

## DEAN'S MESSAGE



Dear Alumnus, Alumna

As I write this last newsletter for the calendar year 2022, I am amazed at how quickly this year has flown by and the great change that it has brought us. Life at the beginning of 2022 was still tentative as the whole world was trying hard to put the hardships of the pandemic behind us and move forward. I am extremely gratified to note that by the end of 2022 the world is slowly but surely returning to the way our lives were before the pandemic.

One of the benefits of life returning to normalcy was the two reunion alumni events we could host in person during these last few months.

We met with our extended alumni family in Bengaluru during the first week of November. Organised by the Bengaluru chapter of IITBAA the event saw a staggering 200+ alumni in attendance. IIT Bombay's Distinguished Alumnus, Dr. K Sivan, former chairman of the Indian Space Research Organization (ISRO), addressed our attendees and spoke about his years at ISRO. It was wonderful and heartwarming to see the love and affection our alumni have for their alma mater, and I want to thank every one of you who came to the reunion. Please look for the Special Report on the event in the newsletter and enjoy the many photographs from the occasion.

Next up was the US Roadshow where I was accompanied this year by Dr. Sharad Kumar Saraf, Chairman, Board of Governors (BoG); Prof. Subhasis Chaudhuri, Director, IIT Bombay; Mr. Ravishankar Gedela, CEO DRF; Ms. Deepti Datye, Associate Vice President-Marketing and Communications, DRF, and Ms. Sreemoyee Sharma, Senior Manager-Major Donor Engagement. We travelled to and met with our alumni in five US cities including Houston, San Francisco Bay Area, Southern California, Seattle, and New York during our 10-day visit. Nothing comes close to the joy of meeting our alumni who may have left India to settle down in the United States but whose love for India and their connect with their alma mater are still so strong. I want to take this opportunity to thank all of our alumni who came out and met with us. Reconnecting and reminiscing with all of you brought back wonderful memories of our own lives as students at IIT Bombay. I would also like to thank the entire donor and marketing teams from the DRF office for making the arrangements and ensuring our visit proceeded seamlessly. I cannot wait to meet you all again next year. Please look for the Special Report on the event in the newsletter.

I would now like to share some key events that took place last month at your alma mater.

- I am delighted to announce that the Honourable Prime Minister of India, Shri. Narendra Modiji sent a personal note to IITB professor, Dr. Chetan Singh Solanki, congratulating him for organising the Actions for Restoring Environment (ARE) Conference, where global leaders gathered together on one platform to deliberate on climate corrective actions and pledge towards doing more for the cause. Please look for Shri Modiji's note to Prof. Solanki in the News section of this newsletter.
- IIT Bombay was honoured to welcome Chief Guest, the Hon'ble Minister of State for Education, Smt. Annpurna Devi, for the Awareness Workshop on the National Credit Framework (NcrF) which was held on campus on November 28, 2022. More details on the minister's visit are in the News section of the newsletter.
- I am delighted to announce that IIT Bombay has been placed first in India and is ranked 40 (up from 42 last year) in this year's QS Asia University Rankings 2023. We are slowly, but surely, making our way to the top.
- We were honoured to welcome Shri. Nitin Gadkari, Hon'ble Union Minister of Road Transport and Highways, Government of India, who graced Alankar, the Shailesh J. Mehta School of Management's Global Leadership Summit at IIT Bombay. During his visit, Shri Gadkari evinced keen interest in R&D projects on Indigenous & Reliable Motors & Power Electronics, Manufacturing, Ergonomics and

Stability, and more. He also interacted with the students and faculty and urged them to address societal issues in their research projects.

- The Golden Jubilee Reunion of the Class of 1972 was held on campus on Nov 11, 2022. The reunion was organized by IITBAA and over 175 alumni from all over the globe participated in the event. The Institute and IITBAA arranged for many activities for our alumni including taking them on a tour of campus, an exhibition that showcased the Institute's current R&D projects, a meet and greet with popular Bollywood filmmaker Mr. Subhash Ghai, and a trip to Yeoor Hills in Thane. The Class of 1972 also pledged a substantial donation to the Institute for which we are very grateful. It was wonderful to reconnect with alumni who were students at IIT Bombay fifty years back and reminisce about the 'good old days!'
- The ceremonial groundbreaking ceremony of the new building (next to the library) for the Desai Sethi School of Entrepreneurship (DSSE) was held on December 1, 2022, at IIT Bombay. The DSSE will provide the state-of-the-art infrastructure that will facilitate, support, and nurture the entrepreneurial ecosystem at IIT Bombay.
- The Department of Chemical Engineering held the latest edition of the panel discussion series, 'Changing Role of Chemical Engineers.' The discussion centred around the Circular Economy of Materials and explored the current trends and future directions of important science and technology-driven industries. I hope you had a chance to be a part of the series and I am eager for the next one.
- The Department of Chemical Engineering held the latest edition of the panel discussion series, 'Changing Role of Chemical Engineers.' The discussion centred around the Circular Economy of Materials and explored the current trends and future directions of important science and technology-driven industries. I hope you had a chance to be a part of the series and I am eager for the next one.
- I want to thank our alumnus, Mr. Sanjay Singh Mansingh, whose generous donation allowed the Institute to set up the 'Brijraj Chandra Mansingh Chemical Instrumentation Lab' - as a tribute to his father - which was inaugurated on November 07, 2022. It is courtesy of our extremely supportive alumni like Mr. Mansingh that allows IIT Bombay to go from strength to strength in its journey toward becoming one of the premier colleges in technology and science in the world.
- A big thank you to the Class of 1980 for their Legacy Project – the 'Class of 1980 Design and Making Lab' that was inaugurated in November. Please check the News section in this newsletter for more details on the lab.
- We celebrated the life of the Ironman of India, Shri. Sardar Vallabhbhai Patel, by observing National Unity Day (Rashtriya Ekta Diwas) on October 31, 2022. A unity run, an exhibition, a vigilance awareness pledge, and an essay-writing competition were some of the activities the Institute held as part of the Rashtriya Ekta Diwas celebrations.
- We welcomed our alumnus, Mr. Amit Dixit (B.Tech., Civil Engineering, 1995), Head of Asia Private Equity at Blackstone, whose generous contribution led to the establishment of the first woman faculty chair at the Institute --- the "Shobha Dixit Chair Professorship" in honour of Mr. Dixit's mother. I was very happy to spend time with Mr. Dixit and his colleagues from Blackstone (all of whom are also alums of IITB), even as Mr. Dixit spent time with the recipient of the Shobha Dixit Chair, Prof. Chandra Venkataraman, Department of Chemical Engineering, and founding convener of the Interdisciplinary Programme in Climate Studies (IDPCS), at IIT Bombay.
- IIT Bombay celebrated National Education Day on November 11, 2022. Mr. Amit Sharma, Managing Director & CEO, Tata Consulting Engineers Limited, was the Chief Guest on the occasion. Details on the recipients of various IRCC Research Awards – 2021 conferred during National Education Day are in the News section of this newsletter.

The end of the year always brings with it a sense of melancholy at the year that has gone by, but it is also the harbinger of joy, happiness, and the possibilities that a brand-new year brings with it. Like Thomas Jefferson said, “I like the dreams of the future better than the history of the past.”

I cannot say this enough, but your support to your alma mater is the cornerstone of IIT Bombay’s success. I, once again, urge you to visit us on campus. I assure you that as much as the campus has improved with many new welcome infrastructural refurbishments, the core and essence of IIT Bombay remain the same. So come by and take in the new even as we can reminisce about our days past.

Before I sign off from 2022, I would like to thank you once again for your continued support.

Wish you and your family happy holidays, Xmas, and a very happy new year 2023!

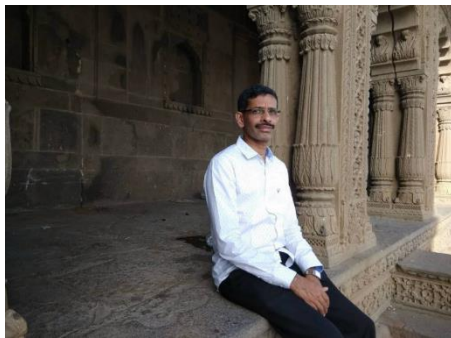
Sincerely,

Prof. Ravindra D. Gudi, Ph.D., FNAE and FIChE

Dean – Alumni and Corporate Relations

Institute AI & ML Chair Professor

## **FACULTY INTERVIEW**



### **Sreedhara Sheshadri: An Inquisitive Researcher and Academic**

Prof. Sreedhara Sheshadri is a Professor and HoD, Mechanical Engineering Department, IIT Bombay. We are delighted to speak to him for the Dean ACR Newsletter – Knowledge Tree.

**Prof. Sheshadri, thank you for speaking to us today. To begin with - can you quickly take us through your academic and career trajectory?**

I was born in a small village in Karnataka and completed my basic education in Government schools and the vernacular language medium. I completed my bachelor’s and master’s degrees in mechanical engineering from Karnataka and then started teaching in a reputed engineering college in Tumkur as a lecturer in September 1992. Later, I completed my Ph.D. in the Aerospace Department at IISc Bangalore and pursued post-doctoral research at Pohang University, South Korea, where my research was mainly focussed on combustion. After my postdoc, I joined GE India Pvt. Ltd in 2007 and I returned to academia as a faculty member at IIT Bombay in 2010. Today, I’m a professor and the HoD of the Department of Mechanical Engineering.

#### **What made you get into academia instead of the industry?**

As I mentioned above, I have experience working in industry and academia. I chose academia because I aspired to be with the younger generation and knew I would get happiness/satisfaction by guiding/teaching them and learning newer ideas and concepts along with them. This responsibility has become more after I received the Prof. S. P. Sukhatme Award for Teaching during the Teachers Day program held on 5th Sept 2022 at the IITB campus.

#### **Your research interests include Computational Fluid Dynamics, Turbulent Combustion, Engine Combustion, LES/DNS of complex turbulent reacting flows, and Soot Modelling. Can you explain what they mean in layman's language?**

In general, all my research revolves around combustion and emissions with applications to automobile and gas turbine engines. I started my research work by using the computer program that I had developed with the help of my supervisor at IISc. This was very fundamental, and it revealed the basic physics involved in combustion. Later, I moved to the application side by working on how to reduce emissions in engines without reducing their performance. I’m happy to note that we have successfully improved the performance of commercial CFD

packages by including advanced combustion modules so that their predictions are more accurate. Some of these are used by industries also.

**What are the implications of your research in the real world?**

My research work is mainly in the field of combustion and its applications in engines. This actually helps in keeping the pollutants under control without compromising fuel consumption. Some of the outcomes of the research may be retrofitted to the engine directly with minimum cost. Performing experimental work to pursue research is very costly and time-consuming. Numerical codes with very accurate prediction capabilities will help in understanding the basic physics involved and reduce the number of experimental test cases to be carried out. These predictive capabilities of the numerical programs were improved by adding our in-house advanced combustion models.

**You have published an overwhelming number of scholarly papers over the years. Can you take us through the role and importance of publishing in today's academic climate?**

The fundamental research work we do should be published so that it reaches the larger extended academic community. This also reduces the repetition of any work. In today's academic scenario, there are a lot of good journals where the students have the opportunity to publish and/or present at conferences which take the collaborative effort of the research to new heights.

**What advice would you give the next generation of IIT Bombay students who wish to pursue research and publish their work?**

I would advise them to first have an inquisitive mind. They should read a lot of open-ended articles about the general nature of requirements that are coming up in a particular area of their interest. This will allow them to identify the trends that are shaping up in the scientific and industrial research community. Once they understand this basic premise, the solution that the community is searching for will also become apparent. At that point, the student can go about developing an "innovative" hypothesis or methodology to arrive at the said solution. Students also need to have a great work ethic and pursue their research diligently and work hard day and night.

Another option is to go to a group of people who are already working in the chosen area, talk to them at length about the approaches that they are taking, and then initiate a research project based on their inclinations

**How has the IIT Bombay ecosystem helped you navigate your professional life and career goals and ambitions?**

The IIT Bombay ecosystem is teeming with avenues to grow professionally. The ability to encourage and procure good researchers is a foremost requirement in conducting research. Being a premier engineering and science-based institute, IIT Bombay attracts some of the best talents in the country. This helped me work on challenging research topics with motivated and brilliant minds. The ability to interact with like-minded faculty and staff, all pursuing cutting-edge research, also opened up a huge number of opportunities for collaborative work and discussion of thoughts and ideas in general. The ability to secure funding for my research also increased dramatically due to the visibility that IIT Bombay provides. And finally, the administrative routes of managing personnel and funds are smooth and hassle-free.

**Changing gears – can you tell us a little bit more about Prof. Sheshadri outside of campus? What are some of your hobbies? How do you destress from your daily commitments?**

My major hobby is playing badminton which allows me to stay fresh and active throughout the day. I enjoy talking to kids as they talk from their hearts. As I spent my childhood in a village, obviously, the unpolluted nature and food attract me as well.

**Finally, what does the future hold for you, Prof. Sheshadri?**

My plan for myself is to continue research in the field that I have been working on. I would love to arrange guest lectures at the Institute and help others with their current problems rather than worry about solving problems that might arise in the future.

What a wonderfully inspiring conversation that was with Prof. Seshadri. His inquisitive nature combined with hard work has led him to tremendous success both as a researcher and professor at IIT Bombay. We wish him the very best moving forward and thank him for speaking to us.

## **GIVING**



### **This Issue's Theme – Recurring Donations**

Every donation that you can give back to your alma mater – small or big – matters to us.

At IIT Bombay we cannot stress this enough. However small the amount or the action you take towards the betterment of your alma mater – it counts.

Over the years we have heard from many of our alumni who genuinely wish to give back to their alma mater but are unable to for a variety of reasons. The most significant reason is the lack of affordability and the financial constraints that many alumni face, especially by way of family obligations including children's education, medical commitments for ageing parents, taking care of one's retirement needs, and more. Justifiably, giving back – whether to society, one's extended family, or their alma mater – is not a priority.

We completely understand. And we would like to clarify on a few aspects to urge our alumni to donate to their alma mater.

One key thought in an alumnus's mind is the idea that all donations need to be a huge lump sum amount. Many of our alumni rue that giving a significant chunk of money to their alma mater is simply impossible.

Another thought is that many of our alumni feel equipped to donate a small amount of money every month, but they also wonder if donating such a meagre amount can make any tangible difference to an Institute like IIT Bombay.

It absolutely can and does make a tangible difference. Every rupee you give back supports, impacts, and builds your alma mater.

To that end – with Recurring Giving the Institute has made it easier to give a small amount of money to your alma mater every month. With Recurring Giving, you can pick how much you can afford to give back, which includes Rs. 2000, Rs. 5000, Rs. 10,000, and Rs. 20,000 a month.

In case you're wondering, "How can giving back ₹2,000/- a month really help an Institution like IIT Bombay?"

Let us explain.

The funds we collect via Recurring Giving go towards three core causes:

Scholarships

Young Faculty Awards

Institute Development

And all of these three causes are fundamental to IIT Bombay maintaining its position as India's premier science and technology Institute.



### **Scholarships**

The scholarship money goes towards aiding financially constrained students unable to join IIT Bombay because they cannot afford to pay tuition, hostel, and mess fees. Providing financial scholarships to these meritorious

students ensures that IIT Bombay continues to attract the best minds in the country.



### **Young Faculty Awards (YFA)**

Similarly, the Young Faculty Awards ensures that IIT Bombay can attract, and most importantly, retain the best faculty members to the Institute. Even as students are taught and mentored by these extraordinary

faculty members, the latter also pursue cutting-edge research and innovations that allow IIT Bombay to lead the country from the front in emerging areas of research and technology and help society and mankind.



### **Institute Development Fund (IDF)**

The Institute Development Fund is key to developing state-of-the-art facilities including Centres of Excellence, labs, and research centres which are key to maintaining IIT Bombay's position

as one of the premier technology institutes in the world.

And these three core causes are what Recurring Giving supports.

Please note that your small monthly donation can educate a financially constrained student. It can allow your alma mater to be competitive and hire the best faculty member by giving them an incentive by way of the Young Faculty Award. Your monthly donation will support the renovation and refurbishment of many older infrastructures on our campus.

Allow us to now explain exactly how far your money goes with Recurring Giving and the tangible impact your monthly recurring donations will make at your alma mater with the following breakup:

₹2,000/- per month for one year

₹2,000/- per month for one year

Full Mess Fees for one student for 1 semester OR 25% of one single YFA Award

₹5,000/- per month for one year

₹5,000/- per month for one year

60% Tuition Fees for a semester OR 60% of one YFA Award

₹10,000/- per month for one year

₹10,000/- per month for one year

Complete Tuition Fee + Mess Fees for one semester OR One complete YFA award

₹20,000/- per month for one year

₹20,000/- per month for one year

Complete Tuition Fee + Mess Fee for ONE YEAR OR Two YFA Awards

To reiterate – no amount is too small. Every small donation is like a water drop that eventually fills an ocean. So, give back via Recurring Donation to your beloved alma mater.

## **DONOR INSTITUTED CHAIR PROFESSORSHIPS**



## **Prof. Supratik Chakraborty appointed the Bajaj Group Chair Professor**

### **About the Donor:**

The Charitable trusts promoted by the Bajaj Group established 4 chair professorships in 2009 and the Ramakrishna Bajaj Chair Professorship is one of them. It was specifically instituted for initiating new academic programmes, elevating R&D programmes, and improve industry interactions in the Industrial Design Centre.

### **About the Appointee:**

Prof. Supratik Chakraborty, Professor, Department of Computer Science and Engineering

Professor Supratik Chakraborty is currently the Bajaj Group Chair Professor at IIT Bombay.

Prof. Chakraborty's stellar academic background includes receiving his B. Tech. (Honours) in Computer Science and Engineering, IIT Kharagpur, India (1993), where he was awarded the President of India Gold Medal for best academic performance among all graduating students from all disciplines. This was followed by his M.S. in Electrical Engineering (Computer Systems), Stanford University, USA (1995), and his Ph.D. in Electrical Engineering (Computer Systems), Stanford University, USA (1998). His dissertation topic was 'Polynomial-time Techniques for Approximate Timing Analysis of Asynchronous Systems.'

Prof. Chakraborty's research interests include constrained

counting and sampling, and their applications; scalable formal verification of software, hardware, and intelligent systems; automated synthesis of programs and circuits; automated reasoning, and automata, logic, and finite model theory.

Over the years, Prof. Chakraborty has received multiple awards and accolades. He received the President of India Gold Medal for best academic performance among all graduating students from IIT, Kharagpur, in 1993. He also won the Institute Silver Medal for best outgoing Computer Science and Engineering Graduate Award from IIT, Kharagpur, in 1993. In 1998 he won the Best Paper Award in the Algorithms and Architecture track, for his paper titled 'A Self-Timed Real-Time Sorting Network' at the International Conference on Computer Design. A year later he won the Intellectual Property Award for original research contributions at Fujitsu Laboratories of America, Inc. He won the Excellence in Teaching Award for teaching Computer Science and Engineering courses at IIT Bombay in 2002 and the James R. Isaac Chair for Young Faculty for outstanding young faculty in the Dept. of Computer Science and Engineering, IIT Bombay, 2003.

In 2005 he won the Indian National Academy of Engineering Young Engineer Award, followed by the IBM Faculty Award in 2007, and the Bajaj Group Chair Professor, Dept. of Computer Science and Engineering, IIT Bombay, in 2014, 2017, and 2021. In 2018 he won the IIT Bombay Research Publication Award for a series of papers on scalable sampling and counting with strong approximation guarantees. In 2019 he became a Fellow of the Indian National Academy of Engineering. His research paper was selected amongst the best 25 papers in 25 years of CP (International Conference on Principles and Practice of Constraint Programming) in 2019. He became a Distinguished Member of ACM (Association for Computing Machinery) in 2021.



## **Prof. Chandra Venkataraman appointed the Shobha Dixit Chair Professor**

### **About the Donor:**

Mr. Amit Dixit (B.Tech., Civil Engineering, 1995), Head of Asia Private Equity at Blackstone, generously contributed to the establishment of the first woman faculty Chair Professorship at the Institute. The Chair Professorship was set up to recognize and provide opportunities to outstanding women faculty members and was named the "Shobha Dixit Chair Professorship" in honour of Mr. Dixit's mother.

## About the Appointee:

Prof. Chandra Venkataraman, Professor, Department of Chemical Engineering & Interdisciplinary Programme in Climate Studies

Professor Chandra Venkataraman is currently the Shobha Dixit Chair Professor at IIT Bombay.

Prof. Venkataraman's outstanding academic background includes receiving her B.Tech. in Chemical Engineering from IIT Delhi (1985). She then received her Ph.D. in Chemical Engineering from the University of California, Los Angeles (UCLA), USA (1992), which was followed by her Postdoc in Environmental Engineering and Science from Stanford University, USA (1993).

Prof. Venkataraman's research interests include Aerosol Chemistry and Physics, Climate Science, Air Quality, Air Pollution Control, and Nanoparticle Engineering.

Prof. Chandra Venkataraman was the Founding Convener (2012-2018) of the Interdisciplinary Programme in Climate Studies, the first such doctoral programme in India. She coordinates the 22-institution COALESCE network (Carbonaceous Aerosol Emissions, Source Apportionment, and Climate Impacts) towards understanding the carbonaceous aerosol life cycle, climate impacts, and climate feedback to air quality in the Indian region. Her research focuses on the intersection of technology and emissions, climate science, air pollution, and environmental sustainability policy and addresses nanoparticle engineering for drug delivery applications. Dr. Venkataraman's research has contributed to over 125 peer-reviewed publications, a book, and four patents. She has mentored students to academic and R&D positions worldwide and worked on institutional systems to support the advancement of women faculty and students in STEM.

Over the years, Prof. Venkataraman has made many contributions to scientific assessments, science, and policy networks.

Her many awards and honours include being a member of the Science Advisory Panel, Climate and Clean Air Coalition, UNEP, 2022. She is a Fellow of the Indian National Science Academy, 2022; the Indian Academy of Science, 2018; and the Indian National Academy of Engineering, 2016. From 2012-2013 she was the Fulbright-Nehru Senior Fellow, Atmosphere Energy Programme, Stanford University. She won the IIT Bombay: Department Teaching Excellence Award in 2020. She was the Institute Chair Professor between 2011-2014. She won the H.H. Mathur Research Excellence Award in 2008, the R.G. Manudhane Faculty Research Excellence Award in 2006, the Vikram Sarabhai Award, Physical Research Laboratory in 2005, and the START Young Scientist Award, IGBP, in 1998. She was also a member of the Tau Beta Pi, Chemical Engineering Honour Society, in 1988.

## SPECIAL REPORT



### **Delegation from IIT Bombay Meets Alumni in Five American Cities**

A delegation from IIT Bombay featuring Dr. Sharad Saraf, Chairperson, Board of Governors, IIT Bombay; Prof. Subhasis Chaudhuri, Director, IIT Bombay; Prof. Ravindra D. Gudi, Dean, Alumni and Corporate Relations (ACR); Mr. Ravishankar Gedela, CEO DRF; Ms. Deepti Datye, Associate Vice President-Marketing and Communications, DRF, and Ms. Sreemoyee

Sharma, Senior Manager-Major Donor Engagement visited the US for the annual 'US Roadshow,' held from November 09 to November 22, 2022. In a first, the delegation covered a total of 5 cities- Houston, San Francisco, Los Angeles, Seattle, and New York.

During their trip, the delegates met and interacted with nearly 500 alumni during the visit. These included around 70+ alumni in Houston, 125+ in San Francisco, 35 members in Los Angeles, 60 members in Seattle, and 170+ in New York City. The delegation made detailed presentations on the rapid development of the Institute's infrastructural facilities and research capabilities. IIT Bombay's impressive growth trajectory was met with a positive and joyful response from alumni who lauded the students, faculty, scientists, researchers, and staff



members for IIT Bombay's growth into an "Institute of Eminence." The delegation also apprised alumni of the Institute's focus on building Centres of Excellence (CoE) in relevant and emerging areas of research. Alumni also learnt about IIT Bombay's fundraising priorities, its future goals, and the various ways in which alumni can contribute to the Institute's mission of becoming a global leader in engineering education and research. In return, alumni provided the delegation with constructive feedback on how the Institute can continue to grow and advance rapidly in the upcoming years.

IIT Bombay is grateful to its alumni community in the US for spending their valuable time with members of the delegation and look forward to the next US roadshow!



**SAN FRANCISCO**



**SEATTLE**



**NEW YORK**



**HOUSTON**



## IIT Bombay Hosts Interactive Networking Session with Bengaluru Alumni Members

IIT Bombay, in collaboration with the IIT Bombay Alumni Association Bengaluru Chapter, hosted the much-awaited interactive and networking session with its alumni members based in Bengaluru, Karnataka. The gathering was a lively and spirited affair with around 450 members in attendance.

The event was presided over by IIT Bombay's Distinguished Alumnus, Dr. K Sivan, former chairman of the Indian Space Research Organization (ISRO), and Secretary, Department of Space. Dr. Sivan addressed the audience and spoke about his glorious professional journey with ISRO. In addition, he highlighted the many ways by which IITians can contribute towards advancing space science and research. Dr. Sivan also dedicated his precious time to the alumni present on the occasion and heard about their exemplary research work and their contributions to society.

Prof. Ashok Misra, former director of IIT Bombay also spoke at the occasion. He highlighted the strong kinship that the Institute has built with its alumni over the years. He also commended the unique ways (collaborations, volunteering opportunities, etc.) through which IIT Bombay has involved its alumni community in its journey of excellence.

Prof. Subhasis Chaudhuri, Director, IIT Bombay, presented the Institute's milestones over the decades and the way forward. Prof. Ravindra D. Gudi, Dean, Alumni and Corporate Relations spotlighted the critical initiatives being undertaken by IIT Bombay that need immediate support from its alumni.

In addition, IITB's alumnus Mr. Vamsi Krishna (B. Tech, Civil Engineering, 2005) and CEO and Co-Founder, Vedantu, gave a talk and encouraged young alums to contribute towards the thriving entrepreneurial ecosystem that IIT Bombay has fostered.

The gathering proved to be a wonderfully nostalgic afternoon for IITB's Bengaluru alumni as they networked with their peers and reminisced about the great time they'd spent on campus.

For more photos of the event click on the following link:

[https://drive.google.com/drive/folders/1Smfp7\\_Zt3nspWQDe5FVEU2g3WohvHO8m](https://drive.google.com/drive/folders/1Smfp7_Zt3nspWQDe5FVEU2g3WohvHO8m)

## STUDENT SUCCESS STORIES



### Shruti Kanitkar – The Story Behind Writing an Award-winning Mahakavya

IIT Bombay is synonymous with excellence in science and technology. But the Institute has a stellar reputation in the Humanities and Social Sciences programme as well.

This is epitomised by Ms. Shruti Kanitkar, a Ph.D. student in the Humanities and Social Sciences Department with Prof. Malhar Kulkarni, who recently brought acclaim to the Institute by winning the Young Poet Award (Sanskrit) for 2022 from the prestigious Sahitya Academy.

Shruti composed a Mahakavya (long poem) titled श्रीमतीचरित्रम्

śrīmāticaritraṃ.

We are delighted to speak with Shruti about what makes a poet, her influences and inspirations, and what winning this prestigious award means to her.

**How do you feel after receiving this acclaimed young poet award in Sanskrit from the prestigious Sahitya Academy?**

I feel wonderful. I wrote this poem during my earlier college years. I did not get it published until September 2021, during the lockdown. That is when I sent it to the Sahitya Akademi as a candidate for the Yuva Puraskar. I

never imagined that I would get this award at such an early stage. The credit for this goes to the great scholars and poets in the Sanskrit field who saw the talent in me and recognised it with this award. Generally, this award is given to those who are a little older. So, this came as a real surprise to me, and I feel that this is the grace of the Goddess Radha who blessed me.

**How did you get started as a poet? Did you write as a child? Do you come from a literary background?**

I started writing poetry when I was 11 years old. Before that, as far as I can remember, I used to create a few lines on my parents' birthdays on their birthday cards. First, I began writing poems in Marathi, my mother tongue, then English, Hindi, and, finally, Sanskrit. My background is not literary, but my paternal grandfather and my father are good writers. My maternal grandfather was a professor of Sanskrit. So, I guess writing is in my genes.



**What inspired you to go into Sanskrit literature and poetry? Is it difficult to write in Sanskrit?**

I started learning Sanskrit when I was in the eighth standard. And I began to love this language pretty soon. While others find it tough to write in Sanskrit, it came pretty easily to me. A poet has to keep in mind numerous factors like the metre of the verse, different verbal roots, their tenses, and even one change of a small and long vowel can change the meaning of the entire sentence. It takes time to hone your skills and during the initial years, I made a lot of mistakes in grammar and prosody. But, slowly, I acquired the ability to compose in various metres using precise and correct words in their rightful place.

**Can you take us through the process of writing a poem? How do your poems develop?**

It begins when an idea develops in a poet's mind. Getting that core idea is key, without which the syllables and words are meaningless. Then the poet has to select appropriate words to express the idea in his/her mind. Here, vocabulary plays a very important part. One has to keep in mind the metre, its flow, and the arrangement of short and long vowels. At the same time, you cannot forget the grammar of the language. After taking care of all these components, the poet then weaves a chain of words when expressing his/her idea and tries to do it uniquely. There are times when you practice composing in a specific metre but, suddenly, you think of a line in a completely different metre and you then you follow that flow and develop a long thread of verses in it. Honestly, the reality is that there are no hard and fast rules. With creative writing, it all depends on Pratibhā or 'poetic genius.' As she leads you, so you go.



**You won the award for composing a mahakavya. Can you explain what it is for a layman? How is it different from a regular poem?**

A mahakavya is a long and elaborate poem that consists of sections and chapters. Generally, the topic of a mahakavya is the life story of a famous hero, holy figure, or certain incidents from well-known Puranas. The mahakavya-s exist in Sanskrit literature for over 1000 years. And this tradition has continued till date. Now the topics of mahakavya-s have also evolved along with time. We have Shivarajyodayam, a mahakavya on the life of great warrior king

Shivaji Maharaj; Pratapa-ranayanam is a mahakavya on the life of Maharana Pratap.

The mahakavya authored by me is titled Shreemati-charitram, and it is based on the life of Goddess Shree Radha. We all know Radha as the lover of Krishna, but beyond that, we know very little about her. We don't know about her childhood, her life when Krishna was in Dwarka, or her divine prowess. I studied all these aspects of her life from the various Puranas and other authentic ancient sources and incorporated them into the poem. I hope that people get to know more about this great Goddess through my mahakavya.



**Do you also write in other poetry forms? Which one do you enjoy writing the most?**

Yes, I write other forms of poetry and I write in different languages as well. Initially, I used to write small verses in Sanskrit and then moved on to stotras. Later, I tried writing short stories and dramas in Sanskrit. During my college days, I translated many Hindi and Marathi songs into Sanskrit for

our Sanskrit day celebrations. Recently, I started to experiment with the 'chitra-kavya' - meaning riddle poetry. There are certain rules to follow like using only restricted syllables and phrases and trying to fit a specific idea into the verse form. This poses a lot of constraints on the poet, and it is very difficult, but I like the challenge. While I enjoy all kinds of versification and poems, my favourite is writing stotras on my favourite deity.

**We know that pursuing a Ph.D. from a reputed institute like IIT Bombay is very time-consuming. Amidst such a hectic academic schedule, how did you prioritise your time to become proficient in Sanskrit poetry?**

My admission to IIT Bombay two years back brought with it a lot of research work and paper presentations at various conferences. Life can be hectic but after a tedious intellectual workout, reading and writing poetry is relaxing and rejuvenates my mind. While pursuing a Ph.D. demands comprehensive reading, IIT Bombay's library facility, and the peaceful space there really help both my creative pursuits as well as working on my Doctorate. My association with the Institute has helped me push my creative pursuits. The serene natural beauty of the campus inspires me as a poet.

**What does the future hold for you, Shruti? What are your goals and career plans after you get your Ph.D.?**

After I receive my Ph.D. I would like to teach. But I also want to continue my research as well. My primary goal is to be a student and learn all my life. And the next goal is to give back what I've learned to others who are eager to learn.

We commend Shruti on her clarity of thought and her vision for her future. Undoubtedly, winning the Sahitya Award is just the beginning for her. We wish her many more accolades in the future and the very best moving forward!

## **NEWS FROM IIT BOMBAY**



**The Honourable Prime Minister of India, Shri Narendra Modi, congratulates IITB Professor, Dr. Chetan Singh Solanki, for organising the Actions for Restoring Environment (ARE) Conference**

IITB professor, Dr. Chetan Singh Solanki, who is the brand ambassador of Solar Energy for the Govt. of MP, and Founder, Energy Swaraj Foundation, together with the

All India Council for Technical Education (AICTE), recently organised the Actions for Restoring Environment (ARE) Conference, where global leaders gathered together on one platform to deliberate on climate corrective actions and pledge towards doing more for the cause.

IIT Bombay is delighted that the Hon'ble Prime Minister, Shri Narendra Modi, appreciated the ARE and sent a personal letter congratulating Prof. Solanki and the Energy Swaraj Yatra for working towards environmental restoration in the country. In his letter, Prime Minister, Shri Modi, outlined the various measures taken by the Government of India towards mitigating the impact of climate change.



Prof. Solanki is at the heart of the Energy Swaraj Movement. In 2020, he started the Energy Swaraj Yatra and travel across the country in a solar-connected bus. Dr. Solanki has pledged to live and travel all over India on the solar bus for the next decade and make Energy Swaraj into a massive public movement. To that end, he will not return home till 2030.



## IIT Bombay Ranks First in QS Asia University Rankings 2023

IIT Bombay has secured the first position in India and is ranked 40 (up from 42 last year) in this year's QS Asia University Rankings 2023

IIT Bombay secured an overall score of 68.7 out of 100. The Institute has scored 83.1 in academic reputation, 97.1 in employer reputation, 17.1 in citation per paper, 28.4 in faculty-student ratio, 100 in staff with Ph.D., 83.4 in papers per faculty, 80.3 international research network, 9.8 in international faculty, 3.4 in international students, 4.4 in inbound exchange and 2.9 in outbound exchange all scores out of a maximum of 100 points.

In the 2023 edition of regional rankings, the Institute placed among the top 6% in the QS Asia University Rankings 2023.



## IIT Bombay Hosts Awareness Workshop on National Credit Framework

IIT Bombay held an Awareness Workshop on the National Credit Framework (NcrF) on November 28, 2022. Prof. Subhasis Chaudhuri, Director, IIT Bombay, welcomed the Chief Guest, the Hon'ble Minister of State for Education, Smt. Annpurna Devi to the function.

Speaking on the occasion, Smt. Annpurna Devi said that NEP 2020 envisages universalization of credit framework for removing barriers between knowledge, skills, and employability, establishing a credit accumulation and transfer system for all types of learning, and ensuring seamless mobility between learning and skilling pathways.



The Minister stated that NCrF will provide an opportunity to recognize applied aspects of knowledge and skills. It will also create new possibilities for lifelong learning and skilling. NCrF will boost per capita productivity, empower all, and lay a strong foundation for India to lead this century.

Dr. Vinita Aggarwal, Executive Member and Lt. Col. Gunjan Chowdhary, Director, NCVET, Dr. Saroj Sharma, Chairperson, NIOS, Dr. Avichal Kapur, Joint Secretary, UGC, Mr. Nilambuj Sharan, Senior Economic Advisor, MSDE, Prof. Rajive Kumar, Member Secretary, AICTE, Prof. Vinay Swarup Mehrotra, Joint Director, PSSCIVE, Bhopal and Ms. Niti Shankar Sharma, Dy. Secretary, CBSE were the panellists.



## Shri Nitin Gadkari, Hon'ble Union Minister of Road Transport and Highways, Government of India, Visits IIT Bombay Campus

Shri. Nitin Gadkari, Hon'ble Union Minister of Road Transport and Highways, Government of India, graced Alankar, the

Shailesh J. Mehta School of Management's Global Leadership Summit at IIT Bombay. He interacted with the students and faculty and urged them to address societal issues in their research projects.

During his visit to IIT Bombay, Shri Gadkari also visited the R&D stalls on campus and interacted with faculty and students at the Institute. The stalls exhibited projects on Indigenous & Reliable Motors & Power Electronics; Manufacturing, Ergonomics and Stability; Battery Technology: Safety & Sustainability; Transportation planning and Grid Integration; Green Hydrogen and Devices & Electronics.



### **Groundbreaking Ceremony for New Building for the Desai Sethi School of Entrepreneurship (DSSE) held on campus**

The ceremonial groundbreaking ceremony of the new building (next to the library) for the Desai Sethi School of Entrepreneurship (DSSE) was held on December 1, 2022, at IIT Bombay.

What began as the Desai Sethi Centre for Entrepreneurship (DSCE) in 2014 has since grown from strength to strength and evolved by 2019 into the Desai Sethi School of Entrepreneurship (DSSE). DSSE mentors and guides close to 1,000 students each academic year on how to be successful entrepreneurs. Starting this year, the revised UG curriculum will include a core course on entrepreneurship titled, "Introduction to Innovation and Entrepreneurship," for all first-year students.

The new DSSE building will bring together innovative and entrepreneurial activities under one roof and will incorporate several laboratories to conduct research, testing, and validation of newer and original ideas. It will enable IIT Bombay's goal of promoting educational excellence and encouraging collaboration between students, faculty, and industry. The DSSE will also provide the state-of-the-art infrastructure that will facilitate, support, and nurture the entrepreneurial ecosystem at IIT Bombay.



### **IIT Bombay Inaugurates the Brijraj Chandra Mansingh Instrumentation Lab**

IIT Bombay inaugurated the 'Brijraj Chandra Mansingh Chemical Instrumentation Lab,' on November 07, 2022, with a special ceremony held on campus. The Lab has been set up through the generous donation made by IIT Bombay's alumnus, Mr. Sanjay Mansingh (B. Tech., Electrical Engineering, 1992), as a tribute to his father, and will be housed in the Department of Chemistry on campus. Mr. Mansingh was accompanied by his mother, Mrs. Pratima Mansingh, as well as his sister, Ms. Suniti, at the occasion.

Mr. Mansingh addressed the audience during the occasion and spoke about how the Lab will play a key role in his endeavour to create a brighter future for the present and future generations of IIT Bombay's dreamers and innovators. Mr. Mansingh said that he learnt the importance of "community giving" from his father, which he explained was the driving force behind the successful establishment of the Lab. Later, Prof. M. Ravikanth, Head of the Department of Chemistry, highlighted the significance of the Lab in the Department's continued mission to train its students in the best practices of Chemical Sciences.

The 'Brijraj Chandra Mansingh Lab' will provide the latest and advanced equipment to students pursuing innovative and cutting-edge research projects under the guidance of the Chemistry Department's faculty. This state-of-the-art facility will also cater to more than 1,000 B. Tech., 200 BS/MSc. and 350 Ph.D. students and will be accessible through an online booking portal. The facility will continue advancing the discipline of Chemical Sciences in India and creating a societal impact. The Lab will also aid the regular upgradation of the Chemistry Department's research infrastructure.



### **IIT Bombay Inaugurates the Class of 1980 Design and Making Lab**

IIT Bombay inaugurated the 'Class of 1980 Design and Making Lab' on Nov 03, 2022, set up through the generous contribution of the Class of 1980. Mr. Vinay Somani, batch leader of the Class of 1980, addressed the gathering and said that the impetus behind the setting up of the lab was the Class of 1980's determination to

“give back meaningfully” to their alma mater. Mr. Somani also expressed his happiness at the rapid progress that IIT Bombay has made over the years since his batch’s time on campus.

Comprising the latest digital and mechanical equipment (laser cutters, 3D printers etc.), the Lab will be accessible to the Institute’s first-year students. The young minds of IIT Bombay will have the opportunity to learn modern designing and manufacturing practices through a multidisciplinary course, at the very beginning of their academic journeys.

This Lab forms an essential part of the Institute’s larger Makerspace initiative that envisions providing a comprehensive education to students through exposure to state-of-the-art thematic labs. Members of the Makerspace committee, Prof. Varun Bhalerao, Associate Professor, Department of Physics, and Prof. Darshan Shah, Assistant Professor, Department of Mechanical Engineering, gave a brief overview of the Lab and the instrumental role it will play in revolutionising learning practices for students.

The Makerspace program is an important step that aligns with the substantially revised curriculum that was recently recommended by the committee under the Chairmanship of Prof. Kishore Chatterjee, Department of Electrical Engineering. Significant components of this revamp were also adapted from the recommendations made under the updated National Education Policy, which emphasised hands-on experimental-based learning.

The ‘Class of 1980 Design and Making Lab’ will also serve as an example for other institutes across the country to follow and be aligned with the tenets of the National Education Policy.

## **INSTITUTE HIGHLIGHTS**



### **IIT Bombay Celebrates National Education Day**

IRCC Research Awards – 2021 Presented

IIT Bombay celebrated National Education Day on November 11, 2022. Mr. Amit Sharma, Managing Director & CEO, Tata Consulting Engineers Limited was the Chief Guest on the occasion.

National Education Day is observed on 11th November annually in India to commemorate the birth anniversary of Maulana Abul Kalam

Azad, the first education minister of independent India

The IRCC Research Awards 2021 was conferred on select faculty during the programme. These awards were instituted as a way to recognise the R&D efforts of faculty members at the Institute and are given to faculty from various departments. The awards are selected based on a call for nomination every year and following a selection process by a committee constituted for the same.

#### **Research Publication Award:**

Prof. Sudarshan Kumar, Department of Aerospace Engineering

Prof. Rajdip Bandyopadhyaya, Department of Chemical Engineering

Prof. Chandra M. R. Volla, Department of Chemistry

Prof. Anil Kottantharayil, Department of Electrical Engineering

Prof. Atul Srivastava, Department of Mechanical Engineering

#### **Research Dissemination Award:**

Prof. Debabrata Maiti, Department of Chemistry

Prof. Rajneesh Bhardwaj and Prof. Amit Agrawal, Department of Mechanical Engineering

#### **Research Publication Award:**

Prof. Debabrata Maiti, Department of Chemistry

Prof. Santanu Banerjee, Department of Earth Sciences

### **Early Research Achiever Award:**

Prof. Rahul Maitra, Department of Chemistry

Prof. Swatantra P. Singh, Department of Environmental Science and Engineering

Prof. Dipanshu Bansal, Department of Mechanical Engineering

Prof. Rohan Chinchwadkar, Shailesh J. Mehta School of Management

Each award consisted of a citation and a cash prize of Rs. 50,000. In addition, the awardees were invited to submit a research proposal to IRCC for possible funding of up to Rs. 5,00,000.



### **IIT Bombay Professors Earn Accolades**

Following are highlights of the many accolades and awards received by IITB's faculty members over the past month.

Prof. Dipendra Prasad, (Department of Mathematics) has been elected to the very prestigious TWAS Fellowship

Prof. Soumyo Mukherji, (Department of Biosciences and Bioengineering) has been elected as a Fellow of the National Academy

of Sciences, India (NASI)

Prof. Rohit Srivastava, (Department of Biosciences and Bioengineering) has been elected as a Fellow of the National Academy of Medical Sciences (India)

Prof. Riddhi Singh, (Department of Civil Engineering) has been invited to serve as a Co-Editor for the Hydrological Sciences Journal

Prof. Sauvik Banerjee, (Department of Civil Engineering) has been invited to join the editorial board of the journal, Nondestructive Testing and Evaluation, Taylor and Francis, as a Subject Editor

Prof. Gulab Singh, (Centre of Studies in Resources Engineering) has been conferred the "National Geospatial Award for Excellence 2021" by the Indian Society of Remote Sensing (ISRS)

Prof. Parinda Vasa, (Department of Physics) has been selected for the Indian Physics Association Hema Ramachandran Lectureship Award for Experimental Physics 2022

Prof. Ashish Juneja, (Department of Civil Engineering) has published a paper titled "A New Subtraction-Type Miniature Cone Penetrometer" in the Indian Geotechnical Journal. The paper was adjudged as the best paper on "Instrumentation" by the Indian Geotechnical Society and has won the IGS-AIMIL Biennial Award – 2022



### **IT Bombay Observes National Constitution Day**

As a part of National Constitution Day (Samvidhan Diwas), IIT Bombay organised a workshop titled "How to Achieve Success in Various Competitive Examinations?" on November 26, 2022. Mr. Ganesh Bhorkade, Registrar, IIT Bombay, conducted the workshop where he shared several practical tips on how to succeed in competitive examinations. The workshop was well-attended by the staff and residents of IIT Bombay.



### **The Department of Chemical Engineering at IIT Bombay hosts the latest edition of the panel discussion series 'Changing Role of Chemical Engineers'**

The Department of Chemical Engineering at IIT Bombay held the latest edition of the panel discussion series, 'Changing Role of Chemical Engineers' (a series of online panel discussions organised



by the Chemical Engineering alumni of IIT Bombay in collaboration with the Department) on November 05, 2022. The discussion focused on the Circular Economy of Materials and explored the current trends and future directions of important science and technology-driven industries.

The panel comprised Dr. Vijay Mhetar (CTO of DL Chemicals/Kraton Corporation, IIT Bombay, '94); Dr. Sameer Ralhan (SVP and CFO of The Chemours Company, IITB, '95); Dr. Srinivasan Rajagopalan (Manager-Materials at ExxonMobil, Tech & Engg, IITB, '94) and Mr. Rajeev Pandia (Past President, ICC, IITB, '71), and was moderated by Prof. Guruswamy Kumaraswamy (Chem Engg, IITB, '94). The panellists highlighted issues related to materials waste and approaches to tackling this critical problem.

The other topics covered in the discussion included a review of the awareness of the state of knowledge at a global and national level on the issue of sustainability, circularity, and recycling of materials; the current trends and future direction for new technologies to extend the service life of materials and polymers; the role played by chemical engineers in developing and deploying relevant technologies or informing policy, and the mantle of IIT Bombay and other institutions in India to develop better policies, practices, and implementations for improving efficiency in the recycling of waste.



### **IIT Bombay hosts the Golden Jubilee Reunion for the class of 1972**

The Golden Jubilee Reunion of the Class of 1972 was held on campus on Nov 11, 2022. The reunion was organized by IITBAA and over 175 alumni from all over the globe participated in the event. The week leading up to the reunion day was spirited and filled with activities. Prof. Subhasis Chaudhuri, Director, IIT

Bombay welcomed alumni on November 8, 2022, during a celebratory event held in their honour and provided the Class of 1972 with a brief overview of their alma mater's progress over the years. This was followed by a gala dinner as alumni members reconnected and networked with one another and reminisced about their student days.

Over the next few days, alumni took a trip down memory lane through a tour of the campus and had a glimpse of the several infrastructural developments that have taken place at the Institute in recent decades. They also visited their respective departments and interacted with the faculty. They witnessed unique research projects being pursued by IIT Bombay's students and some of the Institute's Centres of Excellence and Innovation Labs. During an informal event, alumni members interacted with popular Indian film director, Mr. Subhash Ghai, as he regaled them about his personal and professional journey.

One of the highlights of this Golden Jubilee reunion occurred when the Class of 1972 made a generous and substantial pledge towards the advancement of their alma mater. This contribution is part of the class's Legacy Project, an initiative started by IIT Bombay that sees its legacy batches supporting and implementing critical projects at the Institute.

The reunion concluded with the Class of 1972 enjoying a trip to the Yeoor Hills in Thane. The Institute is delighted with the continued support shown by its alumni and for inspiring the present and future generations at the Institute.



### **Team Nimbus from IIT Bombay from the Department of Energy Science & Engineering Place First in the International Switch Energy Case Competition 2022**

“Nimbus 2.0” – a team from the Department of Energy Science & Engineering secured the first prize and received \$10,000 in the International Switch Energy Case Competition 2022. The competition

was organized by Switch Energy Alliance, a Texas-based nonprofit organization, with support from Sempra and the Hildebrand Department of Petroleum and Geosystems Engineering at The University of Texas at Austin (PGE).

Over 140 teams from 15 countries participated in the competition and were tasked with developing a 30-year plan for improving energy access and reliability in countries like Colombia, Ghana, and Myanmar. IIT Bombay's team comprising Ph.D. students Mr. Shivam Kumar and Ms. Roopmati Meena and DD students, Ms. Srushti Bhamare and Ms. Shruti Prajapati, worked on energy poverty issues in Ghana and won the finale where the top 5 teams presented their projects to a live audience and a 3-member jury.



### **IIT Bombay hosts Conclave on Procurement for All IITs**

IIT Bombay organised a first-of-its-kind two-day Procurement Conclave for officers handling procurement of all IITs at the Institute campus on November 18 and 19, 2022. Officers from 15 IITs took part in the conclave along with officials from the Ministry of Finance and Government e-Marketplace (GeM) as

guest speakers.



### **IIT Bombay Commemorates Birth Anniversary of Sardar Vallabhbhai Patel by Observing National Unity Day (Rashtriya Ekta Diwas)**

IIT Bombay commemorated the birth anniversary of the Iron Man of India, Sardar Vallabhbhai Patel, by observing National Unity

Day (Rashtriya Ekta Diwas) on October 31, 2022. An exhibition depicting the life and activities of Sardar Vallabhbhai Patel was organised at the same venue.

As part of the Rashtriya Ekta Diwas celebrations, the Institute also organised a Vigilance Awareness Week from October 31-November 06, 2022. This year's theme was "Corruption-Free India for a Developed Nation." IIT Bombay's staff undertook a pledge to promote integrity in public life and achieve a corruption-free society. They pledged to foster a culture of honesty and integrity and to remain committed to good corporate governance-based transparency, accountability, and fairness. The 'Rashtriya Ekta Diwas Pledge' and 'Integrity Pledge' was administered to employees of IIT Bombay in Hindi by Mr. C.P. Joglekar, Deputy Registrar (Human Resources-I) and in English by Dr. K.V. Reghuthaman, Joint Registrar-Human Resources, HR-2 (HCM) Section, IIT Bombay, at the ground floor foyer of IIT Bombay's Main Building.

The Vigilance Cell of IIT Bombay also organised an essay-writing competition for the campus community on the topic "Corruption Free India: Steps Ahead for Developed India".



As part of the celebrations, the Institute conducted a 'Unity Run' on October 31, 2022, on the Institute campus. Enthusiastic students, staff & faculty participated in the event and made it a huge success.



### **IIT Bombay hosts alumnus Amit Dixit, Head of Asia Private Equity and Blackstone**

IIT Bombay was pleased to host its alumnus, Mr. Amit Dixit (B.Tech., Civil Engineering, 1995), Head of Asia Private Equity at Blackstone, whose generous contribution led to the establishment of the first woman faculty chair at the Institute. The Chair named the "Shobha Dixit Chair Professorship" in honour of Mr. Dixit's mother was set up to recognise and provide opportunities to outstanding women faculty members.

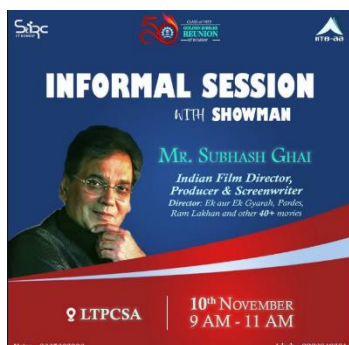
During his visit, Mr. Dixit was introduced to Prof. Chandra Venkataraman, Department of Chemical Engineering, and founding convener of the Interdisciplinary Programme in Climate Studies (IDPCS), at IIT Bombay. Prof. Venkataraman was appointed to this prestigious woman faculty chair and has been leveraging her expertise in Chemical Engineering to contribute to the advancement of Climate Studies at the Institute. Mr. Dixit, along with his colleagues from Blackstone who are also IITB alums, interacted with Prof. Venkataraman and learned about her exceptional research work over the past year. He also met and interacted with Prof. Ravindra Gudi, Dean, Alumni and Corporate Relations, as they engaged in a spirited and insightful discussion about the unique ways in which IIT Bombay can continue to create societal impact and contribute towards nation-building.

Mr. Dixit concluded his visit to the campus with a meet-and-greet with Prof. Subhasis Chaudhuri, Director, IIT Bombay, and Prof. S. Sudarshan, Deputy Director (Academic and Infrastructural Affairs).



## IIT Bombay and SARC Hold Innovation Exhibition 2022

On the occasion of the Golden Jubilee reunion of the 1972 batch, SARC organised the Innovation Exhibition 2022. The occasion saw exhibits ranging from projects created by teams of students and professors from IIT Bombay's various technical labs to startups that are currently being or have previously been incubated at IIT Bombay. A bird's-eye perspective of all the ground-breaking research and entrepreneurship carried out in our institute was provided via the Innovation Exhibition. Students also had the chance to interact and network with an entire batch of alumni.



## IIT Bombay and SARC host an Informal Session with Bollywood's Showman

SARC hosted its 'Informal Session with Showman' during the Golden Jubilee reunion of the Class of 1972. The guest for this session was Mr. Subhash Ghai, one of India's most well-known and prominent film directors, producers, and screenwriters. After his talk, alumni and Mr. Ghai had an informal meet-and-greet with current students.

## UPCOMING EVENTS



## Last Hurrah of Hostel 8

IIT Bombay will celebrate the last hurrah of its beloved Hostel 8 as it is making way for Project Evergreen. The Institute will celebrate our alumni's memories of their joyous times spent at Hostel 8.

Please register at this link if you'd like to be a part of IIT Bombay's history: <https://www.iitbombay.org/e/last-hurrah-of-hostel-8>

Contact: Gaurav Shinde

Email: [gaurav.iitbaa@iitbombay.org](mailto:gaurav.iitbaa@iitbombay.org)

Phone: +91 9167490177

Day & Date: December 15, 2022

Time: 10.00 am onwards

Venue: IIT Bombay Campus



## Golden Jubilee Reunion Class of 1971 (GJRU 1971)

IIT Bombay will celebrate the Golden Jubilee Reunion Class of 1971 between December 16 – December 18, 2022. The class of 1971 will return to campus and relive their glorious student days, take in the myriad changes on campus, and renew their friendships with old and new batchmates and current members of the IIT Bombay community.

Register here: <https://www.iitbombay.org/e/golden-jubilee-reunion-class-of-1971>

Day & Date: Fri, Dec 16, 2022, to Sun, Dec 18, 2022

Time: 06:00 pm IST (Dec 16) to 01:00 pm IST (Dec 18)

Venue: PC Saxena Auditorium, Academic Section, IIT Bombay Campus



## Inauguration of the Deepak and Maya Satwalekar Lab

The Deepak and Maya Satwalekar Lab has been set up through the generous contribution of our Distinguished Alumnus, Mr. Deepak Satwalekar [B.Tech. (Hons.), Mechanical Engineering, 1971]. This first-of-its-kind initiative at the Institute will train students to combat and overcome challenges found in real-world industrial

setups, through a multidisciplinary course. This Lab forms an essential part of the Institute's larger Makerspace program that envisions providing a comprehensive education to students through exposure to hands-on learning that will complement and strengthen theoretical concepts. This critical project will provide a boost to the Institute's endeavour of revamping its entire curriculum, in line with the National Education Policy that stresses the importance of experiential-based learning.

Day & Date: December 19, 2022

Time: 5.30 pm onwards

Venue: Pre-Engineered Building (Transit), IITB campus



## Silver Jubilee Reunion Class of 1997

IIT Bombay will celebrate the Silver Jubilee Reunion Class of 1997 (SJRU 1997) between December 23, 2022, to December 25, 2022. IIT Bombay invites the class of 1997 to re-visit the campus and re-acquaint themselves with former batchmates and peers during the SJRU celebrations. It is a once-in-a-lifetime for alumni to return to their beloved alma mater after a quarter of a century and express their views on their alma mater's future direction.

Register here: <https://www.iitbombay.org/e/silver-jubilee-reunion-class-of-1997>

Day & Date: Fri, Dec 23, 2022, to Sun, Dec 25, 2022

Time: 03:30 pm IST (Dec 23) to 02:00 pm IST (Dec 25)

Venue: IIT Bombay, Main Gate Rd, IIT Bombay Campus



## Alumni Day Celebrations

IIT Bombay will celebrate its annual alumni day on December 25, 2022. All of IIT Bombay's alumni are invited to come by and reminisce about their times spent on campus and share their memories of their favourite institute. A series of events will be held for alumni and their family members during the celebration.

Day & Date: December 25, 2022

Time: 10.30 am onwards

Venue: VMCC - Nag Auditorium / IITB Campus



## Silver Jubilee Reunion Class of 1995

IIT Bombay will celebrate the Silver Jubilee Reunion Class of 1995 (SJRU 1995) between December 26, 2022, to December 28, 2022. IIT Bombay invites the class of 1995 to re-visit the campus and re-acquaint themselves with former batchmates and peers during the SJRU celebrations. Visiting their alma mater after 25 years and sharing their thoughts and ideas on the future of their alma mater

will be a once-in-a-lifetime opportunity for alumni.

Register here: <https://www.iitbombay.org/e/silver-jubilee-reunion-class-of-1995>

Contact:

Gaurav Shinde

Email: [gaurav.iitbaa@iitbombay.org](mailto:gaurav.iitbaa@iitbombay.org)

Phone: +91 9167490177

Rama Nair

Email: [rama.iitbaa@iitbombay.org](mailto:rama.iitbaa@iitbombay.org)

Phone: +91 8369790148

Day & Date: Fri, Dec 26, 2022, to Sun, Dec 28, 2022

Time: 03:00 pm IST (Dec 26) to 01:00 pm IST (Dec 28)

Venue: IIT Bombay, Main Gate Rd, IIT Bombay Campus



## Diamond Jubilee Reunion Class of 1962

The first batch of IIT Bombay – Class of 1962 – will celebrate the Diamond Jubilee of its graduation in a virtual format on December 30, 2022. Prof. Subhasis Chaudhuri, Director, IIT Bombay, and Prof. Ravi Gudi, Dean ACR, will be

part of this historic celebration. The Institute invites the class of 1962 to reconnect with their batchmates and peers, reminisce with old and new friends, and celebrate this milestone event.

Register at: <https://www.iitbombay.org/e/diamond-jubilee-reunion-class-of-1962>

Day & Date: December 30, 2022

Time: 7:30 to 9:30 pm IST

Venue: Virtual on Zoom

## RESEARCH SPOTLIGHT OF THE MONTH



### **Metabolic and Immune-sensitive Contacts between Lipid Droplets and Endoplasmic Reticulum Reconstituted In Vitro**

By Sukrut Kamerkar, Jagjeet Singh, Subham Tripathy, Hemangi Bhonsle, Mukesh Kumar, and Roop Mallik

The following article was originally written for the IIT Bombay website by Mr. G. M. Manohar (<https://www.iitb.ac.in/en/research-highlight/lipid-travel-diary>)

The original scientific paper is published here: <https://www.pnas.org/doi/abs/10.1073/pnas.2200513119>

A team of researchers from the Indian Institute of Technology Bombay, Mumbai (IIT Bombay) and the Tata Institute of Fundamental Research (TIFR), Mumbai, published a new study in the Proceedings of the National Academy of Sciences (PNAS).

New research identifies specific molecules that mediate the transport of lipids inside a cell and to the bloodstream. A typical cell in the human body is filled with a fluid called cytoplasm and has a nucleus and several other organelles. Suspended inside the cytoplasm are lipid droplets—vesicles or sacs made of lipid molecules, just like oil droplets. Another organelle, the endoplasmic reticulum (ER), is an interconnected web of the tubular network surrounding the cell's nucleus. The paper observes that lipid droplets fuse with or attach to the ER inside the cells of the liver after an animal consumes food, and also during bacterial infection. The study identifies the molecules that mediate this contact. These findings could help further studies directed at reducing lipid levels in the blood, a topic of interest because excess lipids can cause obesity, diabetes, and cardiac problems.

How is the lipid, hidden away inside lipid droplets, released into the blood from the liver? After one consumes food, glucose levels in the blood rise, thus boosting insulin production. Insulin activates a protein called Kinesin to bind to lipid droplets. Kinesin acts as a railway engine and chugs the lipid droplets to the vicinity of the ER on molecular tracks made of protein filaments.

The lipid droplet then delivers its load of lipids to the ER and can, in turn, also receive a cargo of antibacterial proteins from the ER.

Though it was known from the work of the same researchers how the lipid droplets commute towards the endoplasmic reticulum, the conditions under which they fuse with ER and the molecular players that facilitate this fusion were not known. Here the researchers focused on the events after the lipid droplet had entered the vicinity of the ER. It is challenging to observe such phenomena inside most tissues, including the liver. To mimic natural conditions, the researchers used fragments of the ER from the liver of rats. They deposited the ER fragments on a microscope slide in the form of a membrane that mimics the ER and was named the microsomal supported lipid bilayer (mSLB). The team also isolated lipid droplets from the same liver cells and used them to study lipid droplet binding to the mSLB. Only 20% of lipid droplets were bound to the mSLB when the samples were from the liver of a fasted rat, whereas 80% of lipid droplets were bound in the case of fed rats.

In the fasting condition, the lipid droplets pile up inside the liver cells as much as ten times the normal level, which avoids dumping all these lipids into the ER, which otherwise would eventually reach the bloodstream. “The consequence could be disastrous if these toxic lipids were to collect inside the heart tissue from the bloodstream every time we fast,” says Prof. Roop Mallik, who led the research.

In a second experiment, they injected Lipopolysaccharide into the rat to simulate bacterial infection and activate the immune system. Again, they found that immune activation drastically increased the binding of lipid droplets to the mSLB (from 20% to 70%). The ER is the factory inside cells where proteins are made. “It is likely that interaction with the ER is needed for lipid droplets to acquire antibacterial proteins that were synthesised on the ER, and then the lipid droplets use these proteins to kill bacteria,” says Prof Mallik.

The researchers also identified the key lipid molecule involved in such contacts, called Phosphatidic acid (PA). To find the role of PA, they varied the amount of PA on the lipid droplets by mixing it with another lipid called Phosphatidylcholine (PC) and tested the binding capacities of lipid droplets with the mSLBs. They found that the lipid droplets containing PA bind strongly and more in number to the mSLB than the ones without PA, suggesting that PA on the lipid droplet is essential for the binding of droplets to the ER.

PA is an unusual lipid molecule with a conical shape. PA is also known to recruit other proteins (like Kinesin) necessary for the binding and translocation of the lipid droplet to the ER. The lipid droplet is spherical and has to attach to the endoplasmic reticulum, which has a flat surface. At the points of contact between the lipid droplet and the flat ER, the spherical membrane of the droplet will have to bend outward to merge with the flat ER membrane. Bending can be facilitated if the lipid molecules are conical in shape (PA) instead of the rod-shaped regular lipid molecules.

When binding between cell organelles goes wrong, it may lead to diseases such as Alzheimer's and Parkinson's. The researchers hope that the understanding gained in their study about the binding mechanism between lipid droplets and ER could help understand such diseases. It may be possible to interfere with the binding of lipid droplets too. The researchers are currently working to block the binding of Kinesin to lipid droplets inside the liver. However, the constraint is that it has to be done in a way without affecting Kinesin binding to other organelles (non-lipid droplets). If this is successful, lipid delivery to the ER and then into the bloodstream can be reduced. "We want to test if such interventions can benefit patients with high levels of lipids in their blood (serum triglycerides), who are susceptible to heart attack," says Prof Mallik highlighting the direction this study can provide. *Metabolic and Immune-sensitive Contacts between Lipid Droplets and Endoplasmic Reticulum Reconstituted In Vitro*

By Sukrut Kamerkar, Jagjeet Singh, Subham Tripathy, Hemangi Bhonsle, Mukesh Kumar, and Roop Mallik

The following article was originally written for the IIT Bombay website by Mr. G. M. Manohar (<https://www.iitb.ac.in/en/research-highlight/lipid-travel-diary>)

The original scientific paper is published here: <https://www.pnas.org/doi/abs/10.1073/pnas.2200513119>

A team of researchers from the Indian Institute of Technology Bombay, Mumbai (IIT Bombay) and the Tata Institute of Fundamental Research (TIFR), Mumbai, published a new study in the Proceedings of the National Academy of Sciences (PNAS).

New research identifies specific molecules that mediate the transport of lipids inside a cell and to the bloodstream. A typical cell in the human body is filled with a fluid called cytoplasm and has a nucleus and several other organelles. Suspended inside the cytoplasm are lipid droplets—vesicles or sacs made of lipid molecules, just like oil droplets. Another organelle, the endoplasmic reticulum (ER), is an interconnected web of the tubular network surrounding the cell's nucleus. The paper observes that lipid droplets fuse with or attach to the ER inside the cells of the liver after an animal consumes food, and also during bacterial infection. The study identifies the molecules that mediate this contact. These findings could help further studies directed at reducing lipid levels in the blood, a topic of interest because excess lipids can cause obesity, diabetes, and cardiac problems.

How is the lipid, hidden away inside lipid droplets, released into the blood from the liver? After one consumes food, glucose levels in the blood rise, thus boosting insulin production. Insulin activates a protein called Kinesin to bind to lipid droplets. Kinesin acts as a railway engine and chugs the lipid droplets to the vicinity of the ER on molecular tracks made of protein filaments.

The lipid droplet then delivers its load of lipids to the ER and can, in turn, also receive a cargo of antibacterial proteins from the ER.

Though it was known from the work of the same researchers how the lipid droplets commute towards the endoplasmic reticulum, the conditions under which they fuse with ER and the molecular players that facilitate this fusion were not known. Here the researchers focused on the events after the lipid droplet had entered the vicinity of the ER. It is challenging to observe such phenomena inside most tissues, including the liver. To mimic natural conditions, the researchers used fragments of the ER from the liver of rats. They deposited the ER fragments on a microscope slide in the form of a membrane that mimics the ER and was named the microsomal supported lipid bilayer (mSLB). The team also isolated lipid droplets from the same liver cells and used them to study lipid droplet binding to the mSLB. Only 20% of lipid droplets were bound to the mSLB when the samples were from the liver of a fasted rat, whereas 80% of lipid droplets were bound in the case of fed rats.

In the fasting condition, the lipid droplets pile up inside the liver cells as much as ten times the normal level, which avoids dumping all these lipids into the ER, which otherwise would eventually reach the bloodstream. "The consequence could be disastrous if these toxic lipids were to collect inside the heart tissue from the bloodstream every time we fast," says Prof. Roop Mallik, who led the research.

In a second experiment, they injected Lipopolysaccharide into the rat to simulate bacterial infection and activate the immune system. Again, they found that immune activation drastically increased the binding of lipid droplets to the mSLB (from 20% to 70%). The ER is the factory inside cells where proteins are made. "It is likely that

interaction with the ER is needed for lipid droplets to acquire antibacterial proteins that were synthesised on the ER, and then the lipid droplets use these proteins to kill bacteria,” says Prof Mallik.

The researchers also identified the key lipid molecule involved in such contacts, called Phosphatidic acid (PA). To find the role of PA, they varied the amount of PA on the lipid droplets by mixing it with another lipid called Phosphatidylcholine (PC) and tested the binding capacities of lipid droplets with the mSLBs. They found that the lipid droplets containing PA bind strongly and more in number to the mSLB than the ones without PA, suggesting that PA on the lipid droplet is essential for the binding of droplets to the ER.

PA is an unusual lipid molecule with a conical shape. PA is also known to recruit other proteins (like Kinesin) necessary for the binding and translocation of the lipid droplet to the ER. The lipid droplet is spherical and has to attach to the endoplasmic reticulum, which has a flat surface. At the points of contact between the lipid droplet and the flat ER, the spherical membrane of the droplet will have to bend outward to merge with the flat ER membrane. Bending can be facilitated if the lipid molecules are conical in shape (PA) instead of the rod-shaped regular lipid molecules.

When binding between cell organelles goes wrong, it may lead to diseases such as Alzheimer’s and Parkinson’s. The researchers hope that the understanding gained in their study about the binding mechanism between lipid droplets and ER could help understand such diseases. It may be possible to interfere with the binding of lipid droplets too. The researchers are currently working to block the binding of Kinesin to lipid droplets inside the liver. However, the constraint is that it has to be done in a way without affecting Kinesin binding to other organelles (non-lipid droplets). If this is successful, lipid delivery to the ER and then into the bloodstream can be reduced. “We want to test if such interventions can benefit patients with high levels of lipids in their blood (serum triglycerides), who are susceptible to heart attack,” says Prof Mallik highlighting the direction this study can provide.