



# Campus diary

December 2014 - January 2015

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INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

## IITBombayX Launched: Providing Learners an opportunity to learn the IIT Way



(L-R) Prof. Deepak B. Phatak, Prof. V. M. Gadre, Prof. Devang V. Khakhar, Director, IITB and Prof. U.N. Gaitonde at the IITBombayX Launch

In a step that could significantly push the bar for quality online education in the country, IIT Bombay launched **IITBombayX** (the extended online educational services from Indian Institute of Technology Bombay) for the benefit of Indian learners and training workshops for teachers. **IITBombayX** was launched by Prof. Devang Khakhar, Director, IIT Bombay on India's 66<sup>th</sup> Republic Day.

Describing the initiative as "pathbreaking", Prof. Khakhar said "*The rapid evolution of technology makes it imperative for students and teachers to incorporate the various offerings of technology in their learning process.*"

The first three courses being offered on the **IITBombayX** platform are:

- **Introduction to Computer Programming** - by Prof. Deepak B Phatak and Prof. Supratik Chakraborty; Department of Computer Science and Engineering, a 8-week program starting in March 2015.
- **Thermodynamics** - by Prof. U. N. Gaitonde, Prof. U. V. Bhandarkar, and Prof. M. D. Atrey; Department of Mechanical Engineering, a 12-week program starting in March 2015.
- **Signals and Systems** - by Prof. Vikram Gadre; Department of Electrical Engineering, a 8-week program starting in March.

**IITBombayX** will also simultaneously offer training workshops for teachers on 'effective teaching and mentoring students in online courses', for each of these three subjects, under **T10KT** (Train 10,000 Teachers) Project. Faculty from IIT Bombay will be arranging live interactive sessions every fortnight, for such students and teachers. In addition to traditional course materials such as videos, readings, and problem sets, **IITBombayX** provides interactive user forums like discussions, quizzes, instant feedback that will help build a community of students, professors, and teaching assistants (TAs).

**IITBombayX** will provide free online courses and give access to high quality, IIT-style education to Indian students in Indian languages. Talking about this Prof Phatak said, "*We have about 3500 colleges, but the academic infrastructure in several institutions is not up to the expected levels and quality of education suffers. In other institutes, computer programming students may be given 10, 20, or 30 line programmes to write, but in IIT Bombay, students write 200 to 250 line programmes. So, simply put IITBombayX stands for extended online educational services from IIT Bombay and IIT-style learning.*"

Students will get an honour certificate of achievement certifying successful completion of the course after they have qualified in the tests.

## IIT Bombay felicitates Defence Minister Mr. Manohar Parrikar, on its Alumni Day



Prof. D. V. Khakhar, Director, IITB felicitates Defence Minister Manohar Parrikar on Alumni Day

IIT Bombay celebrated its Annual Alumni Day on 28 December, 2014. The Class of 1989 celebrated their Silver Jubilee Reunion this year. The Institute also felicitated its Distinguished Alumnus, Mr. Manohar Parrikar, Minister of Defence, Government of India, who graduated in Metallurgical Engineering from the Institute in 1978, "In recognition of his contribution to the Development of the Country," on the Alumni Day.

Speaking at the occasion, Mr. Parrikar said, "*Institutions like IITs, where research can actually be converted into commercial application for national defence, have an important role to play. From my side, I will try to see that IITs are pulled into defence research as well.*" He also shared interesting anecdotes from his college days at IIT Bombay, during the function.

In his address Prof. Devang Khakhar, Director, IIT Bombay informed how the institute is growing from strength to strength. "*Today, IIT Bombay is the preferred destination for IIT-JEE toppers. This year top 44 JEE rankers out of 50, chose IIT Bombay for their education... The Institute is focusing on research that makes a*

*difference and has set up major research centers in areas like electronics, nanoscience and solar energy. We have recently established a virtual Tata Centre for Technology and Design, for which Sir Dorabji Tata Trust has agreed to grant Rs. 94 crores to IIT Bombay, over a period of 5 years,*" he added.

As a part of the function, Distinguished Service Awards were bestowed on five alumni members 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 was conferred on Mr. Rajendra Laad, Mr. Shankar Narayan, Mr. Atul Narkhede, Mr. Saumil Majmudar and Mr. Abhishek Mangalick, by the Director.**

The Silver Jubilee Batch has decided to fund three existing initiatives as a part of their Legacy Project and pledged a sum of Rs 3 crore towards it. The projects they have decided to fund include – Retired Faculty Wellness Fund; Financial Aid Program for Students (it provides unsecured loan program for needy students at low interest rates for payment of tuition fee, hostel and mess expenses, laptop purchase, travel for conferences etc.); and Young Faculty Award or New Faculty Sign-on Bonuses and Faculty Development Fund.

According to Mr. Ramesh Natarajan, a representative of the Silver Jubilee Batch, "*We felt that it is important to support the retired faculty members, who have played a great role in shaping many careers, as well as to attract talented young minds to take up teaching at IIT Bombay. Hence, we have decided to contribute towards the existing projects that are supporting the same goal. Also, given the fact that the cost of education and living has increased substantially, we would like to offer more financial aid to the deserving and needy students at IIT Bombay.*"

## IITB wins Thomson Reuters India Innovation Award



IITB wins the Thomson Reuters Award

IIT Bombay has been conferred the **Thomson Reuters India Innovation Award 2014** in recognition of the innovation and patenting activity being carried at the Institute, under the category of 'Academic and Research Institutes'.

The award is given to honor the most innovative academic institutions and commercial enterprises in India for their spirit of innovation in R&D. The criteria used to select the winners include the patent portfolio size, success rate, extent of globalization and influence of innovation, based on the research and analysis using the Derwent World Patents Index, Derwents Patents Citation Index Data and Thomson Innovation tools.

**The award was received by Prof. P. M. Mujumdar, Dean (R&D), IIT Bombay on behalf of the Institute, at a function held in Mumbai on December 12, 2014.**

## 4D Living Exhibition: Transforming the way we Live



Prototype of "3D Living"

The exhibition '4D Living: From Housing to Affordable Living' was organized on January 16-19, 2015 by IIT Bombay's Industrial Design Centre (IDC) to showcase ideas to solve problem of affordable housing through the Industrial Designer's lens. The exhibition was inaugurated by Mr Arun Kashikar, Head, R&D Tata Housing. After almost four years of

brainstorming and committed planning and design, the IDC has come up with two different variants of 3D and 4D Homes which is a unique design that boasts of both affordable and sustainable design elements. The "3D Home," is fit for a family, with stow-away couches, desks and chairs as well as movable walls to meet the changing needs of its occupants throughout their lives. The flexibility ensures multiple uses of the spaces. For example, when not in use, part of the bathroom folds-in thus increasing the kitchen space. A modern interpretation of housing, the "4D Home" is a unique concept that aims at providing transients and settlers the comforts of modern housing without spending much. This dimension works in two different "avatars". Initially the services can be shared by people with the service provider getting paid for the services rendered. This decreases the cost of living for the EWS. At a later stage by virtue of increased income and needs, people can take ownership of their spaces and resources as they get transformed from shared to self-contained dwellings.

## Golden jubilee edition of Inter IIT Sports Meet held at IIT Bombay

The 50<sup>th</sup> Inter IIT Sports Meet was held from December 12-19, 2014 at IIT Bombay. Chief Guest at the inaugural function, Master Blaster Mr. Sachin Tendulkar was welcomed by a jam packed crowd of 5000 students and faculty members. Midst, deafening cheers of 'Sachin! Sachin!', he inspired the students to follow their passion by giving them a reminiscence of his childhood memories on the field. His message to the participants was to compete in the right spirit of the game.

IIT Bombay won the Woman's Championship while the Men Championship was won by IIT Kanpur. IIT Roorkee was a close second in the Men Championship while hosts IIT Bombay finished 4<sup>th</sup>. Several sportspersons were invited as Guests during the Meet. Mr. Dhanraj Pillay, Former Captain of Indian National Hockey Team, Mr. Nandan Bal, who represented India at the Davis Cup in Tennis, and Ms. Mamta Prabhu, Silver Medalist, Table Tennis at the Delhi CWG, were among others who graced the

occasion. An interactive session with Mr. John Gloster – ex-physio of the Indian National Team was also organized.

The Golden Jubilee celebration of the Inter IIT sports Meet also witnessed, the launch of a social initiative 'Mashal' which aims at improving the scenario of primary education in the country through the medium of sports.

The Meet Comprised of total 12 sports.

## Techfest 2015

IIT-Bombay 2015 Techfest, which attracted students, startups and tech enthusiasts across the country was organized from January 2-4, 2015. The three-day event showcased some mind-boggling tech innovations from India and abroad, along with some exciting events and lectures by renowned personalities, including Former President Dr. A.P.J Abdul Kalam, mathematician Prof. Manjul Bhargava, and Google Doodle's Mr. Ryan Germick.

While the Techfest had plenty of talking points, Speech by Dr. Kalam stole the show. He urged the crowd to support his dream of digitalising rural parts of India. "In two years, India should move away from consumption of costly fuel to providing solar energy. Youngsters will be the pioneers of India's future development. I am sharing this with you, so that you can become future ambassadors for solar power," he said



Former President of India Dr. A.P.J Abdul Kalam delivering speech at IITB Techfest event

## E-Summit 2015 - Where Innovation Transcends Business



10 Minute Million event at the E-Summit

Riding on the principle of encouraging innovation, lateral thinking and leadership *The Entrepreneurship Summit 2015 (E-Summit 2015)* was held at IIT Bombay from January 31, 2015 to February 1, 2015. E-Summit is an initiative by the Entrepreneurship Cell of IIT Bombay to provide a meet-up point for the youth to interact with their role models and learn from their experiences. The

highlights of the event were IIT Flagship event Eureka Finals, Hack e thon, Speaker Sessions and Panel Discussions. The event was graced by eminent and Distinguished Personalities such as Madhukar Parekh, Chairman, Pidilite Industries, Alan Mamedi, Founder, Truecaller, Ridham Desai, MD, Morgan Stanley to name a few. The Guests engaged students in the form of Individual Speaker Sessions and Panel Discussions.

Meanwhile, the major attraction at the event was 10 Minute Million program which offered an opportunity to the shortlisted start-ups to pitch in front of a panel of angel investors, which led to 6 start-ups securing a financial backing of around Rs 1.35 crore (over \$200,000). These ventures include event ticketing venture InstaBounce, online clothing customization site Faaya, career guidance platform CleverSharks, cash-back site Dealwithus, IoT firm Leaf and online healthy snack store Chloroplast Foods. The six start ups were selected among eight which had pitched their respective business models to 12 investors from Mumbai Angels. The funding amount ranges from around Rs 10 lakh to Rs 63 lakh each.

### Distinguished Alumni Meet 2015

An excellent opportunity to meet and network with alumni of the Institute, "The Distinguished Alumni Meet – 2015 (DAM)" was held on January 17-18, 2015 at the Taj Exotica Hotel in Goa. Sessions on 'IIT Bombay: Past, Present and Future - Observation of External Peer Review', 'Creating a World Class Institution with Indian Heritage', 'Strengthening Engagement with Corporate Sector' and 'Alumni as Lifelong Stakeholders' were main areas of discussions at the event.

### Annual Faculty Alumni Symposium – 2015

Annual Faculty Alumni Symposium – 2015 on "Energy and Environment" was organized by the Faculty Alumni Network (FAM) of IIT Bombay on January 17, 2015 at the Taj Exotica, Goa.

A large number of eminent speakers and panelists from IIT Bombay as well as those from industry and academia, attended the event. Prof. Devang V. Khakhar, Director, IIT

Bombay; Dr. Mark Stephen Wrighton, Chancellor, Washington University in St. Louis; Dr. Rahul Walwalkar, Founder and Director, India Energy Storage Association; Prof. Sagar Mitra, Department of Energy Science & Engineering, IIT Bombay; Prof. S. Bandyopadhyay, Department of Energy Science & Engineering, IIT Bombay; Prof. Pratim Biswas, Professor, Washington University in St. Louis; Prof. Chandra Venkataraman, Department of Chemical Engineering, IIT Bombay; Prof. Subimal Ghosh, Department of Civil Engineering, IIT Bombay and Prof. K. Narayanan, Department of Humanities and Social Sciences, IIT Bombay were among the featured speaker at the symposium.

### German Mayor visits IITB

Mayor of Karlsruhe, Germany visited IITB campus on January 23, 2015. There was a presentation given by the Mayor about Karlsruhe with an overview of business and educational institutions, their international linkages, collaborations with Indian institutions, opportunities

for students, faculty members and researchers from IIT Bombay. Prof. H.S. Pandalai, Dy. Director (FEA) gave a presentation on IIT Bombay and its activities. After the meeting was over, the Mayor visited the Society for Innovation and Entrepreneurship (SINE) and the Centre for Environmental Sciences and Engineering to understand the activities that are being carried in the institute.

### Republic Day Celebration

IIT Bombay celebrated nation's 66<sup>th</sup> Republic Day with a lot of enthusiasm, at its Gymkhana grounds. IIT Bombay Director, Prof. Devang V. Khakhar unfurled the Indian National Flag and addressed the students, staff and faculty members, present during the function. As always, Drawing and Creative Writing Competition for the children were organized by the Institute and awards were presented to the winners on the Republic Day by the Director. A short skit on "Childhood Obesity" by the NSS students of IIT Bombay, was also presented on the occasion.

## OP-ED: Need for Collaboration between Institutes and Defence R&D : Prof. S. P. Sukhatme

We became an independent nation in 1947. At that time, we bought all our sophisticated defence equipments from abroad. Our Ordnance factories made only routine items, like certain types of ammunition, guns and rifles. Quite obviously, we could not continue like that and over the years, the Government has set up a number of R&D laboratories and public sector undertakings which design and produce many more items needed for defence purposes. However, we are still buying from abroad and spending huge amounts of money on sophisticated equipment. In this light I feel the urge for a collaboration between Educational Institutions and Defense R&D.

In the past as we know, the IITs have been involved in a number of ways with Defence R & D projects and certainly need to be involved more in the future. I am going to share my thoughts on two projects — first is the Light Combat Aircraft (LCA) project and the other is the Main Battle Tank (MBT) Project.

The LCA program was started about 25 years ago with the purpose of advancing our indigenous aerospace capabilities. The objective was to develop a light weight supersonic (Mach 1.6) jet fighter to certain specifications. This objective has been achieved over the years with an aircraft called **Tejas**. It is a tail less aircraft with a delta wing and a single engine and its development has been done in phases. Around 20 aircraft are in the production line and the first of these was flown on August 1, 2014. Separately, advanced development is also in progress as part of future plans and more importantly for the Navy, a naval version of **Tejas** which would be located on an aircraft carrier is also being developed.

In the process 'Fly-by-wire' flight control was developed indigenously and another important achievement was the use of composite materials for the body. This reduced the weight of the aircraft significantly and was a big development. These were big achievements. Undoubtedly we faced some hitches and disappointment. However, the main point to note is that

notwithstanding the delay, today India has an excellent supersonic jet fighter, which is essentially indigenously developed.

Now I come to the Main Battle Tank Project. The MBT Project has drawn even more criticism because it took a lot of time to develop **Arjun**. Now, Arjun is a main battle tank which was expected to meet the needs of the Indian Army in the 90s and beyond. It was designed by the Combat Vehicles R & D Establishment (CVRDE) at Avadi and manufactured by the Heavy Vehicles Factory also at Avadi. The vehicle was initially designed as a 40 ton tank with a 105 mm main gun. However, because of delays, its specifications were upgraded and it ended up as a 58 ton tank with a 120 mm gun. There were other issues also like fire control, operation in hot regional temperatures, the performance of the main engine, etc. Finally, a Mark I model has performed well, met all specifications and has been accepted by the army after extensive field trials and modifications. 32 pre-production models and 12 follow-up models have been built. Overall 125 tanks of the Mark I model will be inducted into the army. These will be followed by the Mark II model, which has many improved features. The Mark II model was unveiled in 2011 and the Indian Army has agreed to take 124 nos. of this model.

So, the overall picture I am trying to present is that in the future we need more well-defined mission-mode projects with stringent time schedules in the Defence R & D sector. We need to ensure that in these mission-mode projects, there is a close connection with IITs, other research institutions and even some NITs. From the point of view of management, it may even be useful to develop close linkages with IIMs. The capabilities exist. We need to harness them in the national interest.

*(The article is based on the views shared by Prof. S.P. Sukhatme, former Director of IIT Bombay on the occasion of Alumni Day)*

### Inauguration of Solid Waste Treatment plant

A residential solid waste treatment plant (composting plant) constructed in front of Vidya Nivas at the Hillside of IIT Bombay Campus was inaugurated by Prof. H.S. Pandalai, Dy. Director (FEA) on December 23, 2014 .

This is a step towards building a more environment friendly Campus.

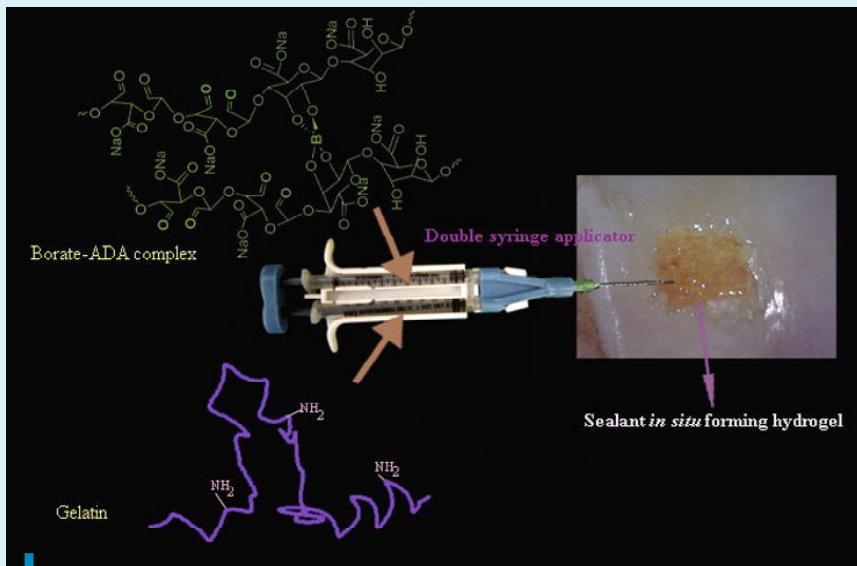
### Activities undertaken by NSS

A health camp for basic checkup for the construction workers living on campus was organized by the NSS, IIT Bombay and free medicines were distributed to these workers as a part of '**buddy programme**'. The programme was initiated couple of months back with the vision of getting to know the problems faced by the working class better by interacting with them on a very regular basis and befriending them.

NSS freshmen under the guidance of the core team members organized a Cleanliness drive in the construction workers residence near Hostel 9. In order to appreciate the efforts of the students, campus residents also joined in to help them with the cleaning of residence areas, places near market gate, etc.

## Research in focus

## Injectables for Osteoarthritis



Research in Focus

IITB has developed a potentially minimally invasive cartilage regeneration technique which could be a painless, inexpensive, and non-toxic method to cure osteoarthritis.

Osteoarthritis is a progressive musculo-skeletal disorder, which affects around 10% of the population worldwide above the age of 60 years, causing gradual degeneration of bone joints. Cartilages are the flexible soft tissues that cover the ends of bone in a joint. Over a passage of time, with the breakdown of cartilages, bones start to rub against each other causing stiffness, pain and loss of joint movement. A team of rese-

chers from the Department of Bioscience and Bioengineering at IIT Bombay is working on cartilage regeneration using naturally occurring biopolymers. Biopolymers are polymers of natural origin and form hydrogels which mimic the extracellular matrix (ECM) and promote tissue growth. Hydrogels are hydrophilic polymeric networks which can absorb water but are prevented from dissolving due to their cross-linked structure. Many biopolymers are in fact components of the ECM and can regulate division, adhesion, differentiation, and migration of cells more favorably than synthetic polymers.

Dr. Biji Balakrishnan under the mentorship of Prof. Rinti Banerjee of Department of Biosciences & Bioengineering has developed an in situ gelling biopolymeric hydrogel system which can be injected to the site of injury as a liquid, which solidifies after about twenty five seconds assuming the shape of the cartilage defect. This biopolymeric hydrogel prepared using polysaccharides and proteins, acts as a scaffold for regulating division, adhesion, differentiation and migration of healthy cells (chondrocytes) in cartilage and helps in the regeneration of the cartilage.

This technique of generating hyaline cartilage is chemically and mechanically better in comparison to the existing techniques. It takes less than a minute to inject the biopolymers into our body using a syringe mechanism. The biopolymeric derivatives for the preparation of hydrogels are also easy to manufacture and are biocompatible. They also produce negligible inflammation and oxidative stresses. Since the hydrogel gets degraded as the regeneration of cartilage proceeds, there is no need for any surgical intervention to remove it. The properties of hydrogel can be tuned by changing the concentration of biopolymeric derivatives. If required, growth factors or drug molecules can also be incorporated within this hydrogel by simple mixing with biopolymeric solution. The amount of hydrogel to be injected is decided by the degree of cartilage defect.

Though this approach has been investigated for cartilage regeneration, it is not limited to it and can be extended for regeneration of other tissues. Methods used are simple while circumventing toxicity, stability and scale up issues making this injectable system feasible, minimally invasive and easily translatable for therapeutic and regenerative purposes.

For more information please visit: <http://www.iitb.ac.in/en/research-highlight/injectables-osteoarthritis>

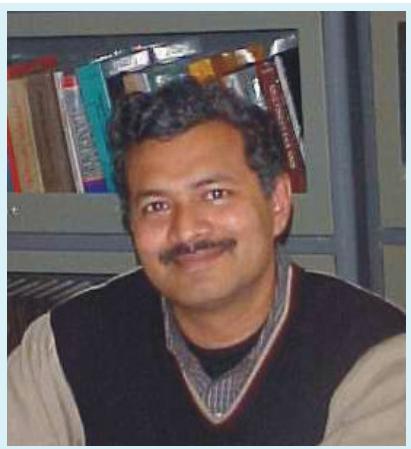
(Article Courtesy : S&T Media Cell, IIT Bombay)

**Institute Colloquium /  
Lectures & Seminars**

**Mr. Rushil Shailen Bhatt**, Research Fellow, Haffkine Institute, Mumbai, delivered a lecture on 'Dengue Awareness' on December 5, 2014.



**Dr. Herbert W. Roesky**, Emeritus Professor, Institute for Inorganic Chemistry, University of Goettingen, Germany, delivered an Institute Lecture on "Interstellar Space" on December 8, 2015.



**Prof. V. Chandrasekhar**, Director & Professor, National Institute of Science Education and Research, Bhubaneswar, delivered a lecture on "Single Molecule Magnets (SMMs)" on December 12, 2014.

Prof. Chandrasekhar and his team is working on phosphorus-supported ligands for the preparation of heterometallic 3d/4f complexes.



**Dr. David Wisler**, GE Aviation, Chief R & Technologist, (formerly GE Aircraft Engines) - retired, MIT CDIO Engineering Education Initiative, United States, delivered an Institute Colloquium on 'Rethinking Engineering Education' on December 19, 2014.

**Prof. M.S. Raghunathan**, Distinguished Visiting Professor and NASI Platinum Jubilee Chair, Department of Mathematics, delivered a lecture on "India's mathematicians in the post-Ramanujan era" on December 22, 2014, on the occasion of the National Mathematics Day. The lecture was followed by screening of a feature film on 'Ramanujan'.

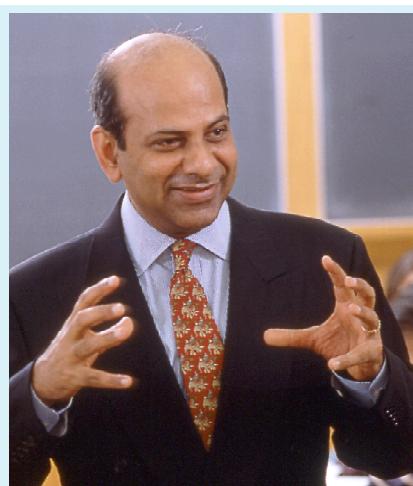


**Prof. Krzysztof Matyjaszewski**, J.C. Warner University Professor of Natural Sciences, Professor of Chemistry and Director, Center for Macromolecular Engineering,

Carnegie Mellon University, USA, delivered a talk on "Nanostructured Multifunctional Hybrid Materials via Macromolecular Engineering using Atom Transfer Radical Polymerization" on January 5, 2015.



**Prof. Akeel Bilgrami**, Sidney Morgenbesser Chair in Philosophy, Professor, Committee on Global Thought, Director, South Asian Institute, Department of Philosophy, Columbia University, New York, USA, delivered a lecture entitled "The Political Enlightenment and its Other" on January 13, 2015.



**Prof. Vijay Govindarajan**, Coxe Distinguished Professor at Tuck School at Dartmouth and Marvin Bower Fellow at Harvard Business School, delivered a Colloquium on "Reverse Innovation" on January 15, 2015.

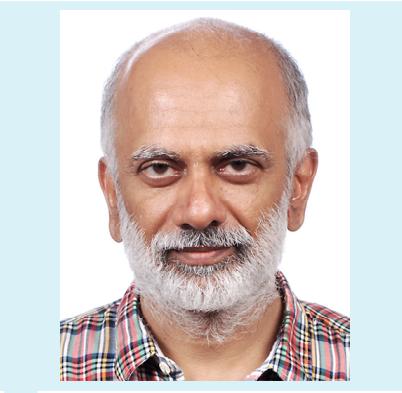
Reverse innovation is about innovating in poor countries and selling those products in rich countries. It is a very important phenomenon, since two-thirds of the world's growth in GDP is likely to come from poor countries.



**Prof. Anthony K. Cheetham, FRS**, Goldsmiths' Professor of Materials Science, Department of Materials Science and Metallurgy, University of Cambridge, UK, delivered the Inaugural talk of the Professor C.N.R. Rao Lecture Series on Nanoscience and Nanotechnology on "Flexibility and Phase Transitions in Metal-Organic Frameworks" on January 19, 2015.



**Prof. Michel Danino**, Visiting Faculty, IIT Kanpur and IIT Gandhinagar, delivered an Institute Lecture on "Science in Ancient India" on January 27, 2015



**Prof. Nitin Nitsure**, Professor of Mathematics, Tata Institute of Fundamental Research, Mumbai,

delivered an Institute Colloquium on "Euclidean Geometry, Analysis and Physics" on January 29, 2015.

#### **Department of Mechanical Engineering**

**Dr. Jack Wells**, Director of Science for the Oak Ridge Leadership Computing Facility at Oak Ridge National Laboratory (ORNL), delivered a seminar on "What does the Titan supercomputer teach us about preparing for exascale supercomputers?" on December 16, 2014.

**Dr. Chang-Hwan Choi**, Associate Professor, Mechanical Engineering, Stevens Institute of Technology, Hoboken, New Jersey, USA, delivered a seminar on "Bio-inspired Nano-engineered Surfaces for Multi-functional Applications" on January 23, 2015.

#### **Department of Humanities and Social Sciences**

**Dr. Shalini R. Jain**, National University of Singapore (NUS), Singapore, delivered a seminar on "Between Environmental Voyeurism and Activism: Artistic Mediations in Mahasweta Devi's Short Stories" on January 2, 2015.

**Dr. Dibyesh Anand**, Dept. of Politics and International Relations, University of Westminster, London, delivered a talk on "Kashmir: the blindspot of Indian Democracy" on January 6, 2015.

**Dr. Anush Kapadia**, City University, London, UK, delivered a talk on "The elements of finance" on January 7, 2015.

**Mr. Mark Thompson**, Managing Director, Talga Resources Ltd, Australia, delivered a seminar on "Northern Lights: an introduction to remarkable mineral deposits of the Fennoscandian Shield, Sweden, with a focus on the development of large – volume graphene supply" on January 15, 2015.

**Prof. Purushottama Bilimoria**, Deakin University and University of

Melbourne, Australia, delivered a seminar on "Philosophical Orientalism: The German Judgement, from Kant, Hegel, Husserl, Heidegger to Habermas (& Zizek)" on January 20, 2015.

**Dr. Alison Booth**, Auckland University of Technology, Auckland, New Zealand, delivered a seminar on "Event Production and Entrepreneurialism in the Indian Diaspora" on January 21, 2015.

**Dr. Gregory Booth**, University of Auckland, New Zealand, delivered a talk on "Music, Technology and the Market Economy in India" on January 28, 2015.

#### **Department of Computer Science and Engineering**

**Prof. Moshe Y. Vardi**, Rice University, delivered a talk on "The Rise and Fall of Linear Temporal Logic" on January 7, 2015.

#### **Department of Earth Science**

**Prof. R.R.Navalgund**, Professor Emeritus, ISRO, delivered lectures on various aspects on 'Remote sensing and its applications' between January 27 – February 6, 2015.

#### **IDP in Climate Studies**

**Prof. J. Phillip King, John Clark**, Distinguished Professor and Associate Department Head, Department of Civil Engineering, New Mexico State University, Las Cruces, NM gave a presentation on "Facing the Reality of Climate Change, Policy, and Politics: A New Mexico, USA Case Study" on January 9, 2015.

**Centre for Environmental Science and Engineering (CESE)**, IIT Bombay organized a forum jointly supported by British Council, MPCB, NEERI, JSW Steel, and ThermoFisher on "National Forum on Air Quality Management : Transport, Health and Sustainability" between January 21 – 23, 2015.

## Leadership Lecture Series

SJM School of Management organized Leadership Lecture Series on the theme "Learning from the Journey of Eminent Leaders and Achievers from varied sectors of Economy" from January 27, 2015. Many eminent speakers participated in the Lecture series and shared their experiences with the students. Mr. R C Bhargava, Chairman, Maruti Suzuki India Ltd; Padmashree Mrs. Lila Poonawalla, Chairperson of Lila Poonawalla Foundation, Former Chairperson of Tetra Pak India Ltd., Alfa Laval India; and Dr R A Mashelkar, Eminent Indian Scientist and former DG, CSIR were among the leaders who spoke on varied range of topics at the event. The sessions on the Leadership Lecture Series was co-ordinated by Prof. Atanu Ghosh, SJM SOM.

## Invited Lectures

**Prof. Camisha N. Datta**, Department of Chemistry, delivered a lecture on "Theoretical and Computational Studies of Magnetic Organic Molecules" at Theoretical Chemistry Symposium, NCL, Pune on December 18, 2014.

**Prof. Shrikrishna G. Dani**, Department of Mathematics, delivered an Inaugural address on "Bhaskaracharya's mathematical legacy" on December 8, 2014 at the Rashtriya Sanskrit Vidyapeeth, Tirupati, held during December 8-12, 2014.

He also delivered Foundation Day talk on "Some mathematical highlights from ancient and medieval India" at the Ramanujan College, Delhi on December 19, 2014.

A short course of three lectures on "Lattice Dynamics" at IISER Mohali, during December, 17 – 22, 2014. was delivered by Dr. Dani.

He gave the Presidential Address on the Annual conference of the Indian Mathematics Society, held at the Indian School of Mines, Dhanbad,

during December 27- 30, 2015 - a general address on "Prizes, Recognition and Promotion of Mathematics" and a technical address on "Dynamics of Numbers" - at the inaugural session.

Prof. Dani delivered a seminar talk on "Continued fractions and their applications in geometry and Diophantine approximation" at the Indian Statistical Institute in Kolkata on December 31, 2014.

A Symposium on History of Mathematics in India was organized by Prof. Dani, on January 4, 2015 in the 102nd Indian Science Congress, held at the University of Mumbai.

## Conference / Workshops

### Scilab and SciPy India Conference 2014

Free and Open Source Software for Education (FOSSEE) organized a conference "Scilab India 2014" from December 3-4, 2014. Scilab India 2014 provided opportunities to spread the use of Scilab in the scientific and educational community in India. The objective of this conference was to facilitate interaction with the best of the Scilab community, with a special emphasis on interaction between young and more experienced researchers. It provided an open ground to learn, understand, participate, and contribute to the Scilab community. This software will enable to gain further knowledge of the toolboxes available in Scilab. Basically, the goal is to combine education, engineering, and science with computing through the medium of Scilab.

**SciPy India 2014 Conference** was organized from December 5-7, 2014. SciPy India conference aimed at providing opportunities to spread the use of the Python programming language in the Scientific Computing community in India. It provided a unique opportunity to interact with the "Who's who" of the

Python for Scientific Computing fraternity and learn, understand, participate, and contribute to Scientific Computing using Python. This conference aimed to combine education, engineering, and science with computing through the medium of Python & spread the use of Python for Scientific Computing in various fields and among different communities. This software will enable access and review the tools available, learn domain-specific applications and how the tools apply to a plethora of application problems.

### Proteomics Conference

International Proteomics Conference on "Proteomics from Discovery to Function" was organized by the Department of Biosciences & Bioengineering at IIT Bombay from December 6-11, 2014. Proteomics is a study of large number of proteins, and to identify their interactions and functions. To understand the advances in proteomics from its Discovery to Function, the six-day-long conference comprised of Education Day, International Conferences and workshops. PSI-2014 provided a unique opportunity to share proteomics research with wide scientific community and a forum for the in-depth analysis of the challenges involved in studying the dynamic proteome. In a series of sessions, renowned experts presented their research and gave their perspective on the key issues in the field.

### Conference on Transportation

International Conference on "Transportation Planning and Implementation Methodologies for Developing Countries (TPMDC)" by Transportation Systems Engineering (TSE) Group of Civil Engineering Department was organized from December 10-12, 2014. The conference covered wide range of topics in the area of transportation engineering.

**Conference/Symposium on 'Knowledge and Moral Identity'**

An International Conference/Symposium on 'Knowledge and Moral Identity' was organized by the Department of Humanities and Social Sciences from January 13-16, 2015.

**Awards and Distinctions**

**Prof. M. Ravikanth**, Department of Chemistry, has been elected as a Fellow of the Indian Academy of Sciences in recognition of his outstanding research work.

**Prof. Soumen Chakrabarti**, Department of Computer Science and Engineering, has been elected as a fellow of the Indian Academy of Sciences, Bangalore in recognition of his outstanding research contributions.

**Prof. S.H. Patil**, Department of Physics, has been awarded the "INSA Teachers Award 2014" by the Indian National Science Academy, for his consistent excellence in teaching.

**Prof. S. Sudarshan**, Head of Department of Computer Science and Engineering, has been elected an ACM Fellow for 2014 for his contributions to database education, query processing, query optimization and keyword queries, by the Association of Computing Machinery (ACM).

**Prof. Puja Padhi**, Department of Humanities and Social Science and her student **Mr. P.K Naik** received the **best paper award** for their paper "Stock market development and economic growth in emerging market economies: dynamic panel evidence," and a trophy of the ICBPEM 2014 held during December 12-14, 2014 by School of Management, NIT Rourkela.

**Prof. R. Murugavel**, Department of Chemistry, has been selected to receive the prestigious J. C. Bose Fellowship in recognition of his outstanding research contributions.

**Prof. H. B. Singh**, Department of Chemistry, has been selected to receive the prestigious J. C. Bose Fellowship in recognition of his outstanding research contributions.

**Publications / Presentations**

**Prof. Y.M. Desai**, Department of Civil Engineering and his PhD Student Mayank Ajugia presented a paper entitled "Micromechanical Analysis of Unidirectional Fiber-reinforced Composites" at the Engineering Mechanics Institute International Conference organized by ASCE at the Hong Kong PolyTechnic University during January 7 - 9, 2015.

**Dr. Ranjit Kumar Das**, Central Library presented the research paper entitled "E-book, need of the hour in Academic Library: Analytical Study in 102nd Indian Science Congress in the section of Information & Communication Science and Technology (including Computer Science) during January 3 – 7, 2015 at University of Mumbai.

**Department of Biosciences and Bioengineering (Publications from the Lab)**

V.Özdemir, J.Faris and **Prof. S. Srivastava**, published a paper entitled "Crowdfunding 2.0: The next-generation philanthropy: A new approach for philanthropists and citizens to co-fund disruptive innovation in Global health" at EMBO Rep. 16, 267-271, 2015.

S.Sharma, S.Ray, S.A.Moiyadi, E.Sridhar and **Prof. S.Srivastava**, published a paper on "Quantitative proteomic analysis of meningiomas for the identification of surrogate protein markers" in Scientific Report (Nature Publishing), Vol. 4, Article No. 7140, 2014.

S. Sharma, S.Ray, S. Mukherjee, S.A.Moiyadi, E.Sridhar and **Prof. S.Srivastava**, published a paper entitled "Multipronged quantitative proteomic analyses indicate modulation of various signal transduction pathways in human meningiomas" in Proteomics, Vol.15, pp. 394–407, January 2015.

P.J.Reddy, S.Ray, G.J.Sathe, G.J, T.S.K. Prasad, S.Rapole, Prof. D.Panda and **Prof. S. Srivastava**, published a paper titled "Proteomics Analyses of *Bacillus subtilis* after Treatment with Plumbagin, a Plant-Derived Naphthoquinone" in Omics Journal of Integrative Biology, Vol. 19, pp.12–23, 2015.

**Department of Chemistry**

**A.K. Pal and Prof. S. N. Datta**, published a paper titled "Quantum Chemical Investigation of Calix[4]arene Based Radicals with Bis(biphenylene) methyl Linkers as Precursors of Spinglass and Superparamagnets", in Journal Phys. Chem. C, Vol.118, pp.27599-27610, 2014.

**Prof. S.N. Datta and Hansda. S.**, published a paper titled "Relationship between coupling constants in Heisenberg exchange Hamiltonian and Ising model", in Chem. Phys. Lett, 2015, Vol. 621, pp. 102-108.

**Department of Physics**

**Prof. Mukhopadhyay G** and his students **Ms. Parul Maheswari** and **Mr. Sidhhartha Sengupta**, TCS Research Lab, published an online paper on "Properties of Tensor Hermite Polynomials", through Cornell University Library via arXiv.com, 2014.

**Ms. Parul Maheswari**, presented a paper on "Some Properties of Tensor Hermite Polynomials" at the 3rd International Conference on Advances in Mathematical Sciences, organized by ISAET, in Dubai, UAE, during January 11-12, 2015.

**Students News**
**SJM School of Management students excel in Ignisense**

First Year Management students of SJMSOM, won accolades at the Symbiosis Institute of International Business annual Management & Cultural Event – IGNISENSE held from December 9 - 10, 2014. 1000 Faces, Prastav & Synergy were some of the events held during the fest. **1000 Faces**, the flagship event of IGNISENSE, began its hunt, for the best managers of future, and after a grilling session that lasted for 3 hours, the judges declared Team

FearSome from IIT, Bombay as the winner for 1000 Faces'15. The Team FearSome comprised of Rohit Kumar, Aman Soni, Ratul Sarkar and Ravi Verma.

**Prastav** - the Agri event was won by Rohit Kumar, Aman Soni and Ratul Sarkar. **Synergy** - which had presentations on Innovative solutions & ideas on sustainable development of Energy and Environment was also won by IIT Bombay students Rohit Kumar and Aman Soni.

### SPIC MACAY

Padma Shri Dr. Kiran Seth, the founder of SPIC MACAY - Society for the Promotion of Indian Classical Music and Culture Amongst Youth organized interactive sessions on 'Promotion on Classical arts of India with IITians' on January 30, 2015. The session was arranged by Roots-IITB Classical Cultural Association. Meanwhile, SPIC MACAY will also be organising its 3<sup>rd</sup> International Convention at the Indian Institute of Technology - Bombay (IIT-B) from May 31 to June 6, 2015, where about 1800 participants will gather from all over the country and abroad to rededicate themselves to this voluntary movement. At this week-long event, over 300 artistes would be participating from different parts of the country.

### Appointments

**Dr. Rajendran Antony**, Department of Chemistry, has been appointed as Post Doctoral Fellow on December 8, 2014.

**Dr. Dhritiman Gupta**, Department of Physics, has been appointed as Post Doctoral Fellow on December 10, 2014.

**Dr. Sateesh Bandaru**, Department of Chemistry, has been appointed as Post Doctoral Fellow on December 15, 2014.

**Dr. Rimjhim Agrawal**, Department of Electrical Engineering, has been appointed as Post Doctoral Fellow on December 16, 2014.

**Dr. Jyoti Rani**, Department of Physics, has been appointed as Post Doctoral Fellow on December 18, 2014.

**Dr. Narendra R. Chaubey**, Department of Chemistry, has been appointed as Post Doctoral Fellow on December 19, 2014.

**Dr. Chandan Patel**, Department of Chemistry, has been appointed as Post Doctoral Fellow on December 22, 2014.

**Dr. Rajesh K**, Department of Chemistry, has been appointed as Post Doctoral Fellow on December 22, 2014.

**Dr. Jayadipta Ghosh**, Department of Civil Engineering, has been appointed as Assistant Professor on December 23, 2014.

### Retirements on December 31, 2014

**Dr. S.S. Yadav**, Sr. Sports Officer, Gymkhana, retired after 36 years of service.

**Shri Jagdish P. Chandorkar**, Sr. Tech. Supdt, Printing Press, retired after 32 years of service.

**Ms. Saudamini A. Parulkar**, Jr. Superintendent, Accounts Section, retired after 38 years of service.

**Ms. Vrushali M. Damle**, Jr. Superintendent, Estate Office, retired after 33 years of service.

### Retirements on January 31, 2015

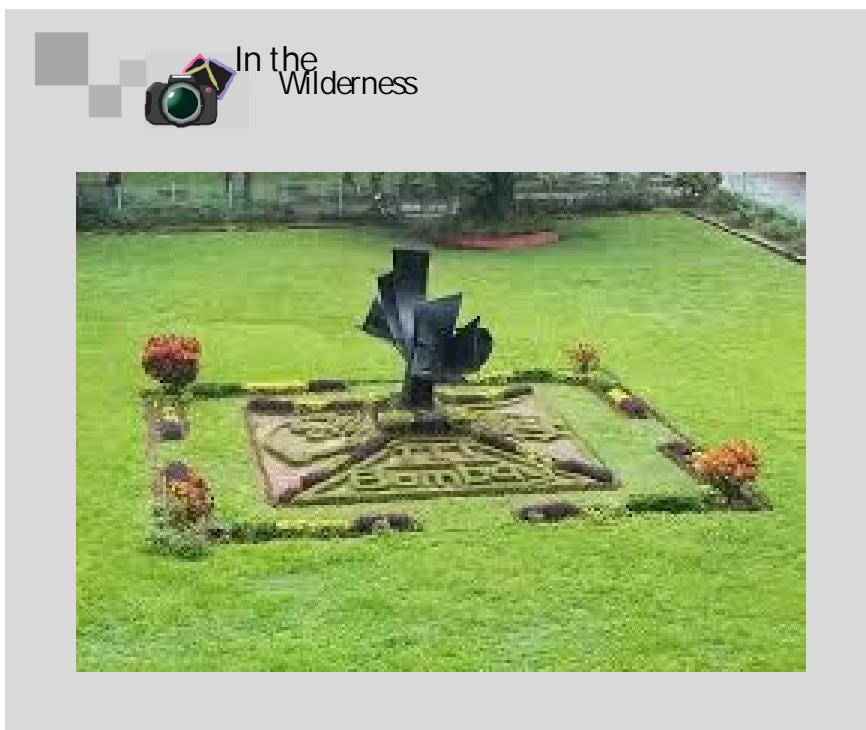
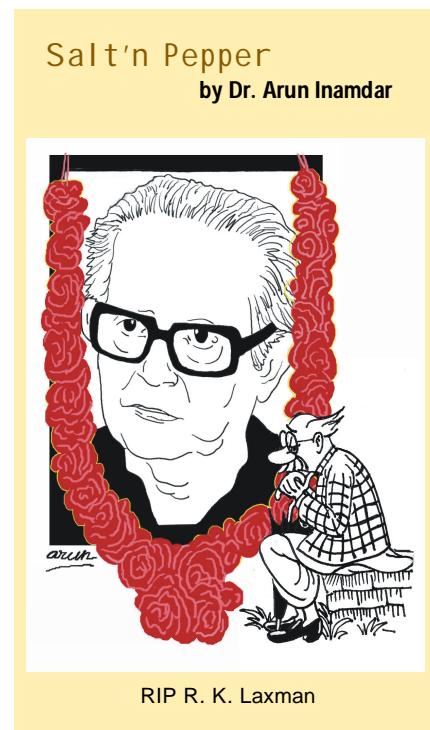
**Shri K.R.R. Pillai**, PS to Director, retired after 39 years of service

**Shri Balendra C. Singh**, Watchman (SG), Security Section, retired after 34 years of service

**Shri Suresh T. Gawde**, Sr. Messenger, Department of Humanities and Social Sciences retired after 29 years of service.

**CEP courses scheduled during March - April 2015**

No. Course Title	Course Coordinator / Department	Duration
1 Chemical Engineering for Chemists	Prof. Anurag Mehra Chemical Engineering	March 25-April 1, 2015 (8 days)
2 Use of Circuit Simulation Teaching Electronics	Prof. Mahesh B. Patil Electrical Engineering	March 27-28, 2015 (2 days)
3 Planning and Design of Scientific Landfill Sites (including Framework for Management and Safe Closure Technology Options)	Prof. A.K. Dikshit Environmental Science & Engineering	April 15-17, 2015 (3 days)
4 Planning and Design of Scientific Landfill Sites (including Framework for Management and Safe Closure Technology Options)	Prof. A.K. Dikshit Environmental Science & Engineering	April 20-22, 2015 (3 days)
5 Solar Technologies for Industrial Process Heat and Power	Prof. S.B. Kedare Energy Systems Engineering	April 20-22, 2015 (3 days)
6 Finite Element Method & Applications in Civil Engineering	Prof. T.I. Eldho / Prof. Y.M. Desai Civil Engineering	April 27- May 1, 2015 (5 days)


**In the  
Wilderness**

**Salt'n Pepper**  
by Dr. Arun Inamdar

RIP R. K. Laxman