Grand Commencement 2023 Held For First Time

Union Minister for Education; Skill Development and Entrepreneurship Mr. Dharmendra Pradhan addressed the students online

Honoris Causa conferred upon Prof. Rohini Godbole

~ 2500 students (likely to graduate) attended the ceremony with their batchmates and family

Director of IIT Bombay Prof. Subhasis Chaudhuri addressing the students

IIT Bombay held **Commencement 2023** at the Institute's Convocation Hall on May 2, 2023. The Honourable Minister of Education; Skill Development and Entrepreneurship **Mr. Dharmendra Pradhan** graced the ceremony virtually as the Chief Guest and delivered the Commencement address. **Dr. Anil Kakodkar,** Chancellor, Homi Bhabha National Institute; Chairman, Rajeev Gandhi Science and Technology Commission and Member, Atomic Energy Commission graced the occasion as the Guest of Honour. The Chairperson, Board of Governors (BoG), IIT Bombay **Dr. Sharad Kumar Saraf** presided over the function in the presence of the Institute Director **Prof. Subhasis Chaudhuri**.

Commencement is a special event to be conducted once every year to gather all students likely to graduate. Here, "likely to graduate" is based on the year of joining and the normal duration of a program. It does not depend on the completion of any graduation requirements (such as courses and grades). Participating in the Commencement event does not mean that the student has graduated. The event is to be held soon after the end semester examinations of the 2nd semester before the graduating batch leaves the campus. This gives an opportunity for the entire graduating batch to celebrate their stay in the Institute along with their batchmates and also invite their family and friends to the campus to partake in the joy. The event is similar to the traditional convocation ceremony: uniformly dressed students, academic procession, Chief Guest and Director address, photo-op with the Director and a pledge. However, it will be devoid of conferring degrees, medals, or special awards to the students, since they are yet to complete the requirements of graduation.

Chief Guest Mr. Dharmendra Pradhan addressing the audience virtually

Addressing the students virtually, the Chief Guest **Mr. Dharmendra Pradhan** said, *"IIT should not be merely an educational Institute but become a laboratory of public welfare 'Lok-Kalyan'. IIT must be the hub of entrepreneurship. The students must aspire to be job creators, not just job seekers. There should be zero tolerance for discrimination of any form. IITians must become the face of the new India with no discrimination. The main purpose of our education is to serve our society. I ask all the students and alumni to help the children from rural backgrounds around you to get into IITs. This will be your 'Vidya Daan', your Vidyanjali to your society,"* he said.

In his address to the students, Guest of Honour **Dr. Anil Kakodkar** said, *"The India growth story has three dimensions:*

Guest of Honour Mr. Anil Kakodkar addressing the audience

- *Ensuring security, so that most Indians can continue their lives, continue their contributions to the society and the country in peace, not deterred by security issues both internal and external*

- *Economic prosperity and per capita income of the country should become comparable with the developed country*

- *Human wellness in all its dimensions. We should try to achieve the best possible standards in terms of human wellness".*

Presenting the Institute's Report for the year 2022-23, **Prof. Subhasis Chaudhuri**, Director of IIT Bombay informed that IIT Bombay continues to be the top-ranked university in the country and among the best in the world and it continues to be the much sought-after destination for UG and PG studies. The donations from alumni in India for the first time topped the donations from abroad.

Wishing the graduating students the best in life, **Prof. Chaudhuri** said, *"The education you have received at IIT Bombay is comparable to the best in the world and you are now ready to take greater challenges and overcome them. Continue to develop your knowledge and skills and always keep in mind how you can help our society and the nation through your work. I wish you all the success in your future endeavours".*

"IIT Bombay has introduced this event 'Commencement' for the first time starting today so that you celebrate your journey through IIT Bombay along with all your batch-mates and family members while you embark on a new phase in your life," he said.

The degree of Doctor of Science (Honoris Causa) was bestowed on **Prof. Rohini Godbole**, Honorary Professor, Centre for High Energy Physics, IISc Bangalore, in recognition of her immense contribution to particle physics and the promotion of science.

Prof. Rohini Godbole, Honorary Professor, Centre for High Energy Physics, IISc Bangalore, while being bestowed with the degree of Doctor of Science (Honoris Causa)

In the afternoon session, about 2500 students who are likely to graduate, were invited for a photo opportunity with the Director on the dais. The students include (approx.) 1200 undergraduates, 1000 postgraduates and 300 PhDs.

Members of the Board of Governors and several other distinguished guests from India and abroad attended the Commencement 2023, besides the graduating students and their parents.

The function was broadcast live on: https://www.youtube.com/c/IITBombayOfficialChannel

Students taking pledge during Commencement 2023 ceremony

IIT Bombay Celebrates International Day of Yoga 2023

The International Day of Yoga is held on June 21 every year worldwide to create awareness about the various benefits of practising yoga. IIT Bombay commemorated the 9th International Yoga Day this year on June 21, 2023. Around 200 people participated. Many took on the yogathon challenge of performing 108 rounds of Suryanamaskar, and most succeeded. Yogastha, IIT Bombay hosts a variety of yoga sessions, workshops, lectures and contests throughout the year. **Dr. Deepak Sachdeva**, Founder and Director of Medical Yoga Centre was the Chief Guest on the occasion.

49 NCC cadets of KV IIT Powai (Unit-2 MAH ENGR REGT) also celebrated International Yoga Day 2023. Trained yoga instructors from Ambika Yog Kutir **Mrs. Sandhya**, **Mrs. Janki**, **Mrs. Susheela** and teachers

Mr. SK Wale and **Mrs. B Lavanya** guided the cadets. The session started with prayer and chanting of AUM and concluded with prayer. Under their supervision, the cadets performed different aasanas and pranayama. The instructors made the cadets aware of the importance of physical, mental fitness and role of yoga asanas, meditation and pranayama.

IIT Campus School & Junior College also celebrated Yoga Day celebration under the guidance of Principal **Mrs. Valsala Kumari**, Vice Principal **Mrs. Geeta Shewde** and Primary Incharge **Mrs. Anita Hiregange**. The event aimed to raise awareness about the benefits of yoga and encourage students to incorporate it into their daily lives. Students and teachers of KG School also celebrated International Yoga Day 2023.

Below are the various glimpses of the IDY 2023 celebrations :

(From L to R) Mr. Harish K Pillai (Incharge, Students Activity Centre), Prof. Atul Srivastava (Associate Dean, Student Affairs), Prof. S. V. Kulkarni (Dean, Administrative Affairs), Dr. Deepak Sachdeva (Founder and Director, Medical Yoga Centre), Mr. Ganesh Bhorkade (Registrar, IIT Bombay), Prof. Neeraj Kumbhakarna (Faculty Advisor, Yogastha) along with other Yogastha team members and volunteers

IIT Bombay In Top 5 NIRF Rankings 2023

On June 5, 2023, the Ministry of Education released the **National Institutional Ranking Framework (NIRF) 2023** rankings.

IIT Bombay has been ranked fourth in the overall category, third in engineering, tenth in management, fourth in research, and seventh in the newly added category of 'innovation'.

Hon'ble Minister of State for Education and External Affairs, New Delhi, Dr. Rajkumar Ranjan Singh (C) felicitating Director Prof. Subhasis Chaudhuri with the certificate and a trophy - NIRF Ranking 2023

SANGAM Conference 2023

The first annual **Summit of Academia Networking with Government, Allied Health Workers, and Medical Professionals (SANGAM) Conference** in 2023 took place during June 2-3, 2023 at the IIT Bombay campus. The event was organized in partnership with the Maharashtra University of Health Sciences (MUHS) and the Government of Maharashtra.

SANGAM 2023 saw the participation of 70 speakers and 220 registrants from all over the country as well as from international institutions. It offered a unique opportunity and platform to key stakeholders of the healthcare sector through networking, knowledge exchange and a focus on innovation ultimately aiming to establish solutions for an effective healthcare system.

On Day 1, there were keynote speeches, panel discussions and poster presentations touching upon issues like the Global Impact of the Pandemic; Climate Change Implications for Public Health and Nutrition; Tackling

(From L to R) Prof. Satish Agnihotri (CTARA, IIT Bombay), Prof. Subhasis Chaudhuri (Director, IIT Bombay), Ms. Sujata Saunik, IAS, Dr. Mrudula A. Phadke (Visiting Scientist and Former Director of Haffkine Institute of Training), Dr. Subhash Hira (Professor Global Health at University of Washington), Lt Gen Madhuri Kanitkar (Retd) (Vice-Chancellor, Maharashtra University of Health Sciences), Prof. Sarthak Gaurav (SJMSOM, IIT Bombay)

Health Inequality; Addressing Non-Communicable Diseases; Emerging Challenges in Population Health; Mental Health Registries; among others.

On Day 2, presentations and vibrant panel discussions took place on topics including Predictive Analytics in Value-Based Care; Scaling Up Immunization Vaccination; Infectious Diseases and Vaccine-Preventable Diseases; Mosquito Pacification; Nephrology Advancements; Digital Health Innovations; Spatial Informatics in Healthcare; Cancer Registries; Public Health Dashboards and several others.

IIT Bombay's Koita Centre For Digital Health Officially Launched

Digital Health offers immense potential to transform India's healthcare landscape by increasing accessibility, lowering costs and enabling personalised, data-driven approaches in the entire healthcare value chain. IIT Bombay is committed to furthering India's digital health revolution through its deep research expertise and technology-driven solutions. As part of this endeavour, the Institute announced the establishment of the **Koita Centre for Digital Health (KCDH)** in June 2021. The Centre is focused on driving academic programs, research, and industry collaborations in this space. Overcoming pandemic-induced hurdles, the Institute unveiled the Centre in an inaugural event held on April 17, 2023.

The first-of-its-kind in India, KCDH has been generously funded by the Koita Foundation, formed by IIT Bombay's Distinguished Alumnus and Co-founder of CitiusTech, **Mr. Rizwan Koita** *(B.Tech., Electrical Engineering, 1992*) and Distinguished Service Awardee **Ms. Rekha Koita** (*B.Tech., Metallurgical Engineering and Materials Science, 1992)*. With their generosity, guidance and involvement, Mr. Rizwan and Ms. Rekha have played an integral role in the formation and quick growth of the Centre since its inception.

The inaugural event also witnessed a symposium that brought together thought leaders and researchers in technology and healthcare from the hospitals, government, academia and industry. The panelists presented their views on how digital solutions can transform healthcare in India, with some of the dominant themes being: managing large healthcare data sets, use of advanced technologies like AI/ ML in personalized medicine, disease modeling for public health, the importance of local innovation in digital health and the need for nation-wide capacity building in digital health.

The Centre envisions playing a leading role in digital health and informatics and is aligned with India's Ayushman Bharat Digital Mission (ABDM) which aims to "develop the backbone necessary to support the integrated digital health infrastructure of the country".

The Centre is pursuing research in areas of healthcare applications, data management, analysis and AI/ ML, consumer health and telemedicine, computational biology and bioinformatics, and population health and public health policy. Further information on the research projects can be found at: https://www.kcdh.iitb.ac.in/research/

Over the past two years, KCDH has established partnerships with several entities including the National Health Authority (NHA), Maharashtra University of Health Sciences (MUHS), Bill and

(From L to R) Mr. Rizwan Koita (B.Tech., Electrical Engineering, 1992), Lt Gen Madhuri Kanitkar (Retd) (Vice-Chancellor, Maharashtra University of Health Sciences), Ms. Rekha Koita (B.Tech., Metallurgical Engineering and Materials Science, 1992) during launch of Koita Centre For Digital Health

Melinda Gates Foundation, UNICEF, Johns Hopkins University, AIIMS, Bajaj Health, ICICI Lombard, Tata Memorial Hospital and many other healthcare organisations.

Speaking about the Centre, **Prof. Subhasis Chaudhuri,** Director, IIT Bombay said, *"India continues to face unique disease patterns and challenges related to healthcare delivery. Our country is in dire need of smart, effective and affordable healthcare solutions. With the establishment of the Koita Centre for Digital Health, IIT Bombay has taken a monumental leap in its resolve to create a robust ecosystem for digital healthcare in India. I am confident that our students and faculty will leverage this Centre to create a profound impact in the healthcare space. I am deeply grateful to our alumni Mr. Rizwan and Ms. Rekha Koita and the Koita Foundation, for their generous contribution towards this Centre".*

(First from right) Mr. Rizwan Koita (B.Tech., Electrical Engineering, 1992), (Second from right) Ms. Rekha Koita (B.Tech., Metallurgical Engineering and Materials Science, 1992) with other Koita Foundation delegates and Institute functionaries

IIT Bombay Inaugurates Its Centre For Machine Intelligence And Data Science

The Centre has been set up with a vision to provide technology and thought leadership in Machine Intelligence and Data Science through teaching, research, academic outreach and industry collaboration.

Machine intelligence and data sciences are redefining the landscape in many fields. Businesses and society at large, are finding new ways to use cases for MI and DS across a wide swathe of areas: healthcare, financial services, education, transportation, manufacturing, energy optimisation and climate change. The Centre for Machine Intelligence and Data Science (C-MInDS) at IIT Bombay is committed to furthering its mission of being the thought and technology leader through impactful teaching, research, academic outreach and industry collaboration. Set up in 2020, the physical space of this Centre was unveiled during an inaugural ceremony held on campus on April 28, 2023. C-MInDS shall be temporarily housed at IIT Bombay's Kanwal Rekhi School of Information Technology (KReSIT).

The inauguration event was presided over by Chief Guest **Dr. Samir Kamat,** Secretary, Department of Defence R&D and Chairman, Defence Research and Development Organisation (DRDO). The event included a two-day *"AI Impact Workshop,"* that brought together thought leaders and experts across academia, industry, defence and government to discuss AI/ ML applications in diverse fields including defence, engineering and manufacturing amongst others during April 28-29, 2023.

The establishment of C-MInDS is a unique alumni-led initiative that saw several of IIT Bombay's alumni coming together and contributing to this facility. The Centre has been set up through the generous contributions of several donors: **Mr. Mohan Lakhamraju,** Founder and CEO, *Great Learning* and Vice Chairman, *Great Lakes Institute of Management*; **Mr. Kashyap Deorah**, Founder and CEO, *HyperTrack*; **Ms. Shruti Mahajan Deorah,** Director, *India Energy and Climate Center*, *Goldman School of Public Policy, UC Berkeley*; **Mr. Arpit Mathur,** Portfolio Manager, *Segantii Capital Management*; **Mr. Beerud Sheth,** Co-Founder, *Gupshup*; **Mr. Shariq Rizvi**, Executive Vice President of Monetization, *Reddit*; **Mr. Varun Kacholia,** Co-Founder and CTO, *eightfold.ai*; **Dr. Shashidhar Thakur**, Vice President and General Manager, Consumer Shopping, *Google*; **Mr. Rohit Karnik**, Professor, *Massachusetts Institute of Technology*; **Mr. Abhinandan Das,** Senior Director of Engineering at *Google*; **Mr. Vijay Krishnan**, Founder and CTO, *Turing*. Vijay Krishnan's company *Turing.com* has also contributed towards the Centre.

C-MInDS will be IIT Bombay's nodal point for collaborations with industry and government on AI/

(From L to R) Mr. Arpit Mathur, (B. Tech & M.Tech, Computer Science, 2006), Mrs. Vijaya Lakshmi (Hon'ble donor of CMInDS), Mr. Mohan Lakhamraju (Founder and CEO, Great Learning and Vice Chairman, Great Lakes Institute of Management) inaugurating Centre For Machine Intelligence And Data Science

ML-related challenges. The Centre will leverage the Institute's talented pool of faculty and students to provide expertise in this field.

Currently, more than 70 faculty from 18 different academic units at IIT Bombay are associated with the Centre, providing fertile grounds for interdisciplinary research. C-MInDS envisions facilitating collaboration with engineering faculty, international institutions and the Centre for Policy Studies (Ashank Desai Centre for Policy Studies) on policy issues and opportunities in industry consultation and projects.

Learn more about it here:
https://www.minds.iitb.ac.in/academics
https://www.minds.iitb.ac.in/research/research-areas

C-MInDS resolves to enable enriching opportunities for students for internships and postdocs in AI/ ML companies around the world. As part of this endeavour, the Centre proposes to establish multiple domain-specific labs (that will engage in research in their respective areas) with industrial partners looking for disruptive solutions. In addition, C-MInDS will leverage IIT Bombay's E-CELL, SINE, IDC and the IRCC to provide the necessary ecosystem for evolving breakthrough start-ups.

Speaking about the Centre, **Prof. Subhasis Chaudhuri,** Director, IIT Bombay said, *"IIT Bombay is home to exceptional faculty and budding researchers who have been recognised globally for their work in AI/ ML and related domains. They also have significant industrial experience and a deep understanding of industrial applications and impact. In the global race to develop AI with wide-ranging use cases, IIT Bombay is uniquely positioned to lead from the front. I am confident that C-MInDs will play an integral role in this endeavour. I am immensely grateful to all our alumni donors for their generous support that has further strengthened our resolve".*

IIT Bombay Hosts Annual CSR Conclave 2023

IIT Bombay hosted the second edition of its annual CSR Conclave 2023 on June 16, based on the theme **'Technology for Development'**.

Attended by over 150 top corporates from all over India, the event facilitated powerful dialogue and exchange of ideas to leverage technology for strategic national imperatives, economic and industrial development and last-mile impact.

A unique feature of the conclave was the **"Tech Showcase"** which saw our faculty presenting innovative technology initiatives by e-Yantra, the Wadhwani Research Centre for Bioengineering (WRCB), the Biomedical Engineering and Technology Innovation Centre (BETIC) and IIT Bombay's Makerspace program.

(From L to R) Prof. Pramod Wangikar (Department of Chemical Engineering), Ms. Rekha Koita (Co-founder, Koita Foundation), Mr. Pratyush Kumar Panda (Head ESG, LTIMindtree), Ms. Rema Mohan (Chief Executive Officer, National Stock Exchange Foundation), Mr. Ashwini Saxena (Chief Executive Officer, JSW Foundation) at the Annual CSR Conclave 2023, IIT Bombay

Another highlight of this year's Conclave was the impressive **"Tech Exhibit"**, presenting a range of groundbreaking technologies towards facilitating rural development, healthcare and environmental sustainability amongst others.

Exhibitors displaying their work at the "Tech Exhibit"

CBSE Principals Visit IIT Bombay

CBSE Principals during their visit to IIT Bombay

55 CBSE-affiliated school principals from across the country visited IIT Bombay for a '2-Day Exposure Visit' during May 11-12, 2023. The visit, organised by CBSE Department of Skill Education, exposed school principals to interactive learning techniques at IIT Bombay in context of National Education Policy.

IIT Bombay Organises Yuva Sangam Programme; 45 Students From Punjab Visit Mumbai

Yuva Sangam Punjab Team at Vidhan Sabha

Indian Institute of Technology Bombay, for the first time, welcomed 45 youth from Dr. B.R. Ambedkar National Institute of Technology Jalandhar, Punjab under **Ek Bharat Shreshtha Bharat (EBSB) 'Yuva Sangam'** campaign held during May 7-12, 2023. The youth delegation included 22 girls and 23 boys in the age group 18 to 30 years.

The Governor of Maharashtra **Mr. Ramesh Bais** addressed the delegates during an interaction session at Raj Bhavan on May 9, 2023. Besides, these students also visited the Bombay Stock Exchange, Chhatrapati Shivaji Terminus, Gateway of India, Vidhan Sabha, Kanheri Caves and other places of interest during their stay in Mumbai. The students also explored the campus of IIT Bombay. In addition, the Yuva Sangam delegates from Punjab played a friendly basketball match with IIT Bombay students displaying a spirit of sportsmanship and unity.

Yuva Sangam Team at Kanheri Caves, Sanjay Gandhi National Park, Mumbai

The exposure tour provided an immersive, multidimensional experience under five broad areas: *Paryatan (Tourism), Parampara (Traditions), Pragati (Development), Prodyogik (Technology) and Paraspar Sampark (People-to-people connect).*

The Yuva Sangam programme, launched by the Hon'ble Prime Minister of India, aims at strengthening people-to-people connect and building empathy among youth across the nation. It envisaged the participation of 1000 youngsters from 23 states & Union Territories of India. Maharashtra was paired with Punjab as part of this initiative. As a part of this programme, 35 youth from Maharashtra and 10 from Dadra-Nagar Haveli, Daman-Diu also travelled to NIT Jalandhar during May 12-19, 2023.

Hon'ble Governor of Maharashtra Mr. Ramesh Bias with the Yuva Sangam delegates from Punjab

DTE-IITB Collaborative Workshop Conducted At IIT Bombay

Various stakeholders from academia and government during DTE-IIT Bombay workshop

With the initiative of Hon'ble Minister, Higher and Technical Education Department (HTED), **Shri. Chandrakant Patil** and Principal Secretary (HTED) **Mr. Vikas Chandra Rastogi**, IIT Bombay, in association with the Directorate of Technical Education (DTE), Maharashtra State, organized a **DTE-IIT Bombay Workshop** during May 12-13, 2023.

Prof. Rajesh Zele, Department of Electrical Engineering, was the convener for the workshop and promoted collaborations between faculty members from IIT Bombay and government-funded engineering institutes in Maharashtra. The workshop also facilitated knowledge exchange and saw participation from around 60 representatives from 15 government-funded engineering institutes.

The Director of IIT Bombay, **Prof. Subhasis Chaudhuri,** in his opening remarks, stated that IIT Bombay hopes to facilitate collaborations with technical institutes in Maharashtra to have mutually beneficial programs. The Dean (Research and Development), IIT Bombay **Prof. Milind Atrey,** addressed the participants and enumerated the research and development work at IIT Bombay and several avenues of collaboration.

Dr. Vinod Mohitkar, Director, Technical Education, discussed the outcomes of the Technical Education Quality Improvement Programmes (TEQIP) schemes, in his address. He added that various IIT Bombay faculty members were instrumental in contributing to the same. The next goal is the implementation of Multidisciplinary Education and Research Improvement in Technical Education (MERITE) - expanding across more institutes in Maharashtra.

The workshop also provided a platform to showcase IIT Bombay's expertise in various areas, including educational outreach, IoT & IoE, Hydrogen storage, electrochemical energy storage materials for powering electric vehicles, computational fluid dynamics, high-performance computing, e-Yantra and Climate Studies among others.

The workshop featured presentations from various professors from IIT Bombay and included visits to the Advanced Mechanical Testing Facility, NanoBios Lab, Battery Prototyping Lab, IITB Nanofabrication Facility and the Environmental Science and Engineering Department.

The discussions on the second day of the workshop focused on the way forward on internships, research and development collaborations and training. It was suggested that IIT Bombay may provide professional training to faculty members of colleges, support for curriculum development and curriculum/ academic audit, internships for students, use of IIT Bombay infrastructure for students of colleges, start-up incubation and commercialization. Additionally, IIT Bombay professors can deliver expert lectures, provide mentorship and offer access to labs.

Mr. Vikas Rastogi, the Principal Secretary of the Department of Higher and Technical Education, Government of Maharashtra, addressed the participants in the concluding session.

Subsequently, the Dean (Strategy) at IIT Bombay **Prof. Krishna P. Kaliappan,** suggested a roadmap for future collaboration.

The DTE-IIT Bombay workshop was a significant initiative to promote collaboration among faculty members from IIT Bombay and technical education institutes in Maharashtra. The success of the workshop will pave the way for more such initiatives to promote collaboration and innovation in education and research in Maharashtra.

WiSE (Women in Science Engineering from Rural Parts of India) At IIT Bombay

WiSE delegates team along with Prof. Rajesh Zele (Department of Electrical Engineering) (First row (C)), IIT Bombay volunteers and the staff of respective schools

Science and Engineering disciplines in India are the most male-dominated fields. For K-10 education, there is almost equal participation from men and women. However, the ratio is highly skewed towards males for higher education, especially in rural parts of India. Many girls are encouraged to get married early and focus on the family instead of their careers. They choose disciplines such that they can work part-time while supporting family needs. Many girls will give up on higher education and leave the career path due to societal pressures.

As a part of the IIT Bombay outreach activity, a new program – **WiSE (Women in Science Engineering from Rural Parts of India)** was introduced under the leadership of **Prof. Rajesh Zele** from the Department of Electrical Engineering. The goal was to reach out to the girls studying in ninth grade from rural parts of India and get them excited about STEM. IIT Bombay will be mentoring them over a long term and helping them make wise decisions about their future and career choices. The Institute is keeping the teachers and parents involved throughout the process as it is vital for the long-term success of the program.

During the week of May 22, 2023, 160 girls accompanied by their science and math teachers arrived at IIT Bombay from 40 schools in the rural parts of Maharashtra, Bihar and Odisha. They got a feel for campus life at IIT by staying in Hostel 15 for a week. During the week, they had an intensive schedule from 9 AM to 7 PM for performing various activities. Over 70 student volunteers made sure that the entire program was executed flawlessly.

Each day started with an interactive discussion with Winspirers (Women Inspirers) from diverse backgrounds and professions. **Ms. Savita Dakle** inspired the girls with her story of going from failing 10th grade and being married off to now leading a million farmers all over India by providing insights online. **Ms. Sneha Kulkarni** took the girls on a gripping tale of her flight experiences as the first woman helicopter air force pilot. Psychologist **Dr. Minal Joshi** addressed mental health issues faced by adolescent girls, advising them through a detailed

WiSE delegates working with various electrical kits during the program

Q&A session. Microbiologist **Ms. Mugdha Belwalkar** conducted various enlightening chemistry experiments. **Ms. Manisha Giri** narrated her heart-wrenching journey of making a tradeoff between family and career to become a very successful Super 30 primary teacher. Math wizard **Prof. Sivganga Udhan** articulated how her love for math kept her going through challenging times. **Prof. Sandhya Sreekumar** and **Prof. Supriya Poduval Pal** helped break the stigma surrounding menstruation, encouraging young girls to speak up about this issue. **Dr. Zehra Husain** spoke about creating her own identity in a male-dominated field as the first woman neurosurgeon, also showing a recorded brain tumour removal surgery. **Ms. Valentina Grieco** came all the way from Milan, Italy, to have a conversation with the girls about her life experiences, exposing them to foreign cultures.

In the afternoon, each girl went through exciting hands-on BMP (Break-Make-Program it) experiences using the kits developed at *aiCAS Lab*, IIT Bombay. They gradually went from building a simple light bulb circuit to a complex FM radio in the first two days. Next, they built various sensor and actuator circuits controlled by a simple microprocessor, thus introducing them to programming. On the fourth day, the girls built a remote-controlled Rover Robot from scratch. This involved mechanical as well as electronic engineering creating a lot of excitement among the girls. The grand finale was building a small drone each girl got to fly. Seeing the euphoria on the girls' faces as they got to fly the drones that they built with their own hands was truly priceless.

Each girl got to experience Virtual Reality (VR) using a state-of-the-art VR headset. At the end of the day, the girls learnt how to solve the Rubik's Cube from one of India's top speedcubers. A majority of the girls were able to solve the cube within five minutes.

As a token of appreciation to everyone who made the WiSE Program possible, the girls organized a felicitation ceremony with a talent show. They gifted personalized artwork to each contributor.

To ensure the long-term success of the girls, IIT Bombay students will mentor and follow up with them via online platforms. Every quarter, we will conduct online meets with the students, teachers and parents. All the technical kits used by the girls throughout the program will be provided to the parent schools so that the girls can create a local impact.

The WiSE program will be conducted annually with different schools from rural parts to fulfil the ambitions of the National Education Policy (NEP) to curtail the dropout rates of Socio-Economically Disadvantaged Groups (SEDGs).

This program was sponsored by *IEEE Circuits and Systems Society, Tecnimont Pvt. Ltd., Eastman* and *IIT Bombay Institute of Eminence (IOE) Outreach* Initiative.

Prof. Rajesh Zele (Department of Electrical Engineering) guiding the WiSE delegates

Ms.Valentina Grieco (Corporate Social Responsibility Coordinator & Winspirer at WiSE programme, Maire Tecnimont Foundation) and Prof. Rajesh Zele (Department of Electrical Engineering) with a thanks token created by the WiSE delegates

Two-Day International Climate Research Conclave (ICRC-2023) Held At IIT Bombay

(From L to R) Prof. Subimal Ghosh (Convener, Interdisciplinary Program in Climate Studies and Professor, Department of Civil Engineering), Dr. Akhilesh Gupta (Secretary, SERB, Department of Science and Technology), Dr. Srivari Chandrasekhar (Secretary, Department of Science and Technology), Dr. M. Ravichandran (Sercretary, Ministry of Earth Sciences) and Prof. Subhasis Chaudhuri, Director of IIT Bombay

The Ministry of Earth Sciences (MoES) and the Department of Science and Technology (DST) organised a **two-day International Climate Research Conclave (ICRC-2023)** at IIT Bombay during May 26-27, 2023, to discuss India's recent progress in climate research, as well as its agenda and vision for 2030. The key objective was to launch *"India's Climate Research Agenda: 2030 and Beyond"* and to discuss the nine themes of the report: 1. monsoon, 2. climate modelling, 3. aerosols, 4. hydrology and cryosphere, 5. ocean science, 6. urban climate, 7. carbon cycle, 8. extreme events, and 9. climate services.

The Honourable Secretary to MoES, **Dr. M. Ravichandran,** the Honourable Secretary to DST, **Dr. Srivari Chandrasekhar,** and the Secretary to the Science and Engineering Research Board (SERB), **Dr. Akhilesh Gupta,** inaugurated the event. The Conclave saw about 257 participants from across the country. The report on *"India's Climate Research Agenda: 2030 and Beyond"* was released during the conclave. Dr. Akhilesh Gupta delivered the keynote speech, which was chaired by Dr. M. Ravichandran.

Secretary, Department of Science and Technology, Government of India (DST), Dr. S. Chandrasekhar, highlighted that the damage caused by climate change has already taken its toll and our response has been delayed. He pointed out that valuable lessons to tackle the situation can be taken from our experiences of positive changes in the environment due to altered human behaviour during the COVID-19 pandemic. He said these serve as a reminder that if we act responsibly, there is a real possibility of passing on a sustainable planet to future generations.

Dr. Chandrasekhar emphasised that addressing climate change is not the responsibility of climate scientists alone. *"It is a collective responsibility that extends to all individuals and sectors of society. Climate change is influenced by peripheral activities surrounding climate science. It becomes the duty of scientists to identify the areas that have the most significant impact on the climate and work towards mitigating them,"* he stressed.

"By acknowledging the collective responsibility and adopting sustainable practices across various sectors, we can make meaningful progress in mitigating climate change and preserving a healthy planet for future generations. It is a call to action for everyone to play their part in creating a more sustainable and resilient world," he added while releasing the report on "India's Climate Research Agenda: 2030 & Beyond'.

IIT Bombay Celebrates World Bicycle Day

Participants during World Bicycle Rally

To highlight the importance of fitness and celebrate **World Bicycle Day,** IIT Bombay Sports organised a bicycle rally on June 3, 2023. Around 100 participants of all age groups participated in the 5 km rally.

IIT Bombay Celebrates World Environment Day

Participants during World Environment Day bicycle rally

On June 4, 2023, **NSS IIT Bombay** conducted a bicycle rally to raise awareness of our environment on the occasion of **World Environment Day**. The rally witnessed a footfall of above 200 enthusiastic participants. Dean (Students Affairs) **Prof. Suryanarayana Doolla** flagged off the rally.

Abhyuday, IIT Bombay and other volunteers during the Powai Lake Cleanup Campaign

On 4th June, 2023, **Abhyuday, IIT Bombay** conducted the Powai Lake Cleanup Drive as part of World Environment Day.

The drive saw tremendous participation from the students, faculty and staff of IIT Bombay as well as neighbours. Around 400 volunteers participated. Cleaning took place along the lake's 2 km-long perimeter. Around 3 tonnes of trash were collected in the cleanup which began at 7:30 AM. To promote a cleaner, greener and healthier environment, the lake's shoreline was cleaned. The aim of this campaign was to spread the idea that everyone has a duty to keep their surroundings free of plastic and that even a small effort can have a significant impact.

Project Mumbai transported the waste collected to a facility for recycling, and government officials were made aware of the shortage of dustbins along the promenade, which is the primary cause of the plastic litter. This drive was conducted in collaboration with **UNICEF India** and **Project Mumbai.**

Talk Session and Musical Programme by Environmental Science and Engineering Department

The **Environmental Science and Engineering Department (ESED)** and the **Environmental Science and Engineering Association (ESEA)** conducted a talk session and musical programme on Friday, June 2, 2023, celebrating World Environment Day. The objective of this event was to raise awareness about the importance of environmental conservation and sustainable practices.

Prof. Subhankar Karmakar, Head, ESED and **Prof. Anil Kumar Dikshit** were the faculty-incharge of the workshop. **Prof. Ajit Annachhatre**, Emeritus

Prof. Ajit Annachhatre -

Professor at the Asian Institute of Technology, Bangkok, Thailand gave a lecture titled **Impacts and Methods to Combat**. He shared his expertise on the impact of climate change and the various methods available to combat this global challenge.
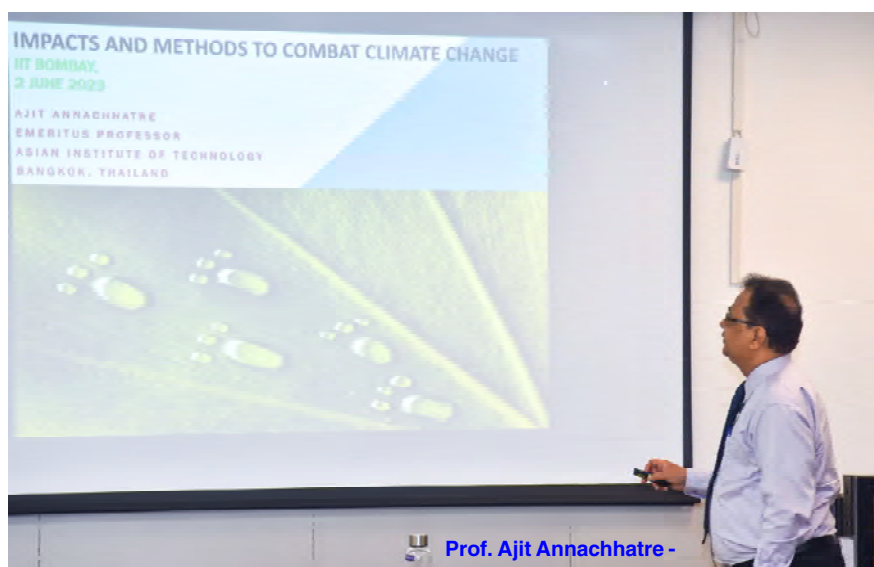
1st Mining Start Up Summit Inaugurated At IIT Bombay

The **Ministry of Mines, Government of India** organised the **first Mining Start-up Summit** in collaboration with the Indian Institute of Technology Bombay to explore new innovations and technologies in the mining and metallurgy sector on May 29, 2023.

Hon'ble Union Minister of Coal and Mines and Parliamentary Affairs **Mr. Pralhad Joshi** inaugurated the Summit. The summit focused on interaction with leading industries in the mineral exploration sector, financial institutions and banks. Mr. Pralhad Joshi also inaugurated the state of art exhibition, showcasing the advancement of technology in mining sector.

Hon'ble Union Minister of Coal and Mines and Parliamentary Affairs Mr. Pralhad Joshi (C) inaugurating the 1st Mining Start up Summit

The inauguration was followed up with technical sessions deliberating on how the start-ups equipped with different technology can contribute in the activities of the mining sector and boost the capabilities of exploration and mining and enhance the efficiency of mining sector. The concluding session of the 1st Mining Start-Up Summit was chaired by **Mr. Rao Saheb Patil Danve,** Union Minister of State for Coal, Mines and Railways.

Also present on the occasion were **Mr. Dadaji Bhuse,** Minister of Mines, Government of Maharashtra; **Mr. Vivek Bharadwaj,** Secretary, Ministry of Mines, Government of India; **Mr. Sanjay Lohia,** Additional Secretary, Ministry of Mines, Government of India; **Ms. Farida Naik,** Joint Secretary, Ministry of Mines; **Dr. Sharad Kumar Saraf,** Chairman, Board of Governors, IIT Bombay and **Prof. Subhasis Chaudhuri,** Director, IIT Bombay.

This Summit saw participation from 82 start-ups and benefitted about 140 attendees, including students and young professionals working in the fields of exploration, virtual reality, automation, drone technology, consultancy, etc.

(Second from left) Prof. Sakthi Chinnasamy (Department of Earth Sciences); (Third from left) Ms. Farida Naik (Joint Secretary, Ministry of Mines, Government of India); Hon'ble Union Minister of Coal and Mines and Parliamentary Affairs,(Fourth from right) Mr. Pralhad Joshi, (Third from right); Mr. Vivek Bharadwaj (Secretary, Ministry of Mines); (Second from right) Prof. Subhasis Chaudhuri (Director, IIT Bombay), (First from right); Mr. Sanjay Lohia (Additional Secretary, Ministry of Mines)

Nandan Nilekani Donates Rs 315 Crores To IIT Bombay

(From left to right) Director Prof. Subhasis Chaudhuri and Mr. Nandan Nilekani (Non-Executive Chairman of Infosys Ltd. and Founding Chairman of UIDAI), along with Mrs. Rohini Nilekani during the signing of the MoU

Mr. Nandan Nilekani, Co-Founder and Chairman of Infosys Ltd. and Founding Chairman of UIDAI, has donated **INR 315 crores ($ 38.5 Million)** to his alma mater, Indian Institute of Technology Bombay (IIT Bombay). This substantial contribution builds upon his previous grants of INR 85 crores to the Institute, bringing the cumulative value of his support to INR 400 crores. The donation will be instrumental in fostering world-class infrastructure, stimulating research in emerging areas of engineering and technology, and nurturing a deep tech startup ecosystem at IIT Bombay.

Speaking about the donation, **Mr. Nandan Nilekani** said, *"As I celebrate 50 years of my association with this esteemed Institution, I am grateful to give forward and contribute to its future".*

IIT Bombay Partners With Godrej

From left: Mr. Maneck Behramkamdin (Vice president, M/S Godrej & Boyce - Aerospace and Defence), Prof. Milind Atrey (Dean (Research and Development) IIT Bombay) along with Mr. S. Venugopal (Technical Adviser, Aero Systems from M/S Godrej) and Prof. V. Venkateswara Rao (Director, DIA-COE, IIT Bombay) (Back L -R)

Godrej & Boyce, the flagship company of the Godrej Group, with its business unit **Godrej Aerospace** has entered into a strategic partnership with Indian Institute of Technology Bombay to collaborate on cutting-edge research and development projects in the field of aerospace and defence (A&D).

This three-year collaboration brings together the expertise and resources of both organizations to develop innovative technologies and solutions for the growing requirements of A&D sector.

The ceremony was graced by the presence of Director, DIA-COE, IIT Bombay **Prof. V. Venkateswara Rao**; Technical Adviser, Aero Systems from M/S Godrej **Mr. S. Venugopal** along with signing authorities Vice president, M/S Godrej & Boyce - Aerospace and Defence **Mr. Maneck Behramkamdin** and Dean (Research and Development) of IIT Bombay **Prof. Milind Atrey.**

IIT Bombay Partners With Kaspersky To Promote Cybersecurity In Education And Research Projects

Mr. Adrian Hia (C), Managing Director, Asia Pacific, Kaspersky and Prof. Milind Atrey (C), Dean (Research and Development), IIT Bombay along with other dignitaries during signing of the MoU

IIT Bombay signed an **MoU** with **Kaspersky** to jointly promote and foster the development of educational and research projects in the field of cybersecurity. This includes the exchange of knowledge and expertise, the development of educational materials, organisation of events aimed at raising cybersecurity awareness, as well as sponsorship of awards to encourage students to pursue careers in cybersecurity. We look forward to **Prof. Virendra Singh** and his team for their significant contribution in association with Kaspersky. The ceremony was attended by **Prof. Milind Atrey**, Dean, Research and Development, IIT Bombay and **Mr. Adrian Hia**, Managing Director, Asia Pacific, Kaspersky along with **Mr. Jaydeep Singh, Mr. Jesmond Chang, Ms. Trishia Octaviano, Mr. Saurabh Sharma** and **Ms. Shu En Liew** from Kaspersky.

IIT Bombay Inaugurates A New Playground

On May 25, 2023, Director **Prof. Subhasis Chaudhuri** dedicated a new playground, addressing the growing need for sports facilities on campus. The playground has a mini-football field, a volleyball court and three cricket nets. The playground is accessible via a newly constructed staircase between Hostels 12 and 13, located behind the cone structure of H12 and H13.

Director Prof. Subhasis Chaudhuri (C) and Deputy Cdirector (Academic and Infrastructural Affairs), Prof. S. Sudarshan (First from right) along with other IIT Bombay dignitaries during the inauguration of the new playground

IIT Bombay Professor On A Cycle Expedition For Climate Awareness

Prof. RAAJ Ramsankaran (1981, Remote Sensing expert from IIT Bombay) along with **Prof. Mohd. Farooq Azam** (1984, Glaciologist from IIT Indore) are on a **'Climate Awareness Ride'** for a respectful exploration of the Himalayas by bicycle to create awareness about climate change and its impacts on the Himalayan Cryosphere, starting June 17, 2023.

Undertaking a 15-day cycling expedition from Manali to Khar Dung La Pass to Siachen Base Camp, this journey spans 700 km and includes five mountain passes higher than 4000 m a.s.l., including *Khardung La*, the highest motorable pass in the world.

(From L to R) Prof. RAAJ Ramsankaran (Department of Civil Engineering) along with Prof. Mohd. Farooq Azam (Glaciologist, IIT Indore) on their 'Climate Awareness Ride'

This cycling expedition will help *"educate the general public about climate change and its implications on the Himalayan glaciers"*, learn about climate change-related water resource issues in high-altitude communities and encourage individuals to adapt climate change mitigation measures in their day-to-day lives.

Institute Colloquium / Lectures

Prof. K. Ganapathy Ayappa, Indian Institute of Science, Bengaluru, delivered an Institute distinguished lecture *(in memory of Prof. C. V. Seshadri)* titled *"Understanding the action of pore forming proteins: Insights from molecular dynamics simulations, single molecule experiments and oligomerization kinetics"* on April 5, 2023

Dr. Scott R. Stroud, University of Texas, Austin, delivered an Institute lecture *(in memory of Dr. B. R. Ambedkar)* titled *'Ambedkar, Dewey, and the Evolution of Pragmatism in India'* on April 12, 2023
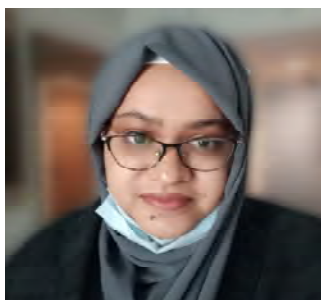
Ms. Amreen Khan, a Ph.D. student in Centre for Research in Nanotechnology & Science (CRNTS), has been chosen to attend the *72nd Lindau Nobel Laureate meeting in Physiology/ Medicine 2023.* Her selection resulted from rigorous scrutiny processes and has recognized her research on developing innovative biomaterials for cancer theranostics and wound healing under the guidance of **Prof. Rohit Srivastava** (Department of Biosciences and Bioengineering), **Prof. Jayesh Bellare** (Department of Chemical Engineering) and **Prof. Mayuri Gandhi** (CRNTS).

IIT Bombay Team Wins First Runner-Up Position At 'Solar Decathlon' Competition In US

Team SHUNYA, IIT Bombay (Sustainable Housing for an Urbanizing Nation by its Young Aspirants), a student-driven technical team at IIT Bombay, has **won** the **runners-up title** in the prestigious **US Solar Decathlon Build Challenge 2023**. Team SHUNYA works to build a sustainable future. The only team representing India in the competition, Team SHUNYA received first prize in two contests, second place in two contests, and third place in three contest criteria. Team SHUNYA successfully demonstrated a house which is Net Positive Energy, Net Zero Water and Net Zero carbon.

IIT Bombay Team Wins 2023 OpenAir Carbon Removal Challenge

An IIT Bombay student-led team has won the **2023 Global Carbon Removal Challenge of the Open Air Collective, USA,** with the superlative of **'Best Research'** at the final showcase event, held in New York.

The IIT Bombay innovators have developed a novel, low-cost, sustainable and scalable solution that captures and converts carbon dioxide to industrially valuable products using a set of unique biomimetic catalysts designed for carbon dioxide reduction under electrocatalytic conditions. This winning team presented a unique *'CO2 electrolyzer'* that delivers a carbon-negative pathway for the world's future energy management.

Mr. Somnath Guria (Department of Chemistry), **Mr. Vaibhav Trivedi** (Department of Chemistry/ IIT Bombay Monash), **Mr. Shubham Kumar** (Department of Earth Sciences/ IIT Bombay Monash), senior research scientist: **Dr. Piyali Majumdar** (Department of Earth Sciences), **Prof. Arnab Dutta** (Department of Chemistry) and **Prof. Vikram Vishal** (Department of Earth Sciences), were among the research scholars on the team. The team is also associated with the DST-sponsored National Centre of Excellence in Carbon Capture and Utilization, IDP - Climate Studies and the SINE-incubated UrjanovaC Private Limited.

COALESCE – Carbonaceous Aerosol Emissions, Source Apportionment And Climate Impacts

Climate change and air pollution have important societal consequences. Carbonaceous aerosols, including black carbon, brown carbon and organic carbon are constituents of PM-2.5 (fine particles with sizes smaller than 2.5 micrometres) and have both climate and air pollution impacts. Carbonaceous aerosols are among the short-lived climate pollutants (SLCPs) whose datasets are highly limited both globally and over India, limiting our understanding of the climate impacts. The **COALESCE** network project carried out during 2017-2023 under the aegis of the MoEFCC, was led by IIT Bombay and has involved over 20 institutions, 40 PIs and 125 researchers, investigating the origin, fate and climate impacts of carbonaceous aerosols over India.

Describing major outcomes of the project, **Prof. Chandra Venkataraman** of IIT Bombay said, *"To enable climate and clean air action, the far-ranging outcomes of the project, resulting from the integration of pan-India activities, include a new multi-pollutant emission inventory, a comprehensive data repository of ambient network measurements across India, emission factor measurements, both with detailed chemical speciation and simulations of climate and air quality impacts with a suite of global and regional climate models".*

Prof. Gazala Habib of IIT Delhi said, *"Measurements of particle and gaseous emission factors, with a newly developed, versatile source sampling system and activity surveys encompassed over a 100 districts of India, including the residential, agricultural, transport and brick production sectors. This yielded perhaps the largest primary dataset of PM-2.5 chemical source profiles, emission factors and energy use estimates for a pan-India emission inventory".*
Prof. Harish Phuleria of IIT Bombay said, *"The Speciated Multi-pollutant Generator (SMoG)-India emission inventory management system allows for online analysis and data download at multiple spatial scales from country to state, district and city levels".*

Elucidating the source apportionment efforts, **Prof. Ramya Sunder Raman** of IISER Bhopal said, *"The India-wide PM-2.5 speciation network yielded not only the most complete PM-2.5 speciation data for two full years across locations in India, but also resulted in important guidance documents all the way from network design, particle sampling, to instrumental chemical analyses to measure conventional bulk chemical species, organic molecular markers and carbon-isotopes". "The amazing contributions of the field institute partners have been key to the success of the source*

apportionment module," said **Prof. Tarun Gupta** of IIT Kanpur.
Prof. Mani Bhushan of IIT Bombay said, *"The models used for source apportionment included existing receptor models and newly developed ones, which have been released in public domain".*

Illustrating the outcomes of climate impact simulations, **Prof. Dilip Ganguly** of IIT Delhi said, *"We have found compelling evidence of the links between enhanced aerosol levels and worsening climate extremes, like heat waves and rainfall suppression". "New modeling results have thrown light on the aerosol lifecycle over India, including the ageing of black carbon, an important climate warming pollutant,"* said **Prof. Sagnik Dey** of IIT Delhi.

Discussing future policy linkages of the project, **Prof. Chandra Venkataraman** expressed hope that the data repositories, tools and knowledge products emerging from the project would find wide application not only in India's international commitments to the UNFCCC, engagement with intergovernmental partnerships like the Climate and Clean Air Coalition and the Arctic Council but importantly in India's important National Clean Air Programme and disaster management activities.

Obituary:

Shri Milind V. Naik, a cook of Hostel-1, passed away on April 20, 2023 at the age of 46 years.

Research in focus

Coming Soon: A Tabletop Chiral Attosecond Laser

Researchers use a single-double-frequency pair of laser light to generate circularly polarised attosecond pulses from graphene

When molecules form from many atoms, the atoms can combine in different ways. Two forms of the same molecule can have the same composition but have different arrangements of atoms, giving rise to isomers. Some isomers may have structures that are mirror images of each other. Such molecules are called chiral molecules. Scientists are interested in studying such molecules, for example, penicillin, because one arrangement can be a lifesaver while the other could be fatal!

Researchers shine extremely short pulses of light on molecules to take their videos during the processes of interest so that they can study the structure or formation of the molecule. The pulses are so short that they are measured in attoseconds. An attosecond is a billionth of a billionth of a second. The light needs to be what is called circularly polarised to study chiral molecules. Different arrangements of a chiral molecule respond differently to circularly polarised light, making it possible to distinguish each arrangement. Though polarised attosecond pulses are a great tool for studying chiral molecules, generating such light pulses can be daunting, expensive, and needs bulky apparatus.

A new theoretical study by researchers from the Indian Institute of Technology Bombay, led by **Prof. Gopal Dixit**, has suggested a scheme that makes it possible to have a compact tabletop source of circularly polarised attosecond laser pulses. Their recipe suggests using a laser source with a single-and-double frequency pair of laser light shone on a solid material, such as graphene, to generate high-frequency short-duration pulses. The design does not pose any restriction on relative intensities of the single-and-double-frequency light. It is robust to any imperfections in the intensity of the light source. The study published in the journal *Physical Review Applied* was supported by Science and Engineering Research Board (SERB) India.

Light is a transverse wave. Its S-shaped vibrations are perpendicular to the direction it travels; that is, the wave vibrates up and down as it travels. The vibrations could be vertical, horizontal or at any angle in between. When the angle of vibrations rotates clockwise or anticlockwise, as seen when looking into the direction of propagation, the light is called circularly polarised. The light is said to have right or left helicity.

Researchers use a phenomenon called high-harmonics generation to generate pulses a few attoseconds long. An intense laser pulse, called a driving field in this context, when shone on certain materials such as krypton gas, energises the electrons in the krypton atom as they absorb the light. When the electrons return to rest, they emit radiation that contains high harmonics— frequencies that are a few hundred or even thousand times the frequency of the original laser. As the frequency increases multifold, the length of the pulses reduces proportionally. We thus get extremely short pulses, a few attoseconds long.
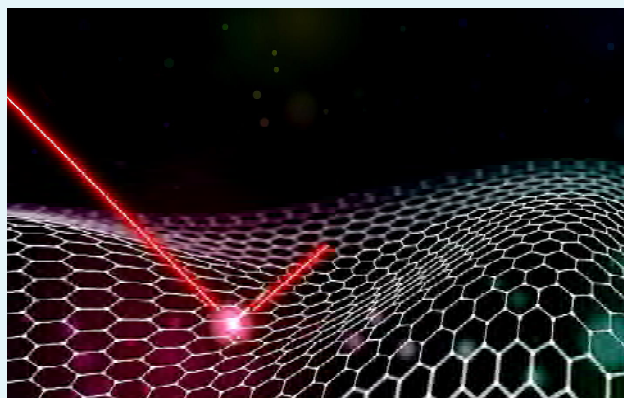
However, there is a catch. Using a driving field laser pulse with circular polarisation does not ensure circularly polarised attosecond pulses of sufficient intensity. "*To study phenomena involving chirality and magnetism, the helicity of light must be controllable. It becomes challenging to generate circularly polarised laser pulses useful to study these phenomena*", explains **Prof Dixit**. Shining laser light on solid materials such as graphene instead of gases made it possible to obtain more intense pulses of circularly polarised light compared to those generated using gases. Using solids also offers additional control over the polarisation of the emitted light pulses and enables a compact source.

An earlier scheme used a single and double frequency pair with opposite polarisation to generate circularly polarised high-harmonics. This scheme gives light pulses pairs with polarisation identical to the source pulses. The adjacent harmonic frequencies have opposite helicities (one follows the single-frequency helicity while the other follows the double-frequency helicity). But frequencies that are multiples of three times the source frequency are missing. Various schemes, such as varying the intensities of the frequencies in the source laser and introducing additional pulses with different polarisation, did not provide a desirable control over the circular polarisation of the attosecond laser.

The IIT Bombay scheme suggests using laser light with a single-and-double-frequency pair with the same circular polarisation direction. The team has designed a specific scheme that uses single and double-frequency pair laser sources with no rotational symmetry. All the high harmonics generated using this design have identical helicity, irrespective of the relative intensities of the single and double source frequencies.

The researchers used computer simulations to observe the spectrum obtained by earlier schemes as well as their scheme. They observed that their scheme is robust against variations in the intensity and phase of the driving laser pulses. Their suggested scheme can be extended to other 2-D materials with a hexagonal lattice and other solid materials. The researchers say their work can facilitate *"observing chiral light-matter interactions in molecules and solids in their natural time- scale"*

Article written by: Arati Halbe

Link to published work: https://journals.aps.org/prapplied/abstract/10.1103/PhysRevApplied.18.064049

Awards and Distinctions

Prof. Sandip Kar, Department of Chemistry, has been included as an editorial board member of *"Systems Biology and Applications"* of the Nature Publishing Group

Prof. Rajarshi Chakrabarti, Department of Chemistry, has been invited to join the editorial member of *Journal of Physics A: Mathematical and Theoretical*

Prof. Rajneesh Bhardwaj, Department of Mechanical Engineering, has been selected for **SERB Science and Technology Award for Research (SERB-STAR)**

Prof. Nutan Limaye, Department of Computer Science and Engineering, has been featured in *'Future Hopes-Vigyan Vidushi- 75 Women Trailblazers of Science,'* a resource book on profiles of Indian women scientists, by Department of Science and Technology, Govt. of India

Prof. Arindam Chowdhury, Department of Chemistry, has been appointed as an editorial advisory board member of ACS journal *"Chemical and Biomedical Imaging (CBMI)"*

Prof. Rajkumar Pant, Department of Aerospace Engineering,is the recipient of 2023 American Institute of Aeronautics and Astronautics (AIAA) Lighter-Than-Air (LTA) Systems Technical Committee (TC) Lifetime Achievement Award

Prof. Darshan S. Shah, Department of Mechanical Engineering, has been selected as one of the five awardees of the Developing Countries Grant Competition (DCGC) by the International Society of Biomechanics (ISB) for the project "Development of an Active Artificial Human Knee Joint." He

will be presenting his proposal at the ISB 2023 Congress

Prof. Dinesh Kabra, Department of Physics, recent research work carried out by of NCPRE was highlighted in global *PV-Magazine* news

Prof. Pennan Chinnasamy, Centre for Technology Alternatives for Rural Areas (CTARA), has been invited to join on the Editorial Board of *International Water Association's (IWA) Hydrology Research Journal*

Prof. Ashish Singh, Shailesh J. Mehta School of Management, has joined as Associate Editor of *International Journal for Equity in Health* published by Springer Nature

Prof. S. Shankaranarayanan, Department of Physics along with **Mr. Ashu Kushawaha** (Ph.D. student) and **Mr. Sunil Malik** (Post-doctoral fellow), have received an honorable mention for their work for *2023 Gravity Research Foundation essay competition (74th edition)*

Prof. Bellie Sivakumar, Department of Civil Engineering, has been chosen to receive the ***Asia-Oceania Geosciences Society (AOGS) Fellows Award***

Prof. Sai Vinjanampathy, Department of Physics, has joined the editorial board of **New Journal of Physics**

Prof. Krishna Jonnalagadda, Department of Mechanical Engineering, has been awarded the **DRDO Academy Excellence Award for the year 2020**

Prof. Ruchi Anand, Department of Chemistry, has been awarded with **N. R. Dhar Lecture Award** by the Indian Photobiology Society

Prof. Saurabh Lodha, Department of Electrical Engineering, has been selected

for the **Kasturi Lal Chopra Memorial Distinguished Lecture Award 2023** given by the Empowered Committee - Prof. Kasturi Lal Chopra Endowment Fund

Prof. Himadri Shekhar Dhar, Department of Physics, has recently joined the Editorial board of the journal *Quantum*

Prof. Deepankar Choudhury, Department of Civil Engineering, has received the prestigious *"Gopal Ranjan Technology Award 2022 of IIT Roorkee"*

Prof. Suddhaseel Sen, Department of Humanities and Social Sciences, has been invited to join the editorial board of *Acta Musicologica,* which is one of the world's oldest and most renowned journals in the field of musicology

Workshop

Industrial Research and Consultancy Centre, IIT Bombay conducted an **Institute Ethics Committee (IEC) workshop** on May 4, 2023. **Dr. Renuka Munshi,** Professor and Head, Department of Clinical Pharmacology, T.N. Medical College and BYL Nair Charitable Hospital, Mumbai and Chairperson, IEC-IIT Bombay gave an overview of IEC at IIT Bombay. **Dr. Sadhana Srivastava**, Senior Scientist and Head, Innovation and Translation Research Division, Indian Council of Medical Research, New Delhi delivered a talk on ***'Translation of know-how and relevance of IPR in academic research and ICMR guidelines'***. **Dr. Subodh Sirur**, medico-legal expert, Co-Chair, IEC-IIT Bombay talked about ***"Ethical and regulatory issues in collaborative studies"***. Students and faculty members attended the session.

Appointments

Dr. D. Venkatramanan, has been appointed as Assistant Professor Grade I in Department of Energy Science and Engineering w.e.f June 5, 2023.

Retirements on April 30, 2023

Prof. V. S. Raja, Department of Metallurgical Engineering and Material Sciences, retired after 36 years of service

Prof. S. S. Gedam, Centre of Studies in Resources Engineering, retired after 34 years of service

Mr. S. S. Shikhare, Assistant Technical Office, IIT Bombay K. G. School, retired after 33 years of service

Mr. S. P. Mhatre, Sr. Multiskilled Assistant, HR-1(HRM-2), retired after 34 years of service

Mr. Vasant Kisan Salve, Multi Skilled A/S C, Hostel No. - 03, retired in March 2023 after 30 years of service

Mr. Dinkar Govindrao Kulthe, Multi Skilled A/S C, Tansa, retired in March 2023 after 35 years of service

Retirements on May 31, 2023

Prof. Nataraj S. V. Paluri, Systems & Control Engineering, retired after 36 years of service

Prof. Virendra R. Sule, Department of Electrical Engineering, retired after 12 years of service

Mr. Tanaji S. Shinde, Sr. Mechanic, Estate Office, retired after 36 years of service

Mr. Mangesh S. Vaidya, Sr. Multiskilled Assistant, HR-1 (HRM-2), retired after 38 years of service

Mr. Appa D. Lokhande, Sr. Security Guard, Security Section, retired after 33 years of service

Mr. Sunil D. Chavan, Sr. Security Guard, Security Section, retired after 33 years of service

Mr. Ramesh S. Dalvi, Sr. Security Guard, Security Section, retired after 31 years of service

Mr. Shriram Nana Patil, Security Inspector, Security Section, retired after 17 years of service

Ms. Aparna V. Parab, Administrative Associate, Hostel 11, retired after 35 years of service

Mr. Harishchandra M. Warwatkar, Administrative Associate, Security Section, retired after 24 years of service

Ms. Asha W. Rawtale, Multiskilled Assistant A, Accounts Section, retired after 5 years of service

Mr. Bhagban Hotta, Sr. Cook, Hostel No. - 01, retired after 21 years of service

Retirements on June 30, 2023

Prof. Syed Salahuddin Major, Department of Physics, retired after 35 years of service

Prof. Yellamraja Uma Sasidhar, Department of Chemistry, retired after 33 years of service

Shri. Ravishankar G. Poojari, Sr. Multiskilled Assistant, C.R.N.T.S., retired after 40 years of service

Shri. Pradeep G. Murumkar, Sr. Mechanic, Electrical Maintenance Division, retired after 41 years of service

Shri. Namdev D. Katkar, Sr. Security Guard, Security Section, retired after 33 years of service

Shri. Anand D. Raut, Assistant Technical Officer, Department of Physics, retired after 33 years of service

No	Course Title	Course Coordinator/ Department	Duration
CEP courses scheduled during July 2023			
	Open Programmes : (July 2023)		
1	Semiconductor Manufacturing Technology with Hands-on Training	Prof. Saurabh Lodha Electrical Engineering	July 3, 2023 (5 days)
2	Dynamical Systems in Computational Biology	Prof. Ranjith Padinhateeri Bioscience and Bioengineering	July 19, 2023 (7 days)
3	Distillation: Theory and Practice	Prof. Sanjay Mahajani Chemical Engineering	July 20, 2023 (2 days)
4	Digital Business Leadership Programme	Prof. Shivganesh Bhargava School of Management	July 30, 2023 (6 months)
	In House Programmes :		
5	Elements of Chemical Engineering	Prof. Anurag Mehra Chemical Engineering	July 17, 2023 (8 days)

In the Wilderness

Photo Credit :

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@pranadhprabhakar**

campus diary

April - May - June 2023

BOOK POST