IIT Bombay) have proposed a new method of combination therapy where they can target solid tumours using an ultrasound image guide, deliver the drug deeply, and enhance killing of tumour cells using a naturally occurring lipid, all at the same time.

Cancer is a complex disease, with variations across individuals. Often, one solution to treat cancer does not fit all. A combination therapy involves using multiple complementary approaches to address a disease condition. This provides a better chance to tackle the disease across the population. The researchers of the current study, led by Prof. Rinti Banerjee from the Department of Biosciences and Bioengineering, IIT Bombay, have proposed one such combination therapy. Simply put, this combination looks like two balls—a small and a big—stuck together. The smaller ball is the capsule that contains the drug and the bigger one, double the size, is a gas bubble. The bubble is about 500 nanometers, and is known as a “nanobubble” and the drug carrier is called “nanocapsule”. Each of these components act synergistically in treating cancer.

The nanobubble has two purposes. It can be detected by ultrasound imagery. This has a potential for image guided cancer therapy, where it is possible to track its location as it traverses through the blood streams. The second purpose is to enhance the delivery of the drug carried in the capsule. When ultrasound is applied near the tumor cells, these nanobubbles expand and contract, and eventually burst. This helps in loosening up the tumor tissue. The capsules can then easily penetrate the tumor and deliver the drug deep inside. The nanobubble, in a sense, clears the way, sacrificing itself, for the nanocapsule.

The capsule also has two ways of controlling cancer. The capsule shell is made of lipids, a naturally occurring essential biomolecule in cell membranes. The capsules called liposomes, and by nature they are biocompatible. These capsules have to be very small (about 200 nanometers) so that they can penetrate through the gaps between the cells. The anti-cancer drug is embedded inside the capsule. Prof. Banerjee's group have used Paclitaxel, a commonly used chemotherapeutic drug for a wide range of cancers. In



addition, they have also used a naturally occurring lipid (phosphatidylserine) which is responsible for cell death.

While each of the above principles and methods have been known to exist independently, the key innovation of Prof. Banerjee's group is to combine these together and provide a generic platform that can be applied to various other therapeutics. “To the best of our knowledge this is the first time a smart combination therapy with a pro-apoptotic biomolecule, a drug, and nanobubbles have been used together”, says Prof. Banerjee. The research has been recently published in the journal *Scientific Reports*.

The group has carried out experiments with this new therapy in lab grown cells (in-vitro), as well as in animals (in-vivo) to test the anti-tumor efficacy. The results showed that the combination therapy with ultrasound was more effective than any other subcombination with one or more components left out. The drug was taken up quickly by the cancer cells, caused higher amounts of drug accumulation in the tumor and had higher effectiveness in killing the cancer cells or regressing the tumor. The animals were also found to have 100% survival rate in the combination, than otherwise. Even the ultrasound images around the tumor tissue were obtained with a significantly better contrast compared to the existing methods (SonoVue).

Talking about how this combination can help fight cancer, Prof Banerjee explains, “This research presents an image-guided, ultrasound trigger-responsive platform for improved tumour cell targeting along with real-time monitoring of the disease.” This innovation holds potential as an adjunct anti-cancer therapy and paves the way for progress in ultrasound image-guided and triggered cancer therapeutics. The overall increase in efficacy and the better visualisation provided by the nanobubbles could help further customise the treatment.

**Link to published work:**

*‘Pro-apoptotic liposomes nanobubble conjugate synergistic with paclitaxel: a platform for ultrasound responsive image guided drug*

## Department of Civil Engineering Celebrates Open Day

As part of the Diamond Jubilee celebrations of IIT Bombay, the Department of Civil Engineering, IIT Bombay organized an open day on October 27, 2018 to showcase the facilities and labs of the Department. As part of the Open Day, the Department labs were kept open through-out the day. A poster exhibition by the students belonging to the different research specializations of the Department was organized to showcase the research being done in the Department. Live model demonstrations of the various concepts/equipment related to the



Department were put on display for the entire day. The students of Kendriya Vidyalaya and Campus School of IIT Bombay were invited by the Department to introduce them to the possibilities and the exciting opportunities available in diverse fields of Civil Engineering. The open day celebrations also included a special seminar by Prof. Anil Dutt Vyas of Manipal University, Jaipur on Swatch Bharat theme.

**As part of Open Day, following programmes were organized:**

### Laboratory Visits



All the research and teaching labs of the Civil Engineering Department remained open to public and students from 9:30 am till 5:30 pm on the open day. Specific demonstrations of the working of some equipment were conducted by different labs. Lab visits were also part of the school children tour to the Department.

### Research Themes/ Poster exhibitions

The BTech, MTech, PhD students and Post Doctoral Fellows of the Department presented posters related to various research areas of the Department. Various advanced level research works and ongoing sponsored project were displayed on the posters.





### Live Model Demonstrations

Various models and equipments related to the areas of transportation, geotechnical, water resources, structural, ocean were, remote sensing and construction engineering were demonstrated during the event.



### Visit by School students

Around 240 students of standard 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> of Kendriya Vidyalaya and Campus schools of IIT Bombay accompanied by seven teachers visited the Department. As part of their educational visit, the department organized lab visits followed by live demonstrations and interactive session of the faculty members with the students.



### Swatch Bharat Seminar

Seminar was conducted on the *importance of environmental issues, solid and liquid waste management in rural areas in India* within the context of Swatch Bharat Mission during the Open Day. Lecture on *human waste management* within the context of Swatch Bharat Mission was delivered by Prof. Anil Dutt Vyas of Manipal University, Jaipur.

### Faculty interaction with students and public

The faculty members interacted with students and visitors about the various activities of the Department, ongoing research and projects.



Institute Colloquium /  
Lectures



**Prof. Roop Mallik**, Professor, Tata Institute of Fundamental Research (TIFR), Mumbai delivered an Institute Lecture on “*The Nobel Prize in Physics - 2018 : Optical Tweezers and Nanoscale Biological Machines*” on October 24, 2018



**Dr. Adil Minoo Dhalla**, Managing Director, Separation Technologies Applied Research and Translation (START) Centre, Singapore delivered an Institute lecture on “*Lecture on ‘From Challenges to Leadership: Water and Environmental Technologies in Singapore’*” on October 25, 2018



**Prof. Billie F. Spencer Jr.** (Nathan M. and Anne M. Newmark Endowed Chair in Civil Engineering, University of Illinois at Urbana-Champaign) delivered Indira Foundation’s Distinguished lecture on “*Advances in Computer Vision-based Civil Infrastructure Inspection and Monitoring*” on October 29, 2018



**Prof. Kiyoshi Ueda**, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan delivered IIT Bombay - Diamond Jubilee Distinguished Lecture Series on “*Making invisible visible using invisible light*” on December 5, 2018



## Awards and Distinctions

**Prof. Soumen Chakrabarti**, Department of Computer Science and Engineering, has been elected as **Fellow** of Indian National Science Academy this year

**Prof. Goutam K. Lahiri**, Department of Chemistry, has been elected as Fellow of Indian National Science Academy this year

**Prof. K. Ramasubramanian**, Department of Humanities and Social Sciences, has been elected as Fellow of Indian National Science Academy this year

**Prof. M. Ravikanth**, Department of Chemistry, has been elected as a Fellow of the National Academy of Sciences, India

Jellow Communication System, created by Prof Ravi Poovaiah, IDC School of Design, and his team won the prestigious “**mBillionth South Asia**” Award for Inclusion and Empowerment! (<http://mbillionth.in/>)

It is also shortlisted to apply for the United Nations World Summit Awards

Jellow Communicator is a friendly Augmentative and Alternative Communication (AAC) solution that uses icons to aid communication in people learning to speak or with difficulty with speech and language. The easy-to-learn interface and visually appealing icons of Jellow make it is an ideal solution for beginner-level communicators  
<http://www.dsource.in/tool/jellow/>

**Prof. Suhas Joshi**, Department of Mechanical Engineering has been elected as a Fellow of the Indian National Academy of Engineering (INAE)

**Prof. Nina Sabnani**, IDC School of Design, won the Big Little Book Award (BLBA) for Illustration 2018 at the prestigious Tata Lit Live 2018 at NCPA, Mumbai on November 18, 2018 at the Tata Lit Live

The Big Little Book Award is a first of its kind award instituted by the Parag initiative of Tata Trusts and ‘Literature Live’ to recognize and honour significant contribution of

such authors and illustrators to children’s literature in Indian languages

**Prof. Pankaj Dutta**, SJM School of Management, has been appointed as an Associate Editor of ‘OPSEARCH’, published by Springer

**Prof. S. V. Kulkarni**, Department of Electrical Engineering, has been selected as IEEE Fellow

**Prof. Dipendra Prasad**, Department of Mathematics, has been conferred with the prestigious TWAS prize

**Prof. R. Murugavel**, Department of Chemistry, has been selected to receive the SASTRA-CNR Rao Award in Chemistry & Materials Science for the year 2019

**Prof C. Amarnath**, Department of Mechanical Engineering, has been awarded “Dedicated Service Award” for his love and passion for mechanisms by International Federation for the Promotion of Mechanisms and Machine Science

**Prof. Manasa Ranjan Behera**, Department of Civil Engineering, has been awarded the “Prof. R J Garde Research Award” by Indian Society for Hydraulics (ISH)

**Prof. Pushpak Bhattacharya**, Department of Computer Science and Engineering, has been appointed as the Chairman of the Advisory Committee to Andhra Pradesh Govt. to enable Artificial Intelligence in the Government’s secretariat-cum-eoffice.

Also, Prof. Bhattacharya shall be leading a national initiative (NITI Aayog teaming up with IITs) to create NLP-stack and virtual assistants in Indian Languages which will involve extensive use of Natural Language Processing and Machine Learning Technology.

**Prof. Ranjith Padinhateeri**, Department of Biosciences and Bioengineering, has been selected to receive the “National Bioscience Award for Career Development (2017-18)” by the Department of Biotechnology

**Prof. Ruchi Anand**, Department of Chemistry, has been selected to receive the “National Woman

Bioscientist Award” for the year 2018 from Department of Biotechnology, Ministry of Science and Technology

**Prof. Rahul Patil**, SJM School of Management, has received the Best Professor in supply chain management award (2018) by DNA team

Solar Urja through Localization for Sustainability (SoULS, [www.soulsiitb.in](http://www.soulsiitb.in)), initiative of IIT Bombay led by **Prof. Chetan Solanki**, Department of Energy Science and Engineering has won the Grand Regional Award in South Asia regional round of IEEE’s held at IIT Madras and also won Skill Council for Green Job’s award for “Outstanding Contribution in Solar Training Domain”.

**Prof. N.S. Puneekar**, Department of Bioscience and Bioengineering, have authored the book “Enzymes: Catalysis, Kinetics and Mechanisms” has been published by Springer

**Prof. Rajesh Gupta**, Department of Energy Sciences and Engineering, received Best Paper Award in R&D category along with his PhD Students from Indian Society for Non-Destructive Testing, for the year 2018

**Prof. Parinda Vasa**, Department of Physics, has been awarded the Homi Bhabha Fellowship for a period of two years

**Prof. Aparna Singh**, Department of Metallurgical Engineering and Material Sciences, received the prestigious “Young Metallurgist of the Year Award” instituted by The Indian Institute of Metals

**Prof. Sudhir Ghorpade**, Department of Mathematics, have been invited to join the Editorial Board of the IEEE Transactions on Information Theory as an Associate Editor for Coding Theory

**Prof. Pradeep R. Nair**, Department of Electrical Engineering has been selected for the award of “Professor Krithi Ramamritham Award for Creative research-2017” in recognition of his significant research contributions in the area of “Predictive modeling of Pervskite Solar cells”.

## 7th Inter IIT Tech Meet



*Prof Soumyo Mukherji, Dean (Student Affairs) reviewing projects at Engineers' Conclave*



*Dr Anjali Parasnis, Associate Director of TERI at Opening Ceremony*



*(L-R) BETiC Innovation Challenge Judging Panel - Prof B Ravi, Mr. Rakesh Rajiv (SINE), Prof Neeta Kanekar*



*IIT Bombay contingent with runner's up trophy*

7th Edition of Inter IIT Tech Meet was held at IIT Bombay from December 18 - 20 , 2018. Over the 3 - days meet, contingents from 22 IITs interacted with peers, followed by project presentations and discussion for exploring innovative ideas. Over 750 participants from all 23 IITs came under one roof for collaboration and compete in problems. Dr. Anjali Parasnis, Associate Director, TERI graced the occasion as guest of Honour in the opening ceremony along with Prof Soumyo Mukherji, Dean (Student Affairs) and Prof Rajkumar S Pant, Chairman (Technical.)

The problems were jointly promoted by academia as well as industry. The 7th Edition had problems from BETiC, Tata Centre for Technology and Design, BARC India, Drona Aviation and other research groups within IIT Bombay. Students came up with prototype level solutions with detailed implementation plans in BETiC Challenge, TCTD Challenge and Campus Sustainability Challenges. The panel members viz. professors along with experts from BAIF, Ankur Capital, Life Link Eco Technologies, SINE IIT Bombay greatly appreciated work of students.

The other main attraction was Engineers' Conclave - 76 student driven projects from various IITs were exhibited. Lecture series as part of Tech Meet witnessed speakers Dr. Rajul Patkar from Proximal Soilsens Technologies, Roli Gupta from Oorjan Cleantech and Adarsha K. Antony from Ayu Devices who shared their entrepreneurial journey.

The Tech Meet was concluded with declaration of winners by Mrs Pekham Basu, VP Strategy, Broadcast Audience Research Council (BARC). IIT Roorkee were the overall champions at the 7th Tech meet followed by IIT Bombay being the runner up.



## IIT Bombay Students Participate In Mahindra Racing Electro M5 Launch



Core Team members and Design Engineers of IIT Bombay Racing with Lewis Buttlar, Technical Director of Mahindra Racing

IIT Bombay Racing, a student technical team, participated in the launch event of next generation car of Mahindra Racing Formula Electric team. **Mr. Devansh Chourasiya** (Team Leader, fourth year undergraduate, Mechanical Engineering, IIT Bombay) along with his student team members (50) attended the event on December 10, 2018 and had an interactive session with **Mr. Lewis Buttlar**, Technical Director, Mahindra Racing, a veteran in the motorsports field with more than 15 years of experience in Formula One and **Mr. Dilbagh Gill**, Team Principal of Mahindra Racing.

## IIT Bombay Racing Participates In AutoCar Expo



IIT Bombay Racing, a student technical team, exhibited 2018 electric race car '**EvoX**' before the automotive enthusiasts during a national level automotive exhibition hosted by AutoCar India during December 13-16, 2018 in Bandra-Kurla Complex, Mumbai. The team was led by Ms. Arundhoti Nayak (Chief Operations), fourth year undergraduate, Chemical Engineering along with over 20 students. The show enthralled auto enthusiasts as it has on display the best from the world of cars and bikes.

Core team members presenting 'EvoX', 6th electric race car built by IIT Bombay Racing

## Inter IIT Staff Sports Meet

IIT Bombay was represented by a 69 member contingent (60 men and 09 women) in the 25<sup>th</sup> Inter-IIT Staff Sports Meet 2018 held at IIT Guwahati during December 24-28, 2018.

IIT Bombay fielded its team in all the events that were part of the meet (Badminton, Cricket, Tennis, Table Tennis, Volleyball, Football and Athletics in the men's category and Badminton, Table Tennis and Athletics in the women's category) and won medals in events as mentioned below:

- |                               |        |                        |        |
|-------------------------------|--------|------------------------|--------|
| • Table Tennis (Men)          | Gold   | • Table Tennis (Women) | Gold   |
| • Badminton (Women)           | Gold   | • Tennis               | Gold   |
| • Football                    | Bronze | • Cricket              | Bronze |
| • 100 meters (Above 55 years) | Silver | • 400 meters (Men)     | Silver |

The basketball and volleyball teams put up very impressive performances in the league stages, particularly against the home team, but lost in crucial stages during the competitions to lose out on a medal opportunity. The cricket and football teams displayed high quality performances and only lost to the eventual winners. The women's badminton team created a record of sorts by winning their 7<sup>th</sup> consecutive gold medal. The tennis team won the event without losing a set in the process. While there is ample scope for improving the contingent's performance in the coming year, the overall performance of team IIT Bombay was highly appreciated by one and all at the venue.



Contingent with overall championship

To conclude, it must be noted that IIT Bombay women's contingent won the general championship for women and IIT Bombay also won the 25<sup>th</sup> Inter-IIT Staff Sports Meet 2018 Overall General Championship after a gap of 04 years.



IIT Bombay tennis team with gold medal and championship trophy



IIT Bombay women contingent with  
a) Badminton trophy      b) Table tennis trophy  
c) Women general championship trophy



## Inter IIT Students Sports Meet



[L-R] Ritik Madan (General Secretary, Sports Affairs), Gali Meghana (Vice-Contingent Leader) and Karan Singh Rawat (Contingent Leader) with the IIT Bombay Flag during the Inauguration Ceremony of 53<sup>rd</sup> Inter-IIT Sports Meet in Guwahati



IIT Bombay Contingent in their official tracksuit participating in the March Past. IIT Bombay secured the second position in the event



The Lawn Tennis (Women) team with the championship trophy during the closing ceremony

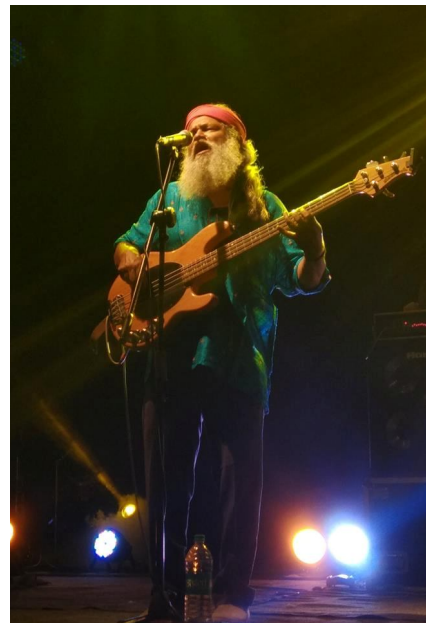
The 53rd Inter-IIT Sports Meet held in IIT Guwahati was organised in two parts. The aquatics meet was conducted during October 3- 7, 2018 and the main meet during December 13 - 21, 2018. The mega tournament saw all the 23 IITs competing in a total of 13 sports.

The defending champions IIT Bombay went into the main meet with 6 points courtesy to the silver medal earned by women's swimming team with last year's runner-up Madras bagging 24 points in the aquatics meet. The inaugural day saw IIT Bombay emerging as second in the march past behind IIT Delhi.

The Bombay Blackcats marched through the league stages with all men's and women's teams reaching quarterfinals in their respective sports except hockey and football. The teams played with conviction but some ended up on the unfortunate side in closely fought matches in the knockout stages. Overall, IIT Bombay bagged 3 gold - Lawn Tennis (women), Squash and Table Tennis (men), 1 silver - Swimming (women) and 3 bronze - cricket, volleyball - (men and women). The contingent finished with a total of 62.5 points in the Meet to come 5th in Overall Standings with IIT Delhi winning the Inter-IIT Sports Meet for the second time ever since the inception with a total of 106.8 points. IIT Roorkee and IIT Kharagpur came second and third with 80.4 and 80 points respectively.

With constructive feedback mechanism and positive steps, the Institute Sports Council is determined to improve upon this performance to come back stronger in the next edition.

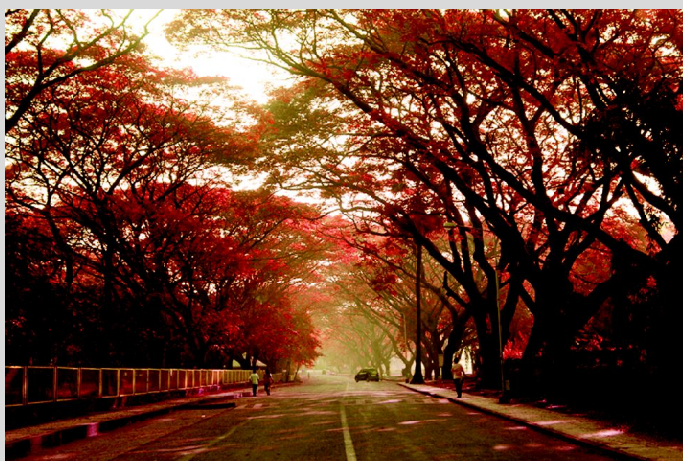
## Famous Indian Fusion Band Indian Ocean Performs at IIT Bombay



IIT Bombay hosted a concert by the famous Indian fusion band Indian Ocean on the evening of November 24, 2018, Saturday in Open Air Theatre (OAT) of SAC. In addition to high-spirited and adrenaline-pumped students, the show was also attended by senior faculty, officials and staff of the Institution. Comprising of promising artists Nikhil Rao, Amit Kilam, Rahul Ram, Himanshu Joshi and Tuhin Chakraborty, this 28-year old band is widely known for their experimental nature and their unique style of seamlessly coupling Indo-rock fusion with jazz-spiced rhythms. Striking the right balance between folk and rock, the two-hour eccentric performance was largely appreciated and has definitely left a positive and lasting impression on the minds of the audience.



In the  
Wilderness



**Photo Credit :**  
**by Mr. B. Nagarkar**  
Retired Staff, IIT Bombay

**Sait'n Pepper**

by Dr. Arun Inamdar





## Appointments

**Prof. Arun Mascarenhas** has been appointed as Assistant Professor in the IDC School of Design w.e.f. December 21, 2018



**Ms. Muthu Visalakshi** has been appointed as Assistant Registrar w.e.f. November 26, 2018. She has been posted in Accounts Section



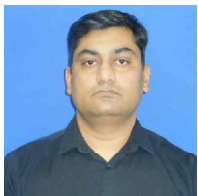
**Mr. Ravi Ray** has been appointed as Assistant Registrar w.e.f. November 27, 2018. Mr. Ravi Ray has been posted in Academic Section



**Mr. Pankaj Nabha Chachadi** has been appointed as Assistant Registrar w.e.f. December 27, 2018. He has been posted in Materials and Management Division



**Mr. Akhouri Ashutosh Sinha** has been appointed as Assistant Registrar w.e.f. December 28, 2018. Mr. Sinha has been posted in Administration



**Ms. Ruchika** has been appointed as Assistant Registrar w.e.f. November 15, 2018. She has been posted in Academic Section



## Retirements on October 31, 2018

**Prof. Akhil Ranjan**, Department of Mathematics, retired after 32 years of service



**Prof. Nachiketa Sadhu**, IDC School of Design, retired after 37 years of service

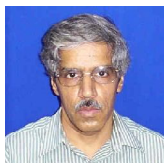


## Retirements on November 30, 2018

**Prof. Meenakshi S. Gupta**, Department of Humanities and Social Sciences, retired after 37 years of service



**Prof. Arun S. Moharir**, Department of Chemical Engineering, retired after 32 years of service



**Mr. Dattaraya N. Dhas**, Sr. Driver, Centre for Studies in Resources Engineering, retired after 39 years of service



**Mr. Sudam N. Ingle**, Security Guard C, Security Section, retired after 29 years of service



## Retirements on December 31, 2018

**Mr. Bhika W. Lokhande**, Sr. Administrative Superintendent, Accounts Section, retired after 37 years of service



**Mr. Dhaku T Kadam**, Mechanic Assistant, Centre for Studies in Resources Engineering (CSRE) retired after 42 years of service



**Ms. Indumati S. Surwade**, Multi-skilled Assistant C, Administration Section retired after 32 years of service.



## Voluntary Retirement

**Ms. Savita V. Patki**, Sr. Assistant Registrar, Dean (R&D) Office retired voluntarily on December 10, 2018 after 38 years of service



## Notification

**Prof. Ganesh Ramakrishnan**, Department of Computer Science & Engineering has been appointed as Co-ordinator, National Service Scheme (NSS) w.e.f. September 11, 2018

**Prof. Deepak Marla**, Department of Mechanical Engineering has been appointed as Associate Co-ordinator, National Service Scheme (NSS) w.e.f. September 11, 2018.

**Prof. Umesh Bellur**, Department of Computer Science and Engineering has been appointed as the Professor-in-Charge, Society for Innovation and Entrepreneurship (SINE) w.e.f. October 3, 2018

**Prof. Prasenjit Ghosh**, Dept. of Chemistry has been appointed as the Convener, PGAPEC. He has taken over the charge w.e.f. October 12, 2018

**Prof. K. Suresh Kumar** has been appointed as Head, Department of Mathematics w.e.f. December 28, 2018

**Mr. Vinod Kumar Prasad**, Assistant Registrar has joined the duties at IRCC w.e.f. December 6, 2018

**CEP courses scheduled during February - March 2019**

Duration	Days	Course Title	Course Coordinator	Department
<b>Open Programmes :</b>				
5-2-2019	3 days	Proteomics: Sample Preparation, Mass Spectrometry and Data Analysis	Prof. Sanjeeva Srivastava	Bioscience and BioEngineering
11-2-2019	3 days	Scientific Computing with Python	Prof. Kumar Appaiah	Electrical Engineering
11-2-2019	5 days	Scientific computing with python for electrical engineers	Prof. Kumar Appaiah	Electrical Engineering
16-2-2019	2 days	Personalization and Recommendation (P&R) using AI	Prof. Rajendra M. Sonar	School of Management
16-2-2019	1 day	Demystifying Design	Prof. Mandar S. Rane	Industrial Design Centre
22-2-2019	11 days	Certificate Course on Piping Engineering	Prof. Arun S. Moharir	Chemical Engineering
25-2-2019	5 days	Advanced Computing Methods in Civil Engineering Systems	Prof. Manne Janga Reddy	Civil Engineering
25-2-2019	2 days	3D Printing	Prof. K. P. Karunakaran	Mechanical Engineering
<b>House Programmes :</b>				
4-2-2019	5 days	Parallel Programming on GPUS	Prof. S. Gopalakrishnan	Mechanical Engineering
22-2-2019	2 days	Introduction to Select Hazard Identification Techniques (HAZID)	Prof. Sandip S. Roy	Chemical Engineering
27-2-2019	2 days	Sustainability Assessment: Circular Economy and Life Cycle Assessment	Prof. Pradip P. Kalbar	Center for Urban science and Engineering
<b>GIAN Courses :</b>				
4-2-2019	5 days	Energy, Environment and Sustainability: Enabling Advanced Solutions Using Aerosol Science	Prof. Ravindra D. Gudi	Chemical Engineering
<b>March 2019</b>				
<b>Open Programmes :</b>				
15-3-2019	2 days	Layer Of Protection Analysis (LOPA) For Process Industries	Prof. Sandip S. Roy	Chemical Engineering

