

# किर IITH

*the crowning glory*

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*Catalysis@IITH*



భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్  
भारतीय प्रौद्योगिकी संस्थान हैदराबाद  
Indian Institute of Technology Hyderabad



*IIT Hyderabad  
rejoices in Tricolour with  
75 years of India as a  
Republic Nation!*

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Dear Readers,

Hope you are doing well!

We have been inspired by the support we have received these four years and would like to offer sincere thanks to everyone who has accompanied us in this exciting and engaging journey of the किराIITH. This publication is not just a Newsletter to highlight new aspects or news of IITH but marks a significant milestone in our journey towards fostering stronger connections and sharing valuable insights with our esteemed community that serves as the bridge that connects us, enables us to exchange ideas, and empowers us to stay informed and engaged.

Our dedicated team has put in tireless efforts to curate content that is not only informative but also captivating, ensuring that every reader finds something of interest and value. Like every time, this issue is also being dedicated to one of the key thrust research areas of IITH.

Following this precedence, we are back with yet another critical area of research at IITH, "*Catalysis@IITH*" - Vol - 5, Issue-4, 2023 (Issue - 17). Catalysis has become an indispensable research area in many departments at IITH, including Chemistry, Chemical Engineering, Materials Science, Biotechnology, Climate Change, and Civil Engineering. Thus, catalysis provides a vibrant platform at IITH to foster inter-and trans-disciplinary collaborations among the different departments from fundamental catalysis science to generate innovative technology transfer, in line with the circular economy goals.

We trust this issue will be an elucidating source of exceptional research work being carried out by the IITH fraternity in the theme area.

This issue is ornated in tricolour as we celebrate the 75th year of India as a Republic Nation in 2024.

We will be back next quarter with another significant research area in which IITH making a mark to Invent and Innovate in Technology for Humanity. Your support encourages us to return with an enhanced and enriching experience in the upcoming calendar year with exciting editions of "किराIITH".

We wish everyone a safe and healthy stay.

Happy Reading & Stay connected. ...

“Sustainable development is a proven catalyst for Xerox Innovation.

Anne M Mulcahy



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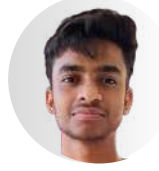
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*Discontent is the Catalyst for the Change.*

**- Mike Murdock**



Dear friends,

I trust this message finds you well and thriving in all your endeavours.

It brings me immense pleasure and excitement to introduce the 4th-anniversary edition of our Institute's Newsletter, "किरIITH" (KirIITH) – The Crowning Glory, which spades the startling study we have made in the field of Catalysis. The previous quarter was a time landscape filled with extraordinary initiatives that have placed IITH on the national and global stage, like hosting Finals of Model G20 Initiatives organized in collaboration with INYAS under the Ministry of Education's umbrella, where incredible ideas for global betterment were awarded under six distinct themes.

At the national level, we are glad to be part of two significant activities ideated by our honourable Prime Minister Shri Narendra Modi Ji: 1. 'Ek Taarek, Ek Ghanta' under Swachhta hi Seva on October 1, 2023 and 2. Coordinating Yuva Sangam, Phase-3 as Coordinating Institute from the State of Telangana in partnership with BHU, Varanasi, as Coordinating Institute for the State of Uttar Pradesh.

We are happy to release this issue to observe the 75th Republic Day as we enter Amirt Kaal towards making India - "Viksit Bharat". Towards this objective, we were gratified to host Her Excellency Dr. (Smt.) Tamilisai Soundararajan, Hon'ble Governor of Telangana and Hon'ble Lt. Governor of Puducherry, twice last quarter. Her Excellency witnessed the Foundation Week Celebration of Dr BVR Mohan Reddy School of Innovation and Entrepreneurship (BVR SCIENT), a 30,000-square-foot facility at IITH and virtually inspired the young enthusiastic souls visited IITH during Yuva Sangam, Phase-3 initiative from the state of Uttar Pradesh.

Research remains a cornerstone of IITH's quest for excellence. Notably, IITH's researchers, are embarking on an innovative journey to address the longstanding challenge of urban flooding in Hyderabad and proposed the use of GFRP Rebar and Discrete Fiber-Based Reinforcing System in Concrete Constructions for Improved Durability. Some patents and copyrights were also published and granted to our researchers by the Indian Patent Office.

iTIC Incubator at IITH selects 75 innovators under the iTIC - IITH - Greenko BUILD Program. The 75 selected innovators will receive up to INR 1 lakh in financial support and were also invited to participate in a 3-day orientation boot camp at IITH. In addition, NXP India, in collaboration with FabCI, and IITH, announced winners for Season 2 of Semiconductor Startup Incubation and Acceleration Program for Tech Startups.

Working together, we can manifold our strengths, and in this direction, IITH signed an agreement with Monash University, Australia, symbolic of IITH's significant footprint in Australia with 3rd such a pact, and iTIC Incubator at IITH signed a pact with the College of Defence Management to launch ABCD Cohort 2, a program that empowers civilian technology Startups in their transition to defence applications. A Precision Center Metrology Lab is also planned at iTIC Incubator at IITH in partnership with Hexagon to accelerate the start-up culture on the campus for the IITH community and individuals incubated at IITH's Centre of Excellence.

A sound mind resides in a strong body. IITH team has displayed "IITH Fit He, Hit He" with its best play in the Inter-IIT Aquatics & Sports Meet - 2023. With an impressive tally of 8 medals in the Men's Swimming Championship, IITH secured a historic victory at Inter-IIT Aquatics Meet 2023 by clinching the Second Runners Up Champion position. Inter-IIT Sports Meet 2023 was a grand success with 16 Medals (Students-9 and Staff-7), two best players of the tournament in Student (Women-Athletics) & Staff (Men-Table tennis) and Staff Women team emerged as the 1st runner-up of the championship.

On the booming campus life front, as our phase-2 construction is about to conclude, multiple blocks of the campus aspire for GRIHA (Green Rating for Integrated Habitat Assessment) – Green Building Rating. GRIHA, in collaboration with the IITH, has organized a green tour of the IITH campus, admired by Young Architects from across the country. With the 15th Foundation Day, we rejoiced in the yearlong Crystal Year Celebration and observed the 2nd Decennial Celebration with Graduates of 2013 and the Annual Alumni Day 2023. Last Quarter, IITH announced the 4th set of Alumni Awards to encourage entrepreneurship among IITHians and work toward the motto to serve Humanity. The day also witnessed the inauguration of the first-ever legacy project at IITH, created with the support of graduates of the 2012 pioneer batch.

IITH has set the moment to start a new Era with 2000+ Innovative minds from Academia and Industry mutually exploring the Power of Innovation in this Amrit Kaal to Make India a Viksit Bharat with the 2nd Edition of IInvenTiv 2024 during Jan 19-20, 2024. May we continue to inspire, engage, and trigger interesting dialogue that propels us toward a future where sustained excellence empowers us to invent and innovate in technology for humanity!

I extend my best wishes for a time filled with happiness, fulfilment, and endless possibilities as we enter the new year.

**~ B S Murty**

# IIT Hyderabad - A Modern and Sustainable Academic Campus



**KID: 20230401**

IITH campus built on ~600 acres is designed to eventually accommodate a total population of 30,000, including 20,000 students, with a total built-up area of 2.1 million square meters. The campus master plan was developed based on the concepts of conservation and sustainability, energy-efficient and green urban framework with 60% greenery. The campus consists of an academic area, a residential area for students, a residential area for faculty and staff and other support facilities. The campus is planned to grow in phases with a corresponding increase in the physical infrastructure and support facilities to accommodate an increase in the number of students in established programs and new programs of the future.

The IITH campus is envisioned as a self-contained township based on sustainable development and living concepts. IITH has a unique relationship with Japan, with JICA supporting the infrastructure development at IITH and strong collaboration with Japanese universities and industry through the FRIENDSHIP program. We will be soon completing the Phase-II construction activities which are supported by the Japan International Cooperation Agency (JICA). In addition, Phase III construction is planned to accommodate additional student hostels, faculty and staff housing using precast technology and is expected to be completed within six months. Additional hostels for about 1000 boarders are under construction using complete precast technology.

IITH offers independent living spaces with natural ventilation and diffused lighting in hostels. It boasts of a radiant cooling system for students to explore themselves, still providing a lot of interaction spaces in the hostel living and academic zones.

## Convention Centre

The convention centre is ground plus a three-storey structure. It consists of five towers with large auditorium and halls of several sizes to accommodate parallel sessions. The convention centre is designed to host international conferences and seminars. The Convention Center has primarily fair-faced exposed concrete buildings. It has a nice open courtyard with a Japanese Garden and a tensile fabric roof structure to provide sunscreen.

## Knowledge Resource Centre

The Knowledge Resource Centre is a ground plus three-storey structure. It was modelled as a library with a large digital collection, multimedia rooms and digital archives. Complex roof construction consisting of a central square surrounded by four hyperbolic paraboloid shell roofs. The façade includes dry-stone cladding up to 11.00 m with a combination of exposed and plaster surfaces. It has fair-faced exposed concrete parabolic arches of various heights and widths at multiple locations.

The academic zone is a crucible of interdisciplinary research to promote a sense of excellence and inspire inventions and innovations. We have recently added nine more academic blocks in Phase II construction from the three academic blocks in Phase I construction. A state-of-the-art Knowledge Centre (library), Research Centre Complex, Lecture Hall Complex with an 800-seater capacity hall, Technology Incubation Park, and Sports and Cultural Complex with international standards are some of the highlights of the Phase-II development.

IITH is a sustainable campus with a comprehensive wastewater and solid waste management system. From banning the usage of paper cups, replacing packed water with UV water dispensers, setting up waste segregation and recovery facilities, bio-digester, and sewage treatment plants to growing more than 15000 trees in the last 2 years, IITH has considerably reduced its carbon footprint. We are making every effort to turn our campus into a green and sustainable habitat. All the buildings are designed to meet GRIHA Green Buildings rating 4 and are made energy efficient by using performance double-glazed units for the windows and façade, by using occupancy sensors to save energy, and by ensuring sufficient daylight in all the rooms.

In summary, our construction and management division is putting its best effort into providing world-class facilities and infrastructure. I am sure our campus will be one of the most liveable, vibrant, and dynamic campuses with international standards in India. The following buildings will be soon completed and inaugurated and some salient features in these buildings are listed here.



## Hostels

The residential campus for students supplemented by indoor and outdoor sports activities and common pavilions for recreation is embedded in the planning of our campus. Each hostel building is a ground plus 10-storey structure. Each building of 316 capacity consists of four clusters on one level and is provided with four extra-sized rooms. Each cluster includes eight single bedrooms with shared toilets and a common sitting area. The building design includes several unique features. The Façade is characterized by vertical fins with standing performance and more privacy. Fin angles are with two modes to reduce solar impact. The radiant cooling system is used for efficient power consumption. Solar photovoltaics are fitted at the top to generate renewable energy.



## Sports and Cultural Complex

SNCC is a ground plus one-storey facility. It includes a main arena, swimming pool, outdoor theatre, and cultural facilities. It comprises indoor sports courts, locker rooms, indoor games facilities and external development of track, athletic field with soccer field and basketball court. It boasts of a complex roof construction with doubly curved concrete shell roof up to a 45-meter span, one of longest in IIT system.



## Lecture Hall Complex

The lecture hall complex is located centrally on the campus and has 15 lecture halls of various seating capacities planned on two levels. The lower floor has a seating capacity of 2086 students, and the upper floor has been designed to accommodate 1254 students. The lower floor consists of (1) one 800-seater hall, one 400-seater hall, two 200-seater halls, two 120-seater halls and two 72-seater halls. The upper floor consists of 7 Lecture halls: one 400-seater hall, two 200-seater halls, two 120-seater halls, and two 72-seater halls. It consists of an 800-seater amphitheatre, a standalone theatre, and a large student hall.



## Academic Quadrant (AD2)

Academic Quadrant consists of buildings for three departments, namely Physics, Mathematics and Liberal Arts. This quadrant is designed to have a complete mix of labs, classrooms and faculty rooms. The physics department consists of two wings: left and right wing. The right-wing consists of G+4, which consists of labs, and the left-wing consists of the office block ground +4 structure, which mainly consists of faculty offices. The landscape around the building is provided with Tandoor flooring, pebble beds and plantings. It consists of murals and lobbies with anti-skid vitrified tiles.





### Academic Quadrant (AD1)

The electrical engineering building is jointly located with the computer science engineering. The complex is a mix of Labs, classrooms, and Faculty rooms. The complex is mainly divided into two parts. The larger block is a ground plus four-storey structure comprising labs and office blocks. The next block majorly comprises faculty rooms. The ground floor consists of seminar rooms for 150 students. The lobbies of antiskid flooring, classrooms, and slabs of concrete flooring. The Landscape around the building was provided with tandoor flooring, fixed landscape seating, pebble beds and planters.



### Dinning Facility

IITH has a common dining facility for its Students, Staff, and Faculty. Both North Indian and South Indian varieties are served in the dining hall. New dining hall designed for 2000 students. It has two floors, with a simultaneous dining capacity of 500 on each floor. It also has state-of-the-art facilities meeting the needs of modern cooking. Structural features include fair-faced concrete. It has a large column-free space that enables an open ambience.



### Core Labs

Core laboratories are large-scale labs with the capacity to conduct large-size laboratory classes. It is designed to accommodate lab courses of 1st year BTech students who take core labs to learn core science and engineering labs. These laboratories are designed to cater to the needs of the students in the relevant areas of teaching, irrespective of the departments. These large labs are designed to accommodate the core labs in physics, chemistry, computer science, engineering graphics, etc. It's a ground-plus two-floor structure with an area of 2805 square meters.



### Department of Design Building

The DOD building designed to provide a vibrant environment for learning, practising, research, and exploring several facets of design. DOD building is designed to have state-of-the-art technology labs and facilities such as Photography Studio, Animation Studio, Clay Studio, Wood & Metal Workshop, Printing Lab, IT Labs, 3D Printing Facility, Book Binding, Silk Screen Printing, and a library. The landscape around the building is provided with Tandoor flooring, pebble beds and plantings.




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**Dr Suriya S Prakash**  
*Dean (Planning) and  
 Professor, Department of Civil Engineering*

# Catalysis for a circular economy toward a sustainable society



**KID: 20230402**

The circular economy is vital for a sustainable society. It provides an alternative and greener economic model, considering the limited resources of fossil fuels and their adverse environmental effects. Developing viable technologies with low waste generation and recycling/valorizing the generated waste are the key features of a circular economy. The ultimate success of a circular economy lies in “today’s waste is tomorrow’s raw material”, thus reducing our dependence on fossil fuels and new resources as well as controlling the carbon footprint. India alone produces a huge amount of waste each year from various sectors, including plastic, agriculture, food processing, chemical industries, etc. Improper waste management can lead to environmental pollution and cause a serious threat to the ecosystem, which is already being witnessed in all places of the world. Thus, the concept of “waste-to-valorization” has gained global attention in recent times.

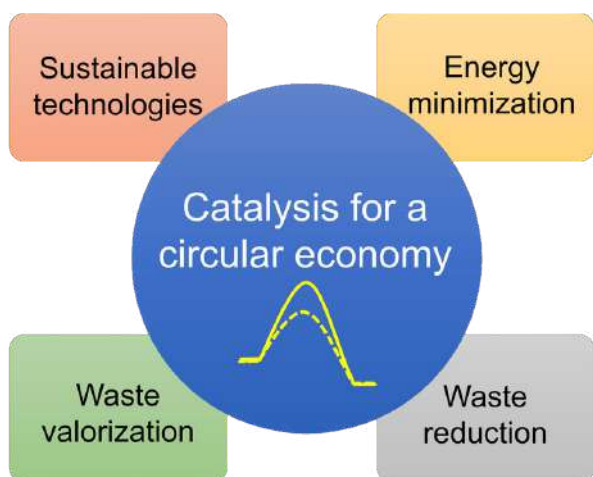


Figure-1: Pivotal Areas of Catalysis for Circular Economy

Catalysis is a pivotal research area of modern science and technology. It is a part of our daily lives to facilitate activities smoothly. Catalysis can be classified as homogeneous and heterogeneous, and the name itself reflects the same phase of reactants/catalysts (liquids) and different phases of catalysts (solids) and reactants (gases or liquids), respectively. Biocatalysis, also known as enzymatic catalysis, uses enzymes as catalysts for chemical reactions. Amongst, heterogeneous solid catalysts are of significant interest to chemical, pharma, and plastic industries because of their salient features, such as easy synthesis, high chemical/ thermal stability, efficient recovery/ reusability, and lower waste generation. The applications of catalysis can be found in most of the energy and environmental sectors, including fossil fuel processing, air/water pollution control, drug design, CO<sub>2</sub> conversion, sensing, hydrogen production/utilization, and renewable energy utilization. Catalysis is an essential step in more than 80% of chemical synthesis processes.

Thus, it significantly contributes to the GDP growth of several countries. The uniqueness of any catalyst is that it can speed up the process without being consumed with a minimal amount of energy utilization and low waste generation. Moreover, catalysis provides promising approaches for transforming waste materials, such as plastic, biomass, and CO<sub>2</sub>, into raw materials, new products, and fuels/chemicals. These prevalent advantages enabled catalysis as an essential technology to achieve a truly circular economy.

The purpose of any research is to develop new technologies with minimal energy consumption to meet the increasing global demand without compromising the sustainability of future generations. This is the key motive of the research fraternity of the IITH, aiming at cutting-edge research to provide fruitful solutions for various energy and environmental-related issues. Indeed, catalysis has become an indispensable research area in many departments at IITH, including Chemistry, Chemical Engineering, Materials Science, Biotechnology, Climate Change, and Civil Engineering. Thus, catalysis provides a vibrant platform at IITH to foster inter- and trans-disciplinary collaborations among the different departments from fundamental catalysis science to generate innovative technology transfer, in line with the circular economy goals. The scientific community of catalysis at IITH possesses vast expertise and experience in all aspects of catalysis, including the rational design of novel catalysts, in-depth understanding of the catalysts at the molecular and nanoscale, advancing the existing methodologies, developing new catalytic processes, process optimization, and scalable reactor design with the ultimate goal of providing feasible opportunities for circular economy fit for a greener future.

Over the last ten years, IITH has strategically expanded its transformative journey from basic science to applied research in various fields and witnessed groundbreaking contributions in catalysis. The institute encourages research scholars and faculties working in catalysis research to come up with innovative strategies focusing on four pivotal areas to achieve a truly circular economy (Figure-1): (i) developing sustainable technologies using less hazardous materials and renewable energy, (ii) new chemical and plastic processing methods with minimal utilization of energy and easily recyclable end products, (iii) advancing the catalytic processes of chemical production with low waste generation, and (iv) efficient catalytic processes for the valorization of waste feedstock (plastic, biomass, and CO<sub>2</sub>) into monomers, new materials, chemical building blocks, and biofuels. The institute aims to continue its quest in the catalysis field for the betterment of the world.

**Dr Sudarsanam Putla**  
Assistant Professor, Department of Chemistry

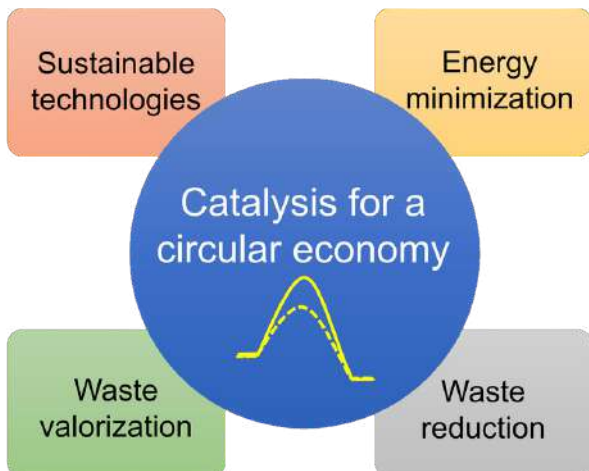


# एक स्थायी समाज की दिशा में चक्रीय अर्थव्यवस्था हेतु उत्प्रेरण



KID: 20230403

एक स्थायी समाज के लिए चक्रीय अर्थव्यवस्था महत्वपूर्ण है। यह जीवाश्म ईंधन के सीमित संसाधनों और उनके प्रतिकूल पर्यावरणीय प्रभावों को ध्यान में रखते हुए एक वैकल्पिक और हरित आर्थिक मॉडल प्रदान करता है। कम अपशिष्ट उत्पादन के साथ व्यवहार्य प्रौद्योगिकियों को विकसित करना और उत्पन्न कचरे का पुनर्चक्रण/मूल्यांकन करना एक चक्रीय अर्थव्यवस्था की प्रमुख विशेषताएं हैं। एक वृत्ताकार अर्थव्यवस्था की अंतिम सफलता "आज का अपशिष्ट (कचरा) कल का कच्चा माल है" में निहित है, इस प्रकार जीवाश्म ईंधन और नए संसाधनों पर हमारी निर्भरता कम होने के साथ-साथ कार्बन पदचिह्न को भी नियंत्रित किया जा सकता है। अकेले भारत में हर साल प्लास्टिक, कृषि, खाद्य प्रसंस्करण, रासायनिक उद्योग आदि सहित विभिन्न क्षेत्रों से भारी मात्रा में कचरा पैदा होता है। अनुचित कचरा प्रबंधन से पर्यावरण प्रदूषण हो सकता है और पारिस्थितिकी तंत्र के लिए गंभीर खतरा पैदा हो सकता है, जो पहले से ही देखा जा रहा है। विश्व के सभी स्थान। इस प्रकार, "अपशिष्ट-से-मूल्यांकन" की अवधारणा ने हाल के दिनों में वैश्विक ध्यान आकर्षित किया है।



चित्र-1: सर्कुलर इकोनॉमी के लिए उत्प्रेरण के महत्वपूर्ण क्षेत्र

उत्प्रेरण (कैटलिसिस) आधुनिक विज्ञान और प्रौद्योगिकी का एक महत्वपूर्ण अनुसंधान क्षेत्र है। गतिविधियों को सुचारू रूप से चलाना हमारे दैनिक जीवन का एक हिस्सा है। उत्प्रेरण को सजातीय और विषममांगी के रूप में वर्गीकृत किया जा सकता है, और नाम ही क्रमशः अभिकारकों/उत्प्रेरण (तरल पदार्थ) के एक ही चरण और उत्प्रेरण (ठोस) और अभिकारकों (गैसों या तरल) के विभिन्न चरणों को दर्शाता है। बायोकेटलिसिस, जिसे एंजाइमेटिक कैटलिसिस के रूप में भी जाना जाता है, रासायनिक प्रतिक्रियाओं के लिए उत्प्रेरण के रूप में एंजाइमों का उपयोग करता है। इनमें से, विविध ठोस उत्प्रेरण अपनी प्रमुख विशेषताओं, जैसे आसान संश्लेषण, उच्च रासायनिक/थर्मल स्थिरता, कुशल पुनर्प्राप्ति/पुनः प्रयोज्य और कम अपशिष्ट उत्पादन के कारण रासायनिक, फार्मा और प्लास्टिक उद्योगों के लिए महत्वपूर्ण रुचि रखते हैं। उत्प्रेरण के अनुप्रयोग अधिकांश ऊर्जा और पर्यावरण क्षेत्रों में पाए जा सकते हैं, जिनमें जीवाश्म ईंधन प्रसंस्करण, वायु/जल प्रदूषण नियंत्रण, औषधि निर्माण, CO<sub>2</sub> रूपांतरण, सेंसिंग, हाइड्रोजन उत्पादन/उपयोग और नवीकरणीय ऊर्जा उपयोग शामिल हैं। 80% से अधिक रासायनिक संश्लेषण प्रक्रियाओं में कैटलिसिस एक आवश्यक कदम है, इस प्रकार यह कई देशों की सकल घरेलू उत्पाद(जीडीपी) वृद्धि में महत्वपूर्ण योगदान देता है।

किसी भी उत्प्रेरण की विशिष्टता यह है कि यह न्यूनतम मात्रा में ऊर्जा उपयोग और कम अपशिष्ट उत्पादन के साथ प्रक्रिया को तेज कर सकता है। इसके अलावा, कैटलिसिस प्लास्टिक, बायोमास और CO<sub>2</sub> जैसे अपशिष्ट पदार्थों को कच्चे माल, नए उत्पादों और ईंधन/रसायनों में बदलने के लिए आशाजनक दृष्टिकोण प्रदान करता है। इन प्रचलित लाभों ने वास्तव में चक्रीय अर्थव्यवस्था को प्राप्त करने के लिए उत्प्रेरण को एक आवश्यक तकनीक के रूप में सक्षम बनाया।

किसी भी शोध का उद्देश्य भविष्य की पीढ़ियों की स्थिरता से समझौता किए बिना बढ़ती वैश्विक मांग को पूरा करने के लिए न्यूनतम ऊर्जा खपत के साथ नई प्रौद्योगिकियों का विकास करना है। यह भारतीय प्रौद्योगिकी संस्थान हैदराबाद (आईआईटीएच) के अनुसंधान समुदाय का मुख्य उद्देश्य है, जिसका लक्ष्य विभिन्न ऊर्जा और पर्यावरण से संबंधित मुद्दों के लिए उपयोगी समाधान प्रदान करने के लिए अत्याधुनिक अनुसंधान करना है। दरअसल, रसायन विज्ञान, रसायन अभियांत्रिकी, पदार्थ विज्ञान, जैव प्रौद्योगिकी, जलवायु परिवर्तन और सिविल अभियांत्रिकी सहित आईआईटीएच के कई विभागों में कैटलिसिस एक अपरिहार्य अनुसंधान का क्षेत्र बन गया है। इस प्रकार, कैटलिसिस सर्कुलर इकोनॉमी लक्ष्यों के अनुरूप, नवीन प्रौद्योगिकी हस्तांतरण उत्पन्न करने के लिए मौलिक कैटलिसिस विज्ञान से विभिन्न विभागों के बीच अंतर-और अंतरविषयक सहयोग को बढ़ावा देने के लिए आईआईटीएच में एक जीवंत मंच प्रदान करता है। आईआईटीएच में उत्प्रेरण के वैज्ञानिक समुदाय के पास उत्प्रेरण के सभी पहलुओं में विशाल विशेषज्ञता और अनुभव है, जिसमें नवीन उत्प्रेरणों का तर्कसंगत डिजाइन, आणविक और नैनोस्केल पर उत्प्रेरणों की गहन समझ, मौजूदा पद्धतियों को आगे बढ़ाना, नई उत्प्रेरण प्रक्रियाओं का विकास करना शामिल है। प्रक्रिया अनुकूलन, और स्केलेबल रिएक्टर डिजाइन, जिसका अंतिम लक्ष्य हरित भविष्य के लिए उपयुक्त चक्रीय अर्थव्यवस्था के लिए व्यवहार्य अवसर प्रदान करना है।

पिछले दस वर्षों में, आईआईटीएच ने बुनियादी विज्ञान से लेकर विभिन्न क्षेत्रों में व्यावहारिक अनुसंधान तक अपनी परिवर्तनकारी यात्रा का रणनीतिक रूप से विस्तार किया है और उत्प्रेरण में अभूतपूर्व योगदान देखा है। संस्थान उत्प्रेरण अनुसंधान में काम करने वाले शोध विद्वानों और संकाय सदस्यों को वास्तव में एक चक्रीय अर्थव्यवस्था (चित्र-1) प्राप्त करने के लिए चार महत्वपूर्ण क्षेत्रों पर ध्यान केंद्रित करने वाली नवीन रणनीतियों के साथ आने हेतु प्रोत्साहित करता है: (i) कम खतरनाक सामग्री और नवीकरणीय ऊर्जा का उपयोग करके टिकाऊ प्रौद्योगिकियों का विकास करना, (ii) ऊर्जा के न्यूनतम उपयोग और आसानी से पुनर्चक्रण योग्य अंतिम उत्पादों के साथ नई रासायनिक और प्लास्टिक प्रसंस्करण विधियां, (iii) कम अपशिष्ट उत्पादन के साथ रासायनिक उत्पादन की उत्प्रेरण प्रक्रियाओं को आगे बढ़ाना, और (iv) अपशिष्ट फीडस्टॉक (प्लास्टिक, बायोमास और CO<sub>2</sub>) के मूल्यांकन के लिए सक्षम उत्प्रेरण प्रक्रियाओं के माध्यम से मोनोमर्स, नई सामग्री, रासायनिक निर्माण ब्लॉकों और जैव ईंधन में परिवर्तन। संस्थान का लक्ष्य विश्व की भलाई के लिए उत्प्रेरण क्षेत्र में अपनी खोज जारी रखना है।

## डॉ सुदर्शनम पुतला

सहायक प्रोफेसर, रसायन विज्ञान

अनुवाद: हिन्दी प्रकोष्ठ

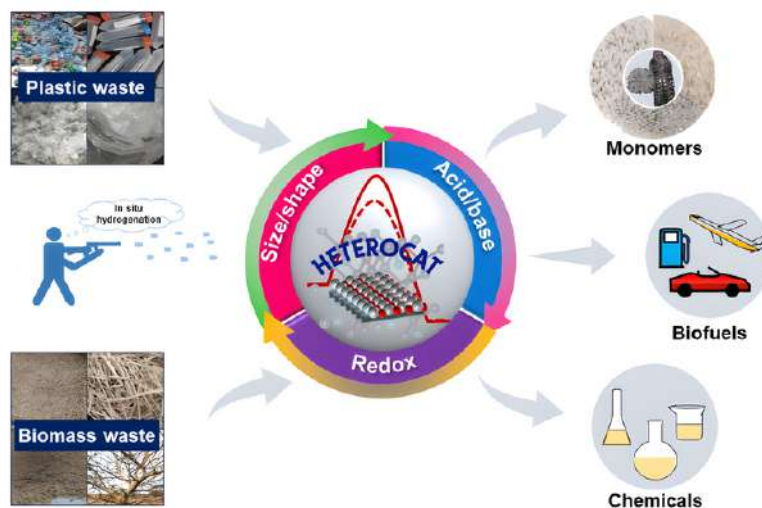
# Advanced heterogeneous catalysis for plastic/biomass waste valorization



**KID: 20230404**

Both plastic and biomass are complex polymers, consisting of strong carbon-carbon and carbon-heteroatom linkages, which make them highly recalcitrant to degradation/recycling at ambient conditions. Heterogeneous catalysis, a key pillar for the chemical industry, can provide alternative routes to activate plastic/biomass structures towards desirable products with low energy consumption and negligible waste generation (Figure 1). Metal oxides and supported metals are widely used heterogeneous solid catalysts in the chemical industry. The unique characteristics of these catalysts are tunable acid-redox properties, high thermal/chemical stability, and facile recovery/reusability, enabling them as appealing catalysts for plastic/biomass waste valorization. The particle size/morphology of these catalysts play a vital role in optimizing catalytic active sites (acid-redox) to achieve higher reaction rates, selectivity, and yield in any chemical reaction. The fine-tuning of the particle size/morphology in the nanoscale range (1-100 nm in one dimension at least) offers remarkable properties, including high specific surface area, abundant acid-redox sites, and highly enriched surfaces (corners and edges). Hence, the application of nanostructured metal oxides and supported metal nanoparticles in plastic/biomass waste valorization has been a focal research topic in recent years.

The activity, selectivity, and stability of a catalyst are the key driving forces for the sustainable development of a catalytic process in the chemical industry. Among them, the catalyst's selectivity is considered the most important factor to make any catalytic process/technology economically viable. The high selectivity of a catalyst towards a desirable product reduces tedious workup procedures as well as the use of solvents to recover/purify the product, thus it eventually minimizes the waste generation and process cost. In the case of plastic/biomass valorization, achieving high selectivity towards a particular product is challenging because both plastic and biomass are rigid, complex polymeric molecules, and their cleavage can lead to the formation of different products.



*Figure-1: Heterogeneous Catalysis for Plastic/Biomass Waste Valorization*

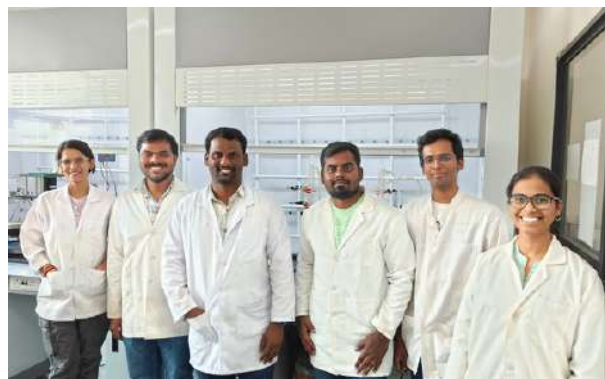
The heterogeneous catalysts, including nanostructured metal oxides and supported metal nanoparticles, typically contain various active sites with non-uniform dispersion and inhomogeneous local geometries. This will not only lead to uncontrolled cleavage of carbon-carbon or carbon-heteroatom (oxygen, nitrogen, etc.) in plastic/biomass but also to non-specific activation of the obtained intermediates, resulting in lower yields of the desirable products. It will have serious implications on the practical feasibility of the catalytic process for plastic/biomass waste valorization. Hence, significant efforts should be made towards improving the existing catalyst development methods and/or designing novel synthesis methods for advanced heterogeneous nanocatalysts with structural homogeneity and optimum specific active sites (acid, redox, or both). A promising approach is to use porous carbon as a support for stabilizing metal nanoparticles, which can lead to improved dispersion and uniform coordination structure of metal active sites as well as enhanced diffusion properties to provide higher reaction rates and product selectivity. In this regard, a great opportunity lies in using plastic/biomass waste as a precursor for preparing porous carbon materials and using them to develop multifunctional metal-based nanocatalysts for the conversion of plastic/biomass waste into monomers, fuels, or chemicals.

Hydroprocessing of plastic/biomass waste in the presence of hydrogen is an efficient way of producing fuel-grade hydrocarbons. However, using hydrogen gas requires extreme reaction pressure and temperature conditions, which in turn not only increases the process cost drastically but also poses safety ambiguities. Hence, the sustainable strategy is to use safe liquid hydrogen carriers, such as methanol, ethanol, or butanol by means of in-situ hydrogen generation and utilization for plastic/biomass waste valorization. Concurrently, facile workup procedures should be developed for separating the byproducts generated from the hydrogen carriers to make the process practically feasible.

#### SP HeteroCat Lab:

The “SP HeteroCat Lab” at the Department of Chemistry, IITH, aims to design and develop sustainable heterogeneous catalytic methods for plastic/biomass waste conversion and diverse nitrogenous chemical synthesis. Our current work is focused on the catalytic recycling/valorization of two types of plastic waste: PET to value-added monomers and polyolefin plastic to fuels (petrol, diesel, or jet fuel) and porous carbon materials. The conversion of lignin, a waste product from 2G ethanol and pulp/paper industries, to fuels, chemicals, and functional carbon materials is another key focus of our research. The third research topic is to develop facile catalytic C-N coupling strategies for biomass-based N-heterocycles (drug motifs) using safe hydrogen carriers. The key to efficient and selective plastic/biomass waste valorization is to develop new heterogeneous catalytic materials with structural uniformity and the optimal amount of specific active sites. Thus, we strive for a deeper understanding of the catalysts at the nanoscale range that can provide us with valuable insights for the rational design of novel bifunctional nanostructured metal-based catalysts with optimum catalytic active sites (mainly acid-redox properties) for plastic/biomass waste conversion and diverse nitrogenous chemicals.

The success of any research group primarily depends on the research scholars. The SP HeteroCat group is fortunate to have enthusiastic, dedicated, and motivated research scholars, and their commitment and perseverance to work on challenging problems stimulate the group research endeavours at IITH. We aim to continue our commitment to excellence, innovation, and the pursuit of knowledge in the field of Heterogeneous Catalysis, with the ultimate goal of developing industrially relevant processes for plastic/biomass waste conversion towards a sustainable society.



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## Catalytic dye degradation by hydrogel-silver nanoparticle nanohybrids

**KID: 20230405**

Water pollution has emerged as a critical global issue, driven by the industrialization of sectors like paints, food, leather, printing, and textiles that extensively use dyes[1]. These industries generate over  $7 \times 10^5$  tons and nearly 10,000 varieties of dyes and pigments, with more than 10,000 tons consumed annually[1]. Approximately 10–15% of these dyes are discharged untreated into water bodies, posing a significant threat[2,3]. The release of vast amounts of untreated dyes into the aquatic environment is a considerable concern, given their high toxicity and carcinogenicity to microbial populations and mammals[4,5]. It is imperative to treat wastewater effectively to eliminate these hazardous dyes before entering aquatic ecosystems.

Several approaches have been utilized for dye degradation, encompassing chemical[6], biological[7], photocatalysis[8], and catalytic reduction using metal nanoparticles (NPs)[9]. However, using bare metal NPs has some drawbacks compared to stabilized counterparts. The elevated surface energy of naked metal NPs prompts agglomeration, resulting in a notable decline in catalytic activity. Furthermore, these nanoparticles are not easily recyclable through a straightforward centrifugation process. Both challenges can be mitigated by immobilizing metal NPs onto a solid support. Different supporting materials, including dendrimers[10], polymeric microgels[11,12], bulk hydrogels[13], and inorganic substances like reduced graphene oxide[14], are employed for this purpose.





The incorporation of silver nanoparticles (AgNPs) into gels represents an innovative approach to catalyze the degradation of dyes for wastewater treatment. This hybrid system combines the catalytic properties of ANPs with the structural support of a gel matrix. The gel provides a stable and immobilized environment for the silver nanoparticles, ensuring prolonged catalytic activity. When exposed to dye-contaminated water, the gel-encapsulated Ag NPs efficiently initiate degradation processes, breaking down dye molecules. This strategy not only enhances the catalytic efficiency of AgNPs but also facilitates easy separation of the catalyst from treated water. The synergy between silver nanoparticles and gel matrices presents a promising avenue for effective and practical dye degradation in wastewater remediation.

To achieve this goal, we have been working on synthesizing AgNPs in a bioinspired supramolecular gel (Figure-1). The gel here played a dual role as a reducing and capping agent, facilitating the green synthesis of AgNPs by reducing  $\text{AgNO}_3$ . The nanohybrid hydrogels were utilized for the catalytic degradation of dyes (Figure-2). Figure-1 Photographs of gel and silver nanoparticles incorporated gel.

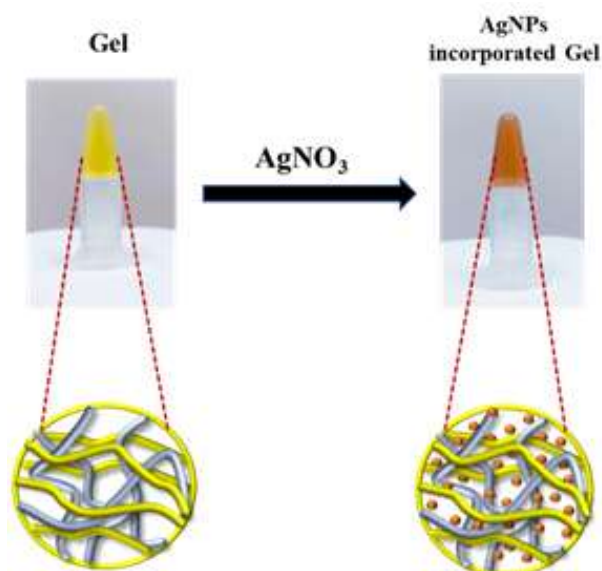


Figure-1: Photographs of gel and silver nanoparticles incorporated gel



Rhodamine B dye Before degradation



Rhodamine B dye After catalytic degradation by AgNPs



Methyl Orange dye Before degradation



Methyl Orange dye After catalytic degradation by AgNPs

Figure-2: Photographs of catalytic degradation of dyes by hybrid gel incorporated with silver nanoparticles.

In the upcoming stages, we plan to incorporate gold or silver nanoparticles along with graphene oxide in the gel. Subsequently, we aim to perform catalytic reduction of dyes using this hybrid gel. We will also endeavour to catalyze organic reactions with this advanced formulation.

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# Electrocatalysis

**KID: 20230407**

The past energy economy was mainly based on fossil fuels like coal, oil, methane, etc. Exploring sustainable clean energy sources is a major societal and technological challenge in this century. In principle, solar and wind energy can meet a large portion of the global energy demand. However, they are intermittent and need efficient and economical storage solutions. Among various possibilities, hydrogen production and storage are attractive solutions. Gasification and steam reforming are established as cost-effective routes to hydrogen generation. However, their carbon content is significant. Thus, the evolution of the hydrogen economy is primarily dominated by the development of cost-effective and low-carbon footprint methods. Electrolysis of water is a promising direction for storing the electricity generated from renewable and carbon-free technologies as hydrogen fuel.

During water splitting, two half-cell reactions take place. The hydrogen evolution reaction (HER) occurs at the cathode and the oxygen evolution reaction (OER) occurs at the anode. Though both reactions are kinetically sluggish, the overpotential loss due to OER is much higher with respect to HER. Hence, OER is considered as the bottleneck of the entire water-splitting process. The technological need for the enhancement of OER kinetics has motivated intense research efforts throughout the world.

It has been shown that the electron transport through a chiral molecule induces a spin polarization without external magnetic fields which is known as the CISS effect. Hence, the spin-dependent electron transfer processes may take place at the liquid/solid interfaces during electrocatalytic OER using a chiral anode. Therefore, the CISS process affects the reaction pathway by controlling the spin-controlled charge transfer at the anode and paving a new pathway to improve the catalytic activity beyond the thermodynamic restrictions.

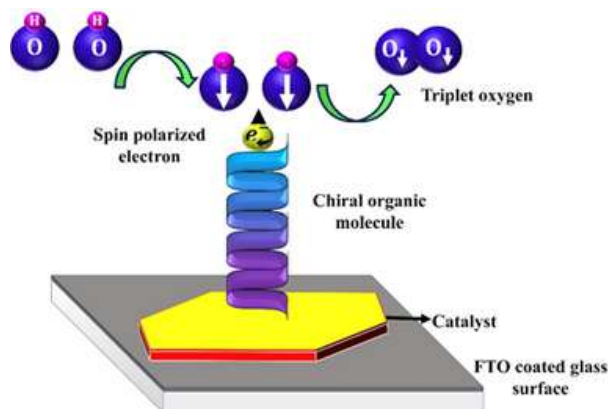
Recently, we have demonstrated the enhancement of OER activity of transition metal-based layered double hydroxides functionalized with chiral supramolecular assembly with respect to the only catalyst-coated electrode as well as achiral functionalized electrode. The spin-polarized charge transfer at the chiral anode also results in the selectivity of the product formation. The control experiments carried out in this study depict that the chiral organic molecule individually may not compete with the state-of-the-art OER catalyst. However, these groundbreaking approaches can be used in conjugation with the top-performing catalysts for the further improvement of their catalytic activity.



Therefore, the evolution of efficient, stable, and cost-effective OER catalysts to make water splitting a viable and scalable energy storage technology is a thirist area for researchers. First-row transition-metal oxides and layered double hydroxides are particularly interesting candidates for next-generation electrocatalysts because of their relatively low cost and easy fabrication process, but the progress is not up to the mark.

From a thermodynamic point of view, an ideal catalyst surface should bind to the reaction intermediates with optimal strength. Specifically, the activity of a catalyst is defined by the binding energies of the catalyst to the intermediate. Recently, some unconventional innovative approaches have been demonstrated to improve the electrocatalytic efficiency beyond the volcano limit by controlling the spin of the electron, and these methodologies are receiving growing concern.

My research is mainly focused on exploring this unconventional way of improving electrocatalysis by spin filtering the anodic or cathodic current using chiral molecule-modified catalyst systems. The justification behind the use of a chiral catalyst as the spin-filtering electrode is the chiral-induced spin selectivity (CISS) effect.



*Proposed mechanism of OER at the chiral molecule modified anode*

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## Electrocatalytic Counter Electrodes for Low-cost Solution Processed Liquid Junction Solar Cells

KID: 20230408

Liquid junction solar cells (LJSCs) represent a cost-effective, easy-to-fabricate approach in photovoltaic technology, harnessing the unique properties of photoactive materials (quantum dots (QDs), dyes, silicon nanowires (SiNWs) or textured Si) to convert sunlight into electricity with enhanced power conversion efficiency (PCE) and flexibility. These are typically solution-processed solar cells and have garnered considerable scientific attention due to their potential to overcome limitations associated with traditional crystalline Si or thin film-based solar cell technologies and pave the way forward for novel applications in renewable energy. At the heart of the LJSC is the “electrocatalytic counter electrode” (CE) or cathode, which plays a pivotal role in controlling the PCE and stability of LJSCs.

A LJSC has a configuration like that of a battery; it has a photoanode, an electrolyte based on a redox couple (e.g., I<sup>-</sup>/I<sub>3</sub><sup>-</sup>, Br<sup>-</sup>/Br<sub>3</sub><sup>-</sup>, Sn<sub>2</sub><sup>-</sup>/SnS<sub>2</sub><sup>-</sup>, [Fe<sup>III</sup>(CN)<sub>6</sub>]<sup>3-</sup>/ [Fe<sup>II</sup>(CN)<sub>6</sub>]<sup>4-</sup>, Co(II)/Co(I) etc) and an electrocatalytic CE. The function of the electrocatalytic CE in a LJSC is to facilitate the transfer of electrons from the current collector to the oxidized species present in the electrolyte and maximize this reduction process at the CE/electrolyte interface. Minimizing the overpotential linked with the reduction process is equally crucial for efficient cell operation. The choice of electrocatalytic materials greatly influences the efficiency and stability of LJSCs. Commonly used materials include metals or their alloys like platinum (Pt), gold (Au) etc., conducting polymers (e.g., poly(3,4-ethylenedioxythiophene), polypyrrole etc.), carbon-based nanomaterials (e.g., carbon nanotubes, reduced graphene oxide etc) and transition metal oxides or chalcogenides (TMOs or TMCs, e.g., Cu<sub>2</sub>S, NiS, WO<sub>3</sub> etc) and their composites. These have been extensively investigated for their electrocatalytic properties. A schematic illustrating the role of the electrocatalytic CE in an LJSC is displayed in Figure-1.

In our lab at IITH, a wide range of low-cost electrocatalytic CEs for high-efficiency solution-processed LJSCs have been developed. Our efforts have been directed towards developing novel electrocatalytic materials that offer high catalytic activity, stability, and compatibility with electrolytes in the LJSC architecture.

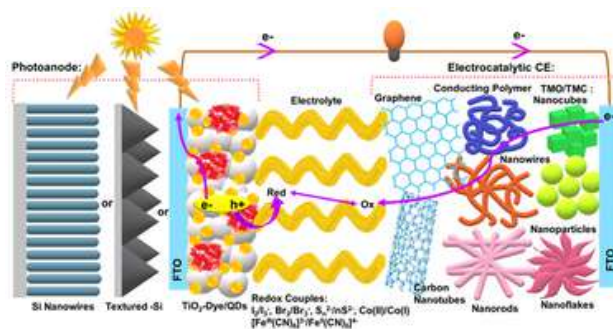
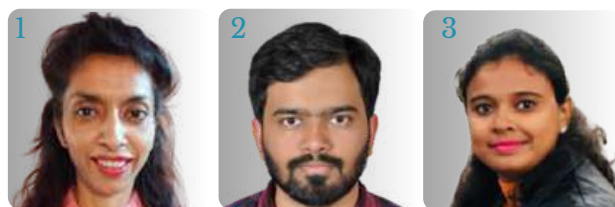


Figure-1: Schematic illustrating the role of electrocatalytic CE in a LJSC



For instance, a quasi-solid state solar cell with antimony nanorods anchored to SiNWs photoanode, I<sub>3</sub><sup>-</sup>/I<sup>-</sup> redox couple-based gel containing dispersed Cu<sub>2</sub>O nanocubes and an electrocatalytic NiO CE delivered a PCE of 4.7% (under 1 sun). Noticeably, the cell endured 500 hours of continuous 1 sun illumination accompanied by a ~24% drop in its PCE. Another architecture of ionic liquid functionalized graphene nanoparticles anchored to SiNWs with a WO<sub>3</sub> film as an electrocatalytic CE delivered a best PCE of 7.93%, with an average value of 7.26%. LJSC with vertically aligned SiNWs, co-sensitized with fluorescent and narrow gap CdTe nanoparticles, and cuboidal shapes of zinc tetraphenyl porphyrin (ZnTPP) dye offered broad and strong visible light absorption that resulted in a maximum PCE of 9.1% when combined with a polymeric gel electrolyte of an I<sub>2</sub>/I<sub>3</sub><sup>-</sup> redox couple as the hole transport material and a CE of PEDOT film doped with imide ions. A crack-free smooth and homogeneous polymer surface, a shallow work function, and a high electrical conductance of the electro-catalytic imide-doped PEDOT polymer contributed significantly to the observed high PCE of the LJSC.

A Si-free tandem solar cell was developed with a photocathode or CE of p-type NiO sensitized with AgBiS<sub>2</sub> QDs, which was combined with a photoanode based on trigonal-selenium sub-microtubes (t-Se s-mT) and CdS anchored to titania (TiO<sub>2</sub>). The cell delivered a PCE of 7%, wherein the AgBiS<sub>2</sub>/NiO served as an excellent electrocatalyst for the reduction of Sn<sub>2</sub><sup>-</sup> electrolyte species and the nano-structured morphology enhanced the electrochemical surface area, yielding high photocurrents. These examples demonstrate the ability of CEs to control the performance of LJSCs.

In summary, solution-processed LJSCs represent a promising frontier in photovoltaic technology, offering the potential to alter the landscape of renewable energy conversion, thus contributing towards a sustainable future. Advancing research and innovation in this area necessitates the development of environmentally benign, earth-abundant and electrocatalytic CEs for highly efficient solar cells for diverse applications.

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# Electron Flow: A Versatile Tool to Inspire Organic Synthesis



KID: 20230409

In response to the imperative of achieving sustainable development goals and addressing societal demands for environmentally friendly chemistry, there has been a keen focus on the development of green chemical strategies and technologies that utilize clean energy sources. As a result, numerous methodologies have emerged, and electro-organic synthesis is becoming one of the increasingly versatile tools in organic synthesis due to its potential to provide sustainable and environmentally friendly alternatives to traditional chemical synthetic routes.[1–4] This electrochemical method has gained significant interest from worldwide synthetic chemists and industry and opened strategic pathways in organic synthesis toward synthesizing pharmaceutically and biologically essential products. [5,6] A notable surge in the development of electrochemical organic synthesis has been witnessed, particularly in the last decade. Contrasting with early approaches based on inherent reactivity, researchers have recently integrated creative conceptions of organic syntheses into these eco-friendly approaches. Electrochemical organic synthesis is a branch of organic chemistry that utilizes electrochemical methods to facilitate and control chemical reactions. It is the process of synthesizing organic compounds merely by using electricity. Utilizing the power of electricity provides unique advantages, such as improved selectivity, milder reaction conditions, and reduced environmental impact when compared to traditional chemical processes; this can be beneficial in improvising the selectivity and tolerability for sensitive functional groups.[7]

Thus, employing this technique would eliminate or minimize the use of toxic oxidizing/reducing agents and eliminate/minimize waste generation compared to conventional synthetic procedures, thus making it an eco-friendly and cost-effective method.

As the world shifts towards sustainable energy sources, electrochemical methods align well with renewable energy inputs, such as solar and wind power, making the whole synthetic process environmentally friendly.

Electrochemical methods are employed for forming carbon-carbon (C–C) and carbon-hetero (C–X) bonds, essential for constructing complex organic molecules. [8–10] It allows for the selective functionalization of organic compounds and enables the introduction of specific groups in a controlled manner. Also, it has found applications in the pharmaceutical industry, contributing to developing new drug candidates and modifying existing pharmaceuticals. The field extends to synthesizing organic materials, such as polymers and conducting polymers, with tailored properties for various applications.

In this context, our laboratory in the Department of Chemistry, IIT Hyderabad, is actively developing new synthetic processes based on environmentally friendly and cost-effective methods and extending their application in pharmaceutically relevant compounds.

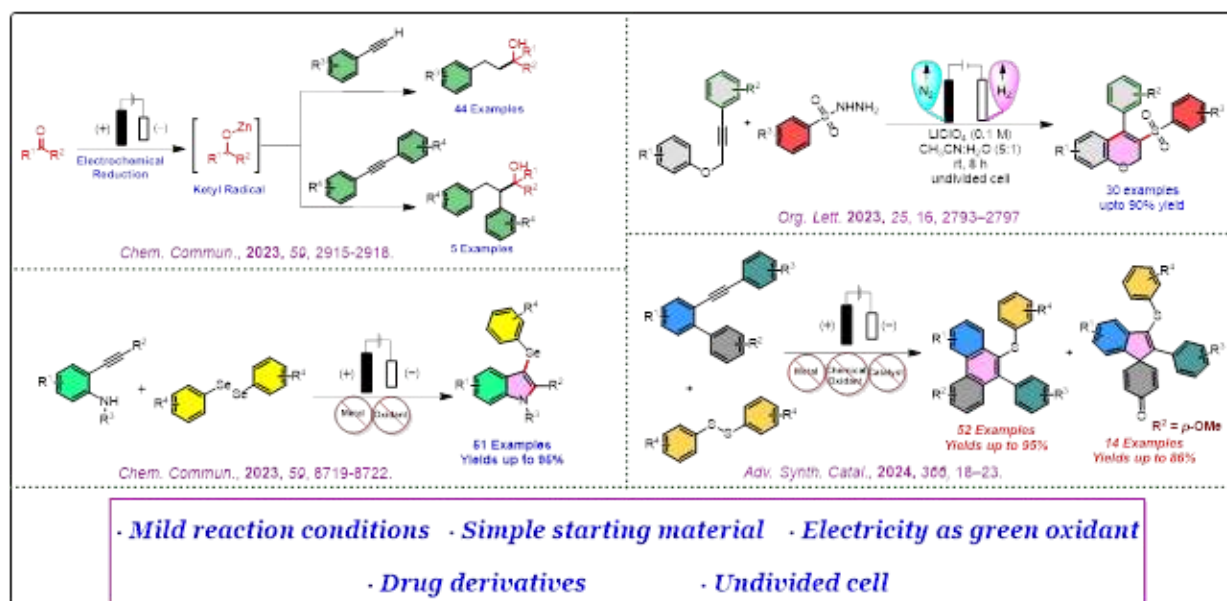


Figure-1: Transformative Organic Synthesis Through Electrochemical Marvels

For instance, our successful synthesis of tert-Alcohols, [11] 3-Selenylindoles, [12] Sulfonated 2H-Chromenes, [13] Fused Sulfenyl Phenanthrenes, and Sulfenyl Spiro Cyclohexa[4.5]trienones [14] relied on sustainable methods (Figure-1). These protocols work under mild reaction conditions at ambient temperature, utilizing constant current electrolysis in an undivided cell without utilizing external oxidants, reductants, or catalysts. We are currently focusing our research on overcoming challenges and optimizing these methods for widespread use in the chemical industry.

In conclusion, electrochemical organic synthesis would pave the way for its widespread adoption and open new possibilities for sustainable and efficient chemical transformations in organic synthesis and its applications across various fields. As research in this field continues, it will likely yield innovative solutions in achieving complex organic compounds with reduced environmental impact.

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## Elucidating the facet dependence for solvent-mediated furfural acetalization reaction on Pd nanostructures

**KID: 20230410**

Structure-sensitive reactions are well known in heterogeneous catalysis and surface science wherein particle-size and shape-dependent catalytic activity and selectivity control is observed with nanoparticle systems. The size-dependent structure sensitivity arises due to the change in the proportion of the type of surface atoms (viz terrace, corner, or edge) with size. As the size increases, the fraction of terrace sites increases at the expense of edge or corner sites which is reflected in reactivity. Another parameter could be particle morphology, wherein particles with differently exposed facets show different reactivity. In addition to the structural and morphological effects, the performance of a catalyst is strongly affected by solvent properties such as polarity, basicity or proticity; therefore, finding the right solvent for a catalytic reaction is important.

In this context, the structure-sensitive behaviour and solvent effect towards an important reaction for the production of biofuels was investigated in the present study. Furfural dialkyl acetals (FDA) obtained from the acetalization of biomass-derived furfural (Figure-1) are promising biofuels because of their high calorific value and oxidation resistance. Using defined experiments (in collaboration with Dr. C.P. Vinod's Group at NCL Pune) and density functional theory (DFT) simulations, the structure-dependent activity and selectivity for furfural acetalization reaction in the presence of alcohols (methanol, ethanol, propanol and butanol) as solvents were studied over well-defined supported Pd nanostructures (octahedra (111), cubes (100) and spheres (both (111) and (100)) (Figure-2).







Figure-1: Catalytic route for the production of furfural dialkyl acetals from biomass derived furfural

Pd cubes exhibited high furfural conversion (80%) and acetal selectivity (93%) compared to Pd octahedras (35% and 77%) and Pd Spheres (35% and 77%). Further, when the reaction was carried out in the presence of methanol as solvent highest conversion (90%) and selectivity (100%) for furfural acetalization was obtained over Pd cubes. DFT simulations provided mechanistic insight into furfural acetalization reaction in the presence of alcohol molecules on two different Pd facets (111) and (100).

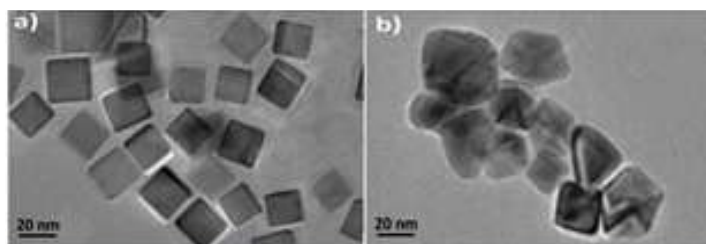


Figure-2: TEM image of (a) Pd cubes (~ 22 nm) and (b) Pd Octahedra (~ 26 nm).

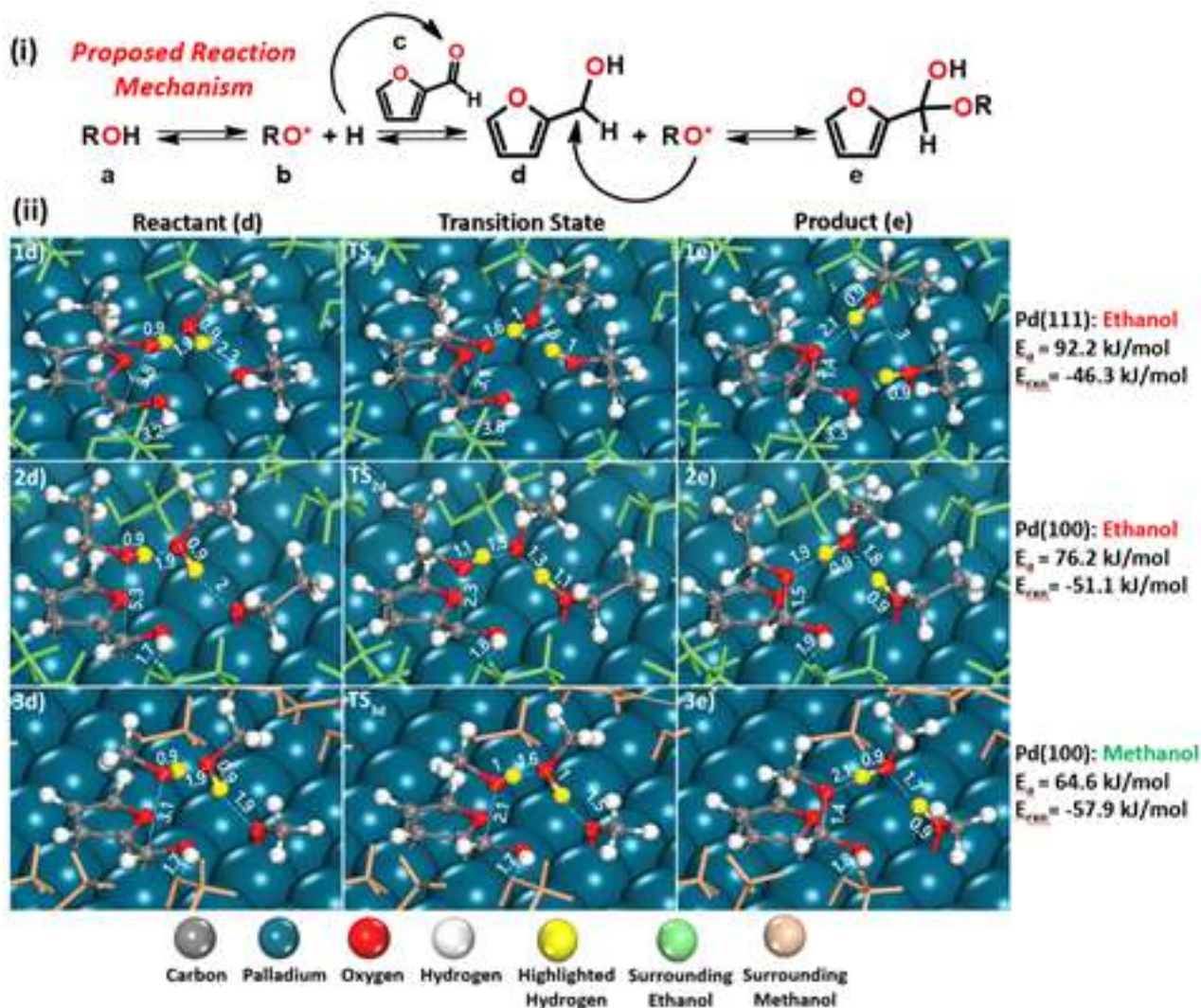


Figure-3: (i) Proposed reaction mechanism for hemiacetal formation, (ii) Reactant, transition, and product state structures for hemiacetal formation in the presence of explicit ethanol solvent on Pd (111) (1d to 1e), Pd (100) (2d to 2e) and methanol on Pd (100): (3d to 3e). Distances are marked in Å with white dashed lines and hydrogen bonds are shown with blue dashed lines.

For furfural acetalization with alcohols, a three-step reaction mechanism was proposed: (i) alcohol hydroxyl-dehydrogenation (ii) hydrogenation of furfural carbonyl oxygen, and (iii) formation of hemiacetal product as shown in Figure 3(i). Pd (100) exhibited low activation barriers (51.6, 26.7 and 76.2 kJ/mol) compared to Pd (111) surface (78.6, 35.8 and 92.2 kJ/mol) in the presence of ethanol for all three steps which corresponds well with the experimental data. The activation barriers for the above steps were further reduced to 47.8, 23.9 and 64.6 kJ/mol on Pd (100) in the presence of methanol, explaining the experimental high reactivity aided by methanol.

DFT calculations elucidated the role of the hydrogen bonding network between the solvent molecules (Figure-3 (ii)) and adsorbate, enabling proton coupled-electron transfer for accelerated reactions. The explicit treatment of alcohol molecules in our model offers an advantage to study the molecular level details of the solute-solvent interactions and can be easily extended to other reactions involved in biomass conversion.

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## Enzymatic synthesis in green chemistry

**KID: 20230411**

When two molecules join hands to form a new molecule, the process is called reaction. Reactions are often assisted by a third molecule called the catalyst and the process being called catalysis. Chemical catalysts have been the chief pillars of many industries from time immemorial. However, chemical catalysis has several shortcomings like extreme working conditions, use of hazardous reagents, and a lack of regulatory control. This has motivated researchers all around the globe to develop sustainable catalysis by exploring biological catalysts, called enzymes, which assist every life process with a high specificity for a given process. Moreover, enzymes are equipped with an element of regulation allowing them to function as and when needed. Research on enzymatic catalysis outside the biological context, for example, under the aegis of “green chemistry”, has revealed promiscuity for alternative processes in some enzymes. This has revolutionized catalysis research to focus more and more on engineering enzymes to perform specialized catalysis for the production of certain non-natural compounds of therapeutic or industrial importance. Green chemistry facilitates the economic, safe, and eco-friendly production of valuable compounds. Biocatalysis or enzyme-mediated catalysis is one of the fields my research lab is focused on. We work on one of such enzymes called PARPs or Poly (ADP-ribose) polymerases, which catalyzes the formation of a polymer called poly (ADP-ribose) or PAR in the cells using the substrate NAD<sup>+</sup> (Nicotinamide adenine dinucleotide). PAR is a highly negatively charged polymer. We have been working on PARP enzymes to make non-natural PAR-like polymers using non-native substrates. The anionic biopolymers can widely be used for drug delivery, regenerative medicine purpose and several other applications in pharmaceutical and healthcare sector.



Since we have been successful in making the non-natural polymer using PARP enzymes, our next course of action would be to test its applications.

Another enzyme we work on is the plant enzyme strictosidine synthase (STR) which unlike PARP enzymes uses two substrates. Bisubstrate enzymes are common subjects of wide catalysis research because of their sheer prevalence in all life forms. STR catalyses the condensation of two molecules, tryptamine and secologanin, into strictosidine – the precursor for several drugs such as reserpine (antihypertension) and vinblastine (anticancer). Promiscuity in STRs for non-native substrates beyond tryptamine and secologanin has been harnessed for the green synthesis of harmicine (antileishmanial and antinociceptive). However, a catalytic outcome with such substrates varies across the STRs from different plant species. We have been working to explore the substrates’ binding mechanisms in a variety of STR enzymes to understand their role in the differing catalytic outcomes. The orientation of atoms in molecules, also known as chirality, plays an important role in drug efficacy. Enzymes like STR are exploited to synthesize a molecule with desired chirality in excess, which is a major bottleneck in classical chemical synthesis approaches. Our study helps to engineer the STRs to catalyze reactions with non-cognate substrates. Also, we plan to design STR variants to get products with the desired properties.

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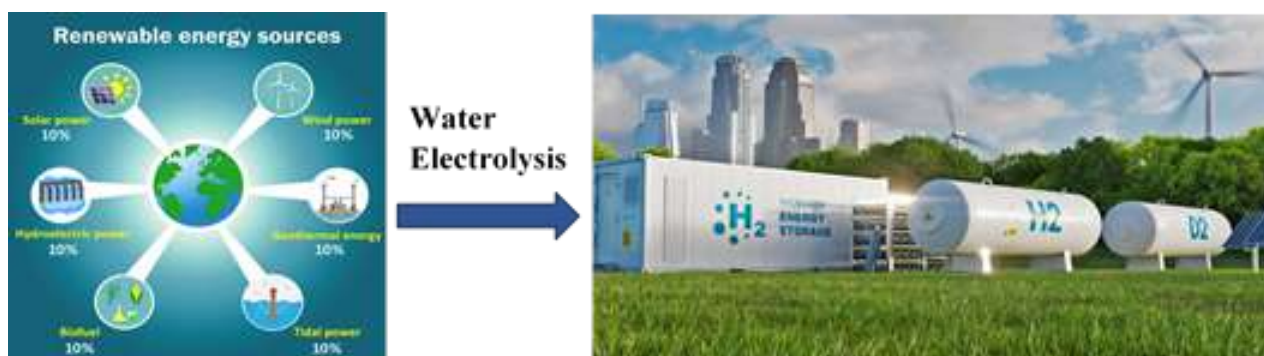


# High Entropy Alloy (HEA) Nano Catalysts for Hydrogen Evolution Reaction (HER) through Water-Splitting



**KID: 20230412**

Global energy demand is rising due to population growth and industrialization, with 85% currently reliant on non-renewable sources. Green hydrogen production addresses energy challenges and offers a zero-carbon fuel alternative.



*Hydrogen production through water electrolysis using renewable energy resources*

(Source: [renewable-energy-sources-vector-infographics-solar-wind-tidal-hydroelectric-geotherm-in-2023—725501821246507706](https://www.un.org/africarenewal/magazine/july-2022/green-hydrogen-viable-option-transforming-africas-energy-sector).  
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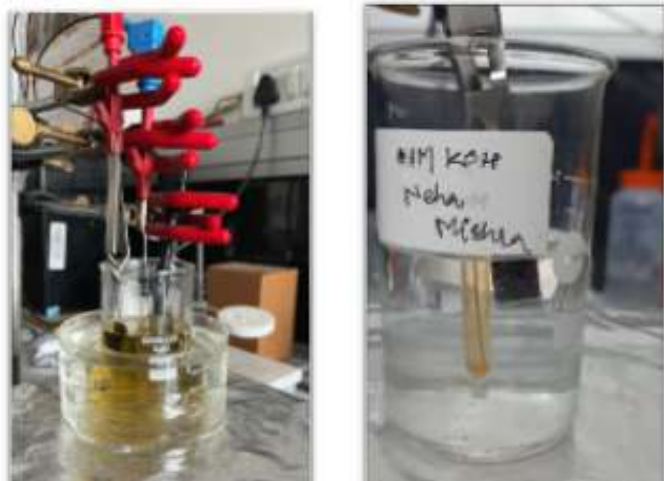
Electrocatalytic water splitting is considered a green method of hydrogen gas generation. This process requires a theoretical potential of 1.22V to liberate hydrogen and oxygen at the cathode and anode respectively. Practically, extra potential needs to be applied for the splitting of water which is termed as overpotential. In this context, catalyst plays a crucial role as they have the capability to minimize the overpotential required for the splitting of water. Conventionally, noble metal-based catalysts, especially platinum (Pt) have been used as the most efficient catalyst for the electrolysis of water with fast kinetics in an acidic medium. However, being a noble metal, Pt is very expensive and has limited abundance in nature. On the other hand, commercial catalysts of single metal(s) often suffer from dissolution, aggregation, and sintering resulting in catalyst deactivation. Therefore, there is a need to design inexpensive and novel catalysts that can address the challenges in commercial electrocatalysis for hydrogen evolution reaction (HER) in various alkaline and acidic electrolytes. These electrocatalysts can be designed using computational means such as Density Functional Theory (DFT), Machine Learning (ML), etc. In addition, they can be designed in terms of activity, selectivity, and stability through surface engineering i.e., by changing their sizes (nanosized) and morphologies (nanoparticles, nanowires, and so on). Similarly, structural engineering via alloying, can modify electronic properties by adding other relevant elements. In this direction, nanostructured high entropy alloys (HEA) have come into limelight as promising materials for HER. Based on increased configurational entropy, HEAs are solid solutions consisting of at least five elements in the range between 5 and 35 atomic weights %.

They possess tunable features like composition, electronic structure, and physico-chemical properties like thermal stability, superior corrosion/oxidation resistance, exceptional durability, high hardness, and so on. Very recently, he has been explored in the field of electrocatalysis as a potential candidate for various electrochemical reactions due to their higher activity, stability, and selectivity. Though the combination of various elements provides a huge scope, several challenges starting from fabricating scalable homogeneously distributed composition to alloying of multiple elements are yet to be addressed.

The Combinatorial Lab specializes in the Electrochemical Synthesis of HEA. This is a single-step process involving aqueous-based electrodeposition of multiple elements on some substrate. The lab could successfully synthesize a thin film of FeCoNiCuZn HEA on Ti substrate and the lab's groundbreaking work has resulted in the acquisition of a patent for this unique synthesis route.

The primary goal of our laboratory is to pioneer the development of unexplored (HEA) nanocatalysts specifically designed for the (HER) through water splitting. Our objective is to achieve a remarkable performance in terms of activity, selectivity and stability which will be comparable with commercial Pt/C catalysts (benchmark catalysts). Through this comprehensive approach, our lab aims to make a lasting impact on the field of catalysis, renewable energy, and the transition towards a cleaner and more sustainable energy future.





Electrochemical set-up for HEA synthesis and HER through water-splitting

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## Revolutionizing Chemistry for a Sustainable Future: Pioneering Advances in Organometallic Research by OMCL, IITH



**KID: 20230413**

Our lab is at the forefront of research that unlocks answers to complex questions involving energy, health care, and the environment. We develop significant innovative research and major technological breakthroughs in all aspects of organometallic chemistry and materials, with a particular focus on the important innovation of sustainable methodologies, catalysis, and functional materials.

We contribute to the field of inorganic and organometallic chemistry on fundamental and applied levels by investigating new and efficient ways to activate small molecules and developing catalysts useful in both academic and chemical industries. To accomplish this goal, we systematically develop the hitherto unknown N-heterocyclic carbene (NHC) ligand-supported late transition metal and main group metal catalysts. Novel synthetic methods for metal-NHCs are also being developed within the group, with the aim of making these complexes more attractive for wide-scale use.

We have been Click Chemistry has a great commercial deal in pharmaceutical and life science applications. An azide is added to an alkyne with a copper catalyst. The two reagents click together in a quick and selective manner in the presence of a copper catalyst to result in a single cyclic product. This simple circular economy reaction can be useful in the sustainable synthesis of new drugs through biorthogonal chemistry. This is a key synthetic protocol to generate “clickable” antibodies for cancerous tumours. Based on this technique, antibody-drug conjugates are produced by AstraZeneca and Daiichi Sankyo to replace Herceptin for the treatment of HER2 positive breast cancer.

In this context, we have developed super-fast copper(II) catalyzed click chemistry through a mechanical route to isolate the key pharmaceutical ingredients such as carbazole decorated 1,2,3-triazole derivatives through solvent and additive-free routes. Besides, the regioselective products were isolated within 6 minutes for the first time. This is the only known mild yet fast sustainable approach to isolate the carbazole decorated 1,2,3-triazole derivatives.



GP Group Catalysis Scheme Diagram



Organometallics & Materials Chemistry Lab, Chemistry

(L-R): Mr. Sunham Ojha, Ms. Parkhi Sharma, Dr. Ramesh Karupnaswamy, Dr. Kalaivanan Subramaniam, Mr. Suman Mandal, Prof. G. Prabusankar, Dr. Muneshwar Nandeshwar, Mr. Sabari Veerapathiran, Dr. Mannaem Adinarayana, Dr. Mannarsamy Maruthupandi, and Dr. Vaddamanu Moulali.

Besides, we have developed a straightforward yet scalable approach to isolate another pharmaceutical ingredient, such as ferrocene coumarin. This was achieved through the highly efficient yet sustainable multi-component Knoevenagel condensation approach to isolate the ferrocene coumarin using well-defined, air- and moisture-stable diimine Zn(II) catalysts.

Thioethers are a significant pharma component and one of the challenging molecules to isolate through mild reaction conditions. We have demonstrated the first discrete zinc(II) catalyst-mediated C-S cross-coupling reactions between aryl halides and thiophenols without scrubbing the oxygen and moisture. This methodology is a cheap yet effective alternative for expensive metal catalysts along with a broad substrate scope.

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**Dr G Prabusankar**  
Professor, Chemistry

## Role of catalysts for sustainable future for food, fuels, and commodity products



**KID: 20230414**

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The global population is anticipated to double by 2050, with cascading effects on the shrinkage of cultivation land, food and energy resources crisis, and damage increasing environmental pollution. India is already facing a petroleum crisis and relies on ~84% of imports to meet the fuel/chemical demands. Technological innovation must be directed at addressing these futuristic sustainability challenges. The catalysts (bio-, chemo-, and electro-catalysis) will continue to play a pivotal role in the sustainable sourcing of fuels, chemicals, and food/feed products from renewable resources and by valorising/utilizing waste streams and maintaining environment cleanliness. Technological innovations are also progressing radically to produce fuels/chemicals from renewable biomass and organic carbon-rich waste streams in an integrated biorefinery approach. Our current research is directed at producing gasoline, aviation, and diesel range hydrocarbons from renewables or waste carbon sources using chemo-catalysis, thermo-catalytic, or integrated fermentative and chemo-catalytic approaches. Unlike traditional biofuels, these green biofuels are compatible with current infrastructure, have the same fuel mileage, are readily acceptable to customers, and can easily penetrate the market. The aviation sector is expected to grow drastically in the coming years. So, market-ready technology for sustainable aviation fuel (SAF) is thus the need of the hour, as this sector has no alternative energy-sourcing options.

Our recent work demonstrated the proof-of-concept for SAF production from the furanic precursor. The process involves the bioproduction of furanic molecules, followed by its catalytic upgrading into high molecular weight fuel precursors and catalytic deoxygenation to SAF, centred around C14 branched alkanes with better combustion and cold flow properties than n-paraffin and aromatics (Figure-1).

Petroleum and natural gas are the primary raw materials for petrochemicals and fertilizers. Our work is also directed to produce drop-in/platform chemicals/hydrogen from renewable organic resources. Butanediols (BDO) are exemplary platform molecules with tremendous derivative chemistry. The integrated biochemical and chemo-catalytic approach could diversify product opportunities via butanediol, including 1,3-butadiene, methyl ethyl ketone, aromatics, olefins, etc. (Figure-2). Organic carbon wastes and residues from crops, food, industry, and municipality are posing significant environmental problems. Channelling these carbohydrate-rich organic waste carbon streams into value addition products like BDO and its derivatives is a more profitable approach than traditional anaerobic digestion, burning, disposal, or treatment, reducing the effort for waste management and disposal issues.



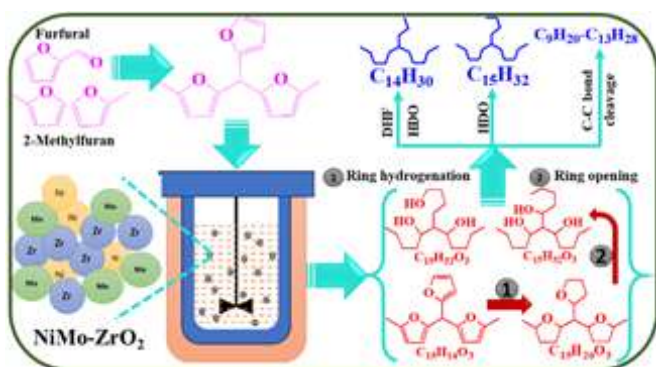


Figure-1: Sustainable aviation fuel from furanics

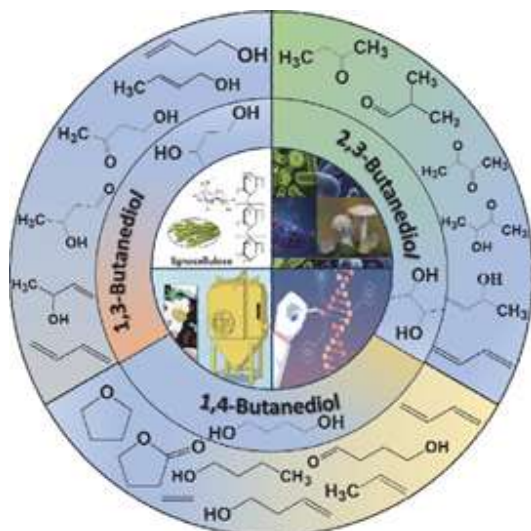


Figure-2: Biorefinery via butanediols platform

These kinds of breakthroughs will eventually mitigate dependence on fossil reservoirs for fuels/chemicals and carbon emission/waste management challenges. Expanding food production by around 70% from alternative sources is another need to overcome the futuristic challenge of feeding the massive global population. Microalgae could be a promising alternative to plant and animal-based food/feed sources, such as protein. However, the success of biorefining technologies depends mainly on techno-economic viability and environmental sustainability concerning existing petroleum technologies. Our work also encompasses techno-economic and life cycle analysis of the biorefining processes. Though environmental benefits are evident, economics are currently not favourable for all biorefining processes but will be eventually viable when petroleum scarcity reaches its peak. The policy should be framed to deploy successful biorefining processes systematically to meet long-term sustainability goals for fuels, commodity products, and food.

Dr Sunil Kumar Maity

Professor, Department of Chemical Engineering

## Use of Earth-abundant Metal Catalysts for sustainable and atom-efficient Reactions Synthetic Organometallic Chemistry and Catalysis Lab (SOMCC Lab)

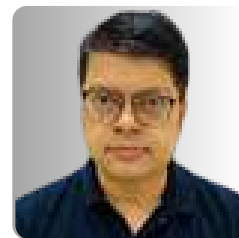
KID: 20230415

### Motivation:

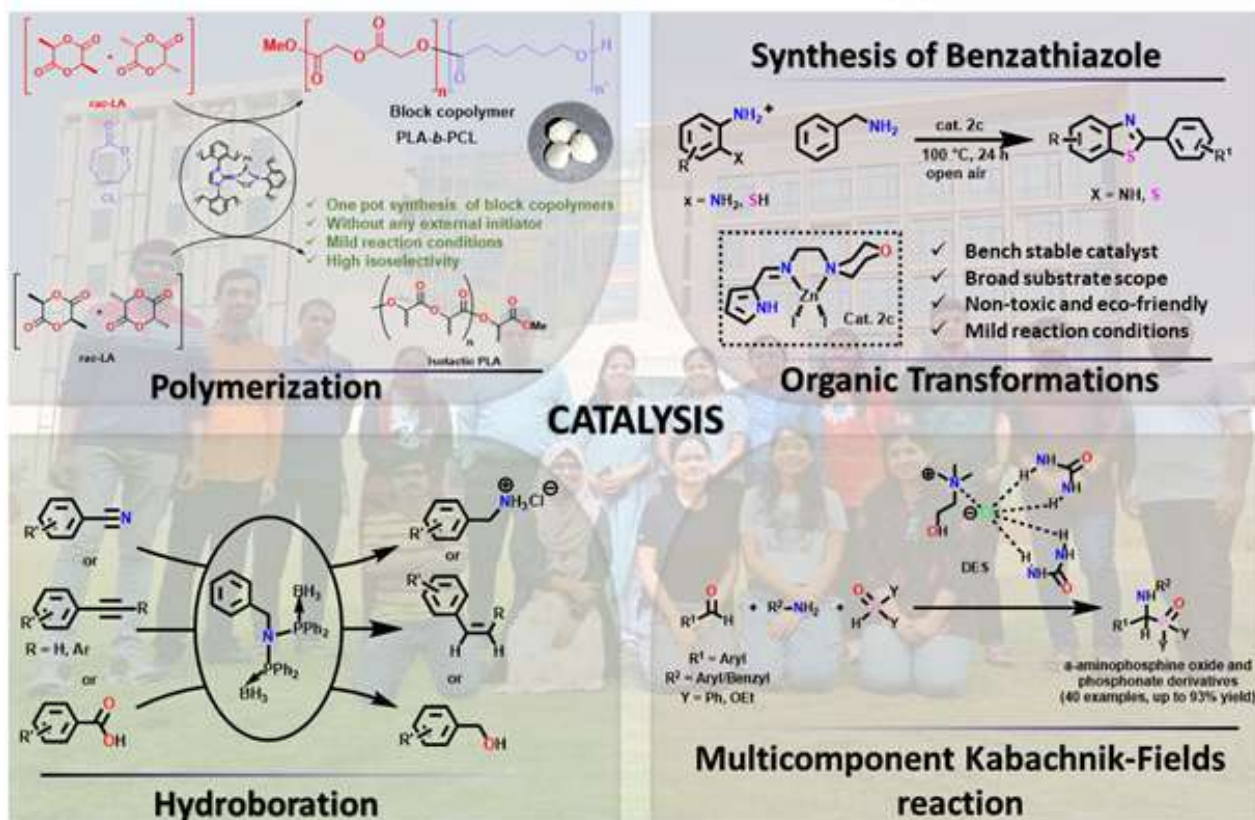
Our research group is working on innovative projects in organic and organometallic chemistry. We believe that great efficiency in all organic reactions is necessary to prevent the creation of hazardous contaminations, minimize waste and byproducts, and ensure the sustainability of chemical production in contemporary industrial processes. To accomplish this, well-defined organometallic complexes must be integral to homogeneous catalysis in methods that are safe for the environment. Catalysis plays a pivotal role in many areas of chemistry and has resulted in the creation of several sustainable and atom-efficient methodologies. Therefore, chemists play a specific role in this research area to find suitable alternatives to these non-renewable plastics and value-added products from renewable sources.

### Problem Statement & Solution:

Transition metals, lanthanides, have received more extensive research which are relatively expensive, low abundance, toxic, and disposal of these metals can have negative impacts on ecosystems and humans. On the other hand, earth-abundant metal complexes based on alkali metals, alkaline earth metals, aluminium, and zinc shine as sustainable and affordable alternatives to precious metal catalysts, offering a crucial solution to our environment and resources, particularly in large-scale organic transformations and ring-opening polymerization reactions. The substitution of less expensive, safer, and ecologically friendly main-group metals for transition metals is widely desired due to the inherent disadvantages of transition metals. After considering all these drawbacks and issues, our group has been interested in exploring these earth-abundant metal complexes in the field of catalysis.







Scheme Diagram of Catalysis by Synthetic Organometallic Chemistry and Catalysis Lab (SOMCC Lab)

#### Differentiating factor:

In the field of organic transformations in catalysis, the predominance of nitrogen-containing heterocycles in natural products and drug molecules has led to the design of new drug derivatives in pharmaceutical chemistry. Also, organoboron compounds, which are produced by the hydroboration of unsaturated compounds, are very useful in various organic transformations. For example, borylamine, which is produced by the hydroboration of nitriles and amides, is essential to several industrial operations, including the synthesis of polyesters and dyes.

They also serve as building blocks for medicinal chemicals, resulting in the creation of artificially beneficial molecules. We also actively research for the development of new eco-friendly solvents which has become an important aspect of green catalysis. DESs are defined as the mixtures of two or three compounds that can be associated mainly via hydrogen bonds. DESs have various properties like biodegradability, low toxicity, and inexpensive nature, which make them better alternatives to ionic liquids (ILs).

These DESs have wide applications in electrochemical processes, polymer syntheses, catalysis, extraction of bioactive compounds from biomass, and many more. We have mainly focused on catalysis and therefore we have used DES as a dual role of solvent as well as catalyst in different organic reactions. In the field of polymerization, when compared to other metals, using earth-abundant metals as an ROP initiator has several benefits. Because of the incredibly low electron affinity of alkali metal ions, the ligand-electrons in these complexes are readily available for monomer activation.

#### Industry applications and social implications:

Catalysts based on alkali metals, alkaline earth metals, aluminium, and titanium can also be used for various catalytic processes. These metal catalysts have a long way to go before they are used commercially, but sustainability will always be the driving force.

#### Next phase of the work:

We are carrying out different projects as discussed earlier and developing different catalyst systems with diverse ligand backbones for various catalytic reactions such as hydroboration of nitriles, alkynes, and carboxylic acids; catalytic cyanosilylation of ketones; cross-dehydrocoupling of amines and silanes; synthesis of urea, biuret, isourea, isothiourea, phosphorylguanidine, and quinazolinones; catalytic addition reactions of amines, thiols, and diphenyl-phosphine oxides to heterocumulenes and copolymerization of various monomers. For biodegradable polymers, the produced PLA and block copolymers will be employed in drug delivery systems. The literature contains reports of drug administration methods that make use of biodegradable polymers such as polyglycolic acid (PGA) and polylactic acid (PLA). Therefore, it is appropriate to use biopolymers to deliver medications to cancer cells in a safe and controlled manner.

**Dr Tarun Kanti Panda**  
 Professor, Department of Chemistry

# Exploring the Alchemy of Industrial Chemistry: A First-Year Odyssey

**KID: 20230416**

Greetings to the vibrant community of IITH!

This is Shubham Nare, a BTech 1st year Industrial Chemistry student in the Department of Chemistry, and this is my experience, rather, my journey into the realm of Industrial Chemistry.

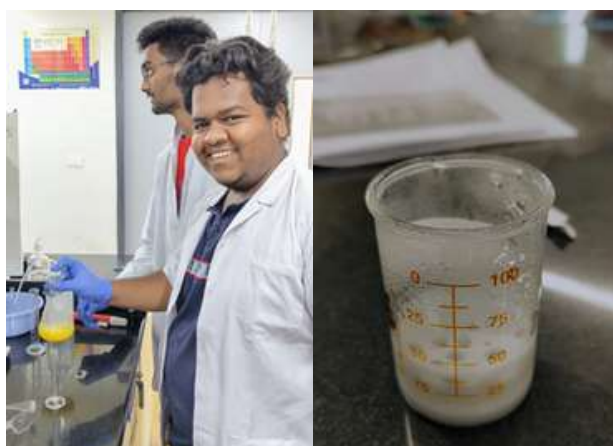
The first semester has been nothing short of exhilarating. Join me as I share some of the highlights and insights from this journey of academic exploration.

From my JEE preparation times, I was interested in chemistry. Majorly my interest and my rank were the key factors that made me choose Industrial Chemistry as my branch in IITH.

In our first sem, we had a bunch of courses, out of which only one of them was from my core courses. It was IOC-1 (Industrial Organic Chemistry). The initial weeks were marked by a fascinating introduction to the fundamental principles of organic chemistry, which we already learnt in class 12th, like Conjugation, Resonance, Alcohols, Phenols, Ethers, Polymers, etc. Further, we were taught about the application of chemistry on an industrial level. Like Raw materials, manufacturing and engineering are required in the Chemical process industry. Formation of Methanol, Formaldehyde Formic acid etc., at large-scale industrial level.

We also had other courses like ITP, where we were taught the basics of C programming. Calculus 1 and 2, as the name suggests, were courses related to calculus and math (in which I am least interested).

The second semester started with a lot of core subjects like quantum chemistry, Thermodynamics, Systematic Inorganic Chemistry and applications and Transport properties and Chemistry Lab. Hands-on experiments breathed life into the theories we had absorbed in lectures. Distillation setups, chromatography columns, and chemical reactions in action became a fun part of our regular coursework.



So this was all about academics; now let's dive into some non-academic stuff. As I entered the college, I was starstruck by the beauty of this IITH campus. Exploring campus alone at night became the favourite part of my routine. Initially, we were allotted double sharing rooms, but after a few months, we were shifted to single rooms. We celebrated a lot of festivals together, like Ganesh Chaturthi, Dussehra, Diwali, Makar Sankranti etc. I also learnt new things in this journey. Dussehra was the first time I learnt Garba. I also learnt how to operate a DSLR and video editing for the first time when IITH hosted the Yuva Sangam Phase 3. I was also a part of IInvenTive 2024: The largest R&D innovation fair of Higher Education.

In conclusion, the first semester in industrial chemistry has been a transformative journey marked by exploration, challenges, and triumphs. I look forward to the continued learning, growth, and camaraderie that the coming semesters promise.

I haven't planned a lot about my future plans. However, I am planning to pursue an MBA after 4 years of my BTech.



**Mr Shubham Nare**  
BTech - 1st Year  
Industrial Chemistry



# Journey of Dreams!

## *Navigating Academia, Passion, and Leadership at IITH*

**KID: 20230417**

Hi everyone!

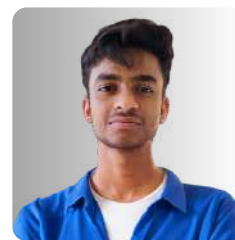
I'm Anand, a third-year BTech student in Industrial Chemistry, IITH. Hailing from Bhopal, Madhya Pradesh, my journey to this esteemed institution began like many others – as an aspiring JEE candidate fuelled by dreams of academic excellence. While the pandemic forced our first semester online, stepping onto campus felt like stepping into that dream realized.

Surrounded by brilliant minds with diverse backgrounds, I quickly found myself drawn to exploring the various clubs and societies we had on our campus. Film-making and Photography emerged as a passion, allowing me to capture the essence of campus life and beyond. I also improved my leadership skills by joining various organizing teams and forging meaningful friendships along the way.

My academic pursuits held equal excitement. As part of the first batch of IITH's Industrial Chemistry program, we're pioneers in navigating a unique curriculum that blends the depths of chemistry with practical engineering applications. This curriculum ignited my interest in computational sciences; I also completed a summer project guided by a professor. This experience not only allowed me to explore my interests but also developed crucial research skills.



Beyond academics and clubs, I was fortunate to contribute to social causes by volunteering with the National Service Scheme (NSS). Teaching children at nearby government schools and orphanages and organizing donation drives on campus were incredibly rewarding experiences.



Furthermore, thanks to my involvement in the photography club, I had the opportunity to participate in the Inter-IIT cultural meet. Witnessing the fierce yet healthy competition between brilliant minds from all the IITs and even clinching a gold medal in a photography competition was an unforgettable experience.



Currently, I serve as the Media and PR Secretary in the Students' Gymkhana, leading a team of students. This role has brought immense personal growth. Witnessing the dedication and collaborative spirit within the team is truly inspiring. From effective communication to conflict resolution, the challenges I face have equipped me with invaluable life skills.

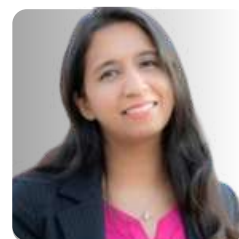
College life at IITH has been about more than just academics and extracurriculars. It's about the late-night study sessions fuelled by endless cups of chai, the impromptu laughter erupting in hostel rooms, and the camaraderie forged through shared experiences. It's about discovering oneself, pushing boundaries, and embracing opportunities that shape your future.

Looking back, my journey from a wide-eyed JEE aspirant to a campus leader has been both enriching and humbling. The experiences, challenges, and friendships I've encountered have moulded me into the person I am today. As I continue my journey at IITH, I'm excited to see what the future holds, confident that the foundation laid here will propel me towards achieving my dreams.

**Mr Anand Sharma**  
*BTech - 3rd Year*  
*Industrial Chemistry*



## Balancing Academics and Beyond: Nurturing Holistic Growth in Education



**KID: 20230418**

My name is Dr. Priyanka Verma, and I am currently working as an assistant professor in the Department of Chemistry at the Indian Institute of Technology Delhi. I was born and brought up in New Delhi. I did a BSc (Hons) in Chemistry from St. Stephen's College, University of Delhi, and an MSc in Chemistry from IITH, followed by a PhD from Osaka University, Japan.

I wanted to pursue my higher education at a reputed institute, and based on my ranking in the JAM exam, I was offered the position to pursue an MSc in Chemistry from the prestigious IITH. Although I was a top ranker in the University of Delhi Master's entrance program, I chose to join IIT to have a different learning experience in a new place.

I enjoyed studying physical chemistry and electrochemistry concepts. Also, we were introduced to a new subject of nanochemistry and its latest applications, which was very interesting. It formed the basis of my current research expertise. The efforts and dedication of faculty members toward teaching also helped create interest and make complex topics appear simple. The chemistry practical labs were also informative and exciting.

Besides academic activities, I participated in a sports event (friendship race) and got an award. Also, I did a fractional credit course on Photography by a famous cinematographer, Navroze Contractor. After completing the course, the selected photographs were put up for exhibition at IITH. I also volunteered for a full-day duty for the electoral process.

Apart from the thorough knowledge of the courses, I learned a lot during 1-year research training in Prof Ch Subrahmanyam's laboratory. I got hands-on training on sophisticated equipment, analyzing and interpreting the obtained data and materializing it into a research publication. This process has helped me understand research-related skills and further motivated me to continue research in the future.

My specialization in Chemistry and the research project at IITH laid the foundation for teaching and research. The coursework was designed in such a way as to provide us with in-depth knowledge of the subject and presentation skills of research-related activities. This has helped in building confidence and nurturing communication skills. It motivated me to pursue doctoral studies, without which it wouldn't have been possible for me to land a position as a faculty member at IIT Delhi.

On the day of convocation in 2014, winning the institute gold medal award, I was fortunate to attend it with my parents on Aug 8th, 2014 (pic enclosed), which was the best moment I can recall from my life @ IITH.



*MSc Chemistry Batch of 2013 (seniors) and 2014 (classmates)*



*Independence Day Celebration at IITH (2012)*



*IITH-Japan Academic Panel Discussion (2016)*



*Fresher's party at IITH with MSc Chemistry classmates (2012)*

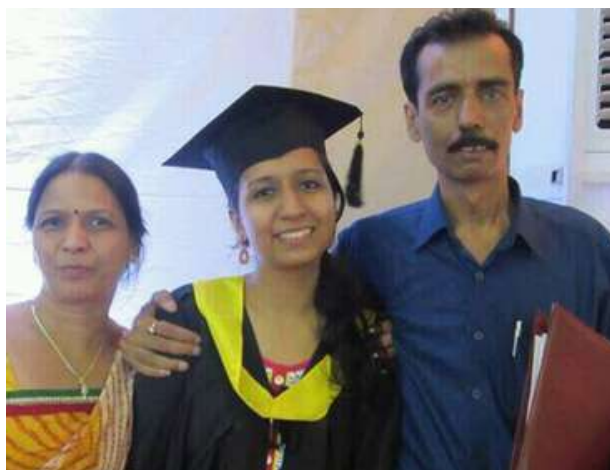


A well-rounded education should encompass academics and the development of physical, emotional, and social aspects of a student's life. So, do well not only in academics but also in extra-curricular activities. **Make new friends and socialize often, which will help build solid relationships and are crucial for success in the future.**

**The interaction and number ratio between students and faculty members, research atmosphere, and kindness of people (not only academic but also administrative staff) are the highlight factors of IITH.**

Through alumni associations and activities, I intend to keep in touch with the institute and demonstrate my thanks and support by contributing in some manner, participating in events, conducting sessions, or answering queries from students wanting to pursue an academic career in India or abroad (Japan & UK). I also aim to initiate research collaboration and facilitate access to analytical techniques, which are available at IIT Delhi. **The best way to contact me is by email: [pverma@iitd.ac.in](mailto:pverma@iitd.ac.in) and X (previously Twitter): @plasmonicpriya.**

I wish to convey my appreciation for my experience and knowledge while studying at IITH. I am grateful for the IITH-Japan Friendship program, which enabled me to pursue doctoral studies in Japan. I appreciate the remarkable influence the institute has had on my life and the information and skills I acquired during my master's program in Chemistry.



*IITH convocation on Aug 8th, 2014, with my parents at the institute.*



*Friendship Race @IITH (2012)*



*IITH Academic Fair in Japan (2016)*

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**Dr Priyanka Verma**  
*MSc (2014), Department of Chemistry, and  
Assistant Professor, IIT Delhi*

## Solar Paint: Solar Energy Harvesting Thin Film



**KID: 20230419**

Affordable renewable energy generation locally for commercial and residential consumption can help alleviate some of the stress on the renewable energy power plants and thereby help us move away from fossil fuels. We can tackle climate change by reaching our net zero and sustainable development goals by adopting this strategy. To reach these targets, we need superior but affordable clean energy technology, which is scalable and deployable easily at any location. The need for technological advancement in photovoltaic technology in terms of harvesting solar energy, deployment and traditional manufacturing is now more than ever by adopting a change in our approach and expanding on the research done by scientists for decades. We are developing clean energy technologies based on groundbreaking research that can convert any surface into a solar panel.

The major advantage of Pavakah's approach is the form factor, utilizing the energy generation potential of built-up areas in the cities (including any surface) along with the cost of large-scale manufacturing and ease of deployment at scale. Our approach can lower the cost of solar PV, leading to faster and larger-scale adoption. The work we are doing at Pavakah Energy is on harvesting solar irradiance on any building, structure or vehicle by transforming them into solar panels. This is done by painting or coating a thin film of solar cells, which will harvest the sunlight and convert it into useful electrical energy. This work has huge applications not only on Earth, but also in space, like satellites, and future structures on the moon or Mars.

The chemical synthesis of these materials can also be made in large quantities without the need for importing major manufacturing equipment, and it is also comparatively cheaper to do so and also environmentally safer compared to the process involved in current Solar PV manufacturing.

But to call any product a truly sustainable technology, it should be recyclable and transformable into something usable after the product reaches its end of life. We are designing our technology based on these principles, and our product "solar paint" is truly one of its kind PV technology, that can be recycled easily compared to existing technologies.

Research into nanomaterials and its applications have come a long way from Richard Feynman saying, "There is plenty of room at the bottom" in 1959 and today where we have powerful handheld electronic devices that are made up of tiny transistors, just tens of nanometers in size. These technological advancements are based on scientific progress in understanding the fundamental building blocks of our universe and have led to engineering marvels and innovative products that are not only necessary for economic gain but also serve as means for the betterment of the general population and improved quality of life for billions of people.

As the energy requirement of our planet increased decade on decade as a result, which also went hand in hand with economic development (Figure-1: How economy vs energy plot through the years), powering the industries and increasing quality of life with the help of fossil fuels. We thought our quest for greater power and economic gain could be fuelled by digging deeper without bothering about the environment and the planet itself that has been sustaining us. After realising the damage we were causing to the atmosphere, environment and the planet as a whole through many independent and collaborative research efforts by climate scientists, geologists and astronomers, we realised the need to develop sustainable energy means.

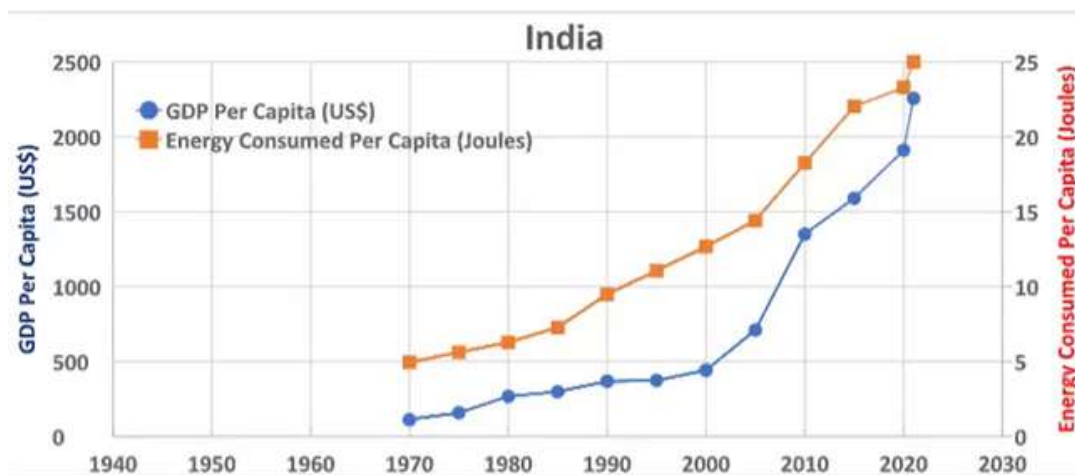


Figure-1: GDP per Capita (US\$); Energy Consumed Per Capita (Joules) - India



The advent of solar PV technology, which was developed based on the photovoltaic principle discovered at the beginning of the 20th century, came in the late 70s and early 80s as a technology demonstration more than a serious thought as a commercially viable product for large-scale usage. With the discovery of global warming and the realisation of the threat to the natural world and the delicate balance in the ecological systems, there has been a conscious shift towards developing greener and sustainable energy technologies. Since then, scientists have made great progress in the field of material science to develop new techniques for material synthesis and increase the efficiency and lifetime of solar PV technology.

The Solar PV technology serves as a sustainable and affordable means to harness the sun's abundant energy received by Earth. However, there has been limited development in improving the form factor and adapting the PV technology for large-scale deployment and broader use cases. There is also a need to bring down the cost of solar PV technology manifold for us to become a truly sustainable civilization. This means affordable clean energy should be accessible to millions of people (residential and businesses) and increase their standard of living at the same time (Figure-2).

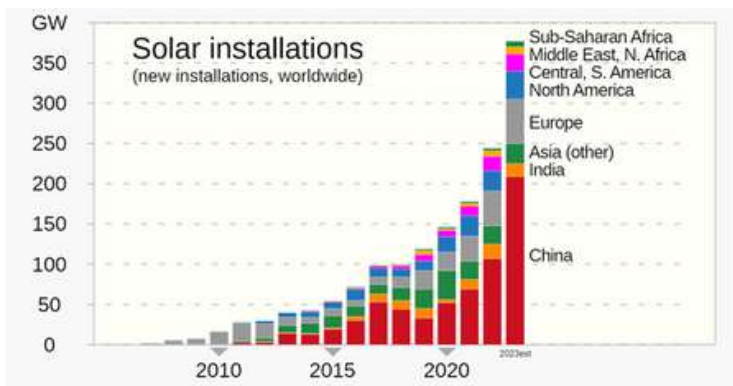


Figure-2: Solar energy adoption rate and projections for the world

Some scientists have envisioned this and worked for decades now and have made good improvements in synthesis techniques for nanomaterials, understanding of charge transfer mechanism in nanomaterials, figuring out how to control the band gap of the nanomaterials, etc. Such incredible work by scientists, however though has not been completely useful for the general public in the form of publicly available data or research articles in reputed journals. To take complete advantage of any research into fundamental sciences, we should be able to translate the knowledge gained in the laboratory into market-validated technology and products.

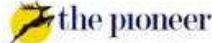
There has been good progress on thin films and fundamental research on thin film science for developing solar cells in research institutes across the world, and the results are very promising. We are adapting this thin film research combining it with our own work, and translating it to develop our flagship product, solar paint. A paint that can harness solar energy by converting any surface into a solar panel with a coating or painting process (Figure-3). This technology, once developed, has the potential to change the landscape of renewable energy.



Figure-3: Solar Paint Composition (L) and Glass slides coated with Solar Paint which functions as an electrode (R)

**Mr Vikram Bakaraju**  
 Founder, Pāvakaḥ Energy





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# Yuva Sangam: Telangana team to visit BHU from Nov 27

PIONEER NEWS SERVICE ■ VARANASI

Under Yuva Sangam, Telangana state (IIT, Hyderabad) has been paired to Uttar Pradesh (BHU, Varanasi) to celebrate the Yuva Sangam. As many as 45 students and five faculty members from Telangana State (IIT, Hyderabad) are slated to visit Banaras Hindu University (BHU) from November 27 to December 1.

Giving this information, while addressing a press conference here on Friday, Director of Institute of Science and Chairperson of Coordination Committee Prof. Anil Kumar Tripathi and Nodal Officer of the programme Dr. Nand Lal, along with members of Coordination Committee Prof. Chalapati Rao, Dr. Bela Lakshminarayana, Dr. Venugopal and Ranjit Shandilya said that during the visit the participants from Telangana will have an opportunity to know and be aware of the various aspects of UP. They said that during the visit hosted by BHU, the Telangana team will visit various iconic places in Varanasi and around and interact with different stakeholders. The visit includes those to Shri Kashi



Coordination Committee chair Prof. Anil Kumar Tripathi talking about Yuva Sangam event at BHU in Varanasi on Friday.

Vivekanand Temple, Ramnagar Fort, Ganga ghats, Sarnath etc. The visiting delegation will also have an opportunity to familiarise with the local cuisines, lifestyle, handicraft, cultural and other aspects. Prof. Tripathi said that India is a land of diversity and this diversity, reflected in the form of different languages, cultures, lifestyles and beliefs, also binds us together as one nation that stood tall and strong over centuries. "This unity in diversity has become a distinct identity of India that is celebrated by all Indians. The government of India has taken a long initiative

Ek Bharat, Shreshtha Bharat (EBBS) to acknowledge and honour and further strengthen this sense of unity that defines the uniqueness of this great civilisation," he said. He further said that the idea of EBBS was conceptualised by the Prime Minister Narendra Modi to create a structured and sustained cultural connect between various States/UTs of India. "In order to strengthen people to people connect and build empathy between the youth of our nation, 'Yuva Sangam' programme was launched under the EBBS in early 2015. Yuva Sangam is an

ongoing cultural exchange with celebration of diversity at its core wherein participants gain an immersive experience of diverse faces of life, natural landmarks, developmental landmarks, recent achievements, and youth connect in the host state through an exposure tour of 5-7 days," he said. During these tours, participants get multi-dimensional exposure under five broad areas that are Paryatan (Tourism), Parampara (Tradition), Pragati (Development), Pradyogiki (Technology) and Paryasarak Sampark (People-to-People Connect), he added.

# సెమీ కండక్టర్ల రంగంలో... ఆవిష్కరణలకు ప్రోత్సాహం!

- ఎన్ఎస్ఐ పీ ఇండియా, బాలీ హైటెక్ ఇంటర్నేషనల్ ల్యాబ్స్ లలో సులభంగా రెండో పీజిబి
- అయిదు అంకుర సంస్థలను వికేతలుగా ప్రకటించిన నిర్వాహకులు కేసరి, సంగమిద్ది



సెమీకండక్టర్ల రంగంలో ఆవిష్కరణలను ప్రోత్సహించాలని ఎన్ఎస్ఐ పీ ఇండియా, బాలీ హైటెక్ ఇంటర్నేషనల్ ల్యాబ్స్ లలో సులభంగా రెండో పీజిబి ప్రకటించింది. బాలీ హైటెక్ ఇంటర్నేషనల్ ల్యాబ్స్ లో సులభంగా రెండో పీజిబి ప్రకటించింది. బాలీ హైటెక్ ఇంటర్నేషనల్ ల్యాబ్స్ లో సులభంగా రెండో పీజిబి ప్రకటించింది.

**వికేతలు రెండు**  
సెమీకండక్టర్ల రంగంలో ఆవిష్కరణలను ప్రోత్సహించాలని ఎన్ఎస్ఐ పీ ఇండియా, బాలీ హైటెక్ ఇంటర్నేషనల్ ల్యాబ్స్ లలో సులభంగా రెండో పీజిబి ప్రకటించింది.

**వికేతలు రెండు**  
సెమీకండక్టర్ల రంగంలో ఆవిష్కరణలను ప్రోత్సహించాలని ఎన్ఎస్ఐ పీ ఇండియా, బాలీ హైటెక్ ఇంటర్నేషనల్ ల్యాబ్స్ లలో సులభంగా రెండో పీజిబి ప్రకటించింది.



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Sun, 19 Nov-23; New Indian Express - Hyderabad; Size : 71 sq.cm.; Circulation:31000; Page : 2

# Green tour of IITH to raise awareness on ecosystem

EXPRESS NEWS SERVICE  
Hyderabad

A GREEN tour of the Indian Institute of Technology Hyderabad (IITH) campus was held on Saturday with the objective to raise awareness among the delegates regarding the operations of a sustainable building and concepts of energy conservation, renewable energy, water saving and sustainable designs, among others.

More than 50 participants, including architects, engineers, students and other professionals, participated to experiment sustainable designs. The tour is also a prelude to the 15th GRIHA Summit in New Delhi on November 23 and 24. The tour was arranged in

collaboration with Green Rating for Integrated Habitat Assessment (GRIHA).

As phase-2 construction of IIT's campus is about to conclude, multiple blocks of the campus are aspiring for GRIHA's Green Building Rating. "IITH pledges to not only contribute to the green building discourse but also actively cultivate a sustainable society, positioning the institution as a beacon of environmental responsibility," said Prof. B S Murty, Director of IIT Hyderabad.

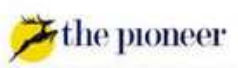
Under the capacity building programme, 'GRIHA Green Tour Series' has been initiated wherein site visits of the GRIHA registered projects are being initiated, showcasing the sustainable strategies and giving the participants an on-site experience of green buildings.



# उत्तर की संस्कृति से रुबरु होंगे दक्षिण के युवा



पंडित दीनदयाल उपाध्याय स्टेज पर तेलंगना से पहुंचे युवा...  
जागरण संवाददाता बाराणसी: 45 सदस्यीय विद्यार्थियों व शिक्षकों का दल पंडित दीनदयाल उपाध्याय स्टेज पर पहुंचा। यहां उत्तर प्रदेश नैडल कक्षा हिंदू विश्वविद्यालय के शिक्षकों व विद्यार्थियों ने उनका भोज स्वागत किया। साथ ही उन्हें लेकर पोस्टर, रिवियल अंतरराष्ट्रीय छात्रावास के खाना हुए। स्वागत दल में प्रो. के.के.एल. राव, डा. नंदलाल, डा. यश लाल, रंजीत शंकर, रोष छात्र नील दुबे, रंजीत राव, कनक, संख्य नास्कर आदि रहे।



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Fri, 27 Oct-23; Pioneer - Hyderabad; Page : Size : 115 sq.cm.; Circulation:55000; Page : 3

# Hyderabadis celebrate fest with Amazon Xperience Arena

Hyderabadis customers participated in the Amazon Great Indian Festival 2023 at the Indian Institute of Technology, Hyderabad with the Amazon Xperience Arena (AXA) on Thursday. This one-of-a-kind showcase gave media, influencers and customers a chance to experience their favorite brands and products while participating in fun engagements. Across the seven interactive zones at the event, customers competed to win exciting rewards and a chance to interact with their top brands across categories.

is amongst the top regions that continue to see customers opting for premium smartphones and large-screen televisions. Ranjit Babu, Director of Smartphones and Televisions, Amazon India, said, "We're thrilled to introduce the Amazon Xperience Arena to our customers in Hyderabad. The city of Nawabs is amongst the top-performing metros in the Smartphone and Television category. As the people of Telangana continue to shop for their favorite products during the festive season on India's most preferred, trusted, and loved online marketplace, we're humbled to







# IIT Hyderabad, with BHU Varanasi as its paired institute, announces its Participation as a Nodal Centre for Telangana in Yuva Sangam (Phase – III)

Hyderabad, Oct 26 (Patriotic Views): Indian Institute of Technology Hyderabad (IITH), with Banaras Hindu University (BHU) Varanasi as its paired institute, is delighted to announce its participation as a Nodal Centre for Telangana in the esteemed Yuva Sangam (Phase – III) initiative. This initiative, a brainchild of the Government of India under the Ek Bharat Shreshtha Bharat program, aims to strengthen the bonds between youth from diverse states, fostering unity and understanding among our nation's vibrant young minds.



## Yuva Sangam in a Nutshell:

Yuva Sangam, an extraordinary initiative, unites youth from across India, offering exposure tours to different states. This program allows students, off-campus youths,

NSS volunteers, and individuals aged 18-30 to explore India's rich culture, traditions, development, and technology. The tours are planned to take place from November to December, providing a comprehensive understanding of India's diversity and unity.

## The Objective of Yuva Sangam:

The core objective of Yuva Sangam is to offer our youth a multi-dimensional exposure under

five broad areas: Paryatan (Tourism), Parampara (Traditions), Pragati (Development), Parasparsam (People-to-people connect) and Pradyogiki (Technology).

Encouraging the youth of the Telangana state for this incredible opportunity, Prof B S Murty, Director, IITH, said, "IITH, driven by its motto 'Invent & Innovate in Technology for Humanity' and in alignment with the National Education Policy (NEP)

2020, proudly announces its role as a Nodal Centre for Telangana in Yuva Sangam (Phase – III), and is glad to partner with BHU Varanasi. This initiative, a visionary creation of the Government of India under the Ek Bharat Shreshtha Bharat program, strives to unite and empower our youth, fostering cultural promotion and interdisciplinary learning, and will encourage technological innovation."

## Registrations Open Now for Yuva Sangam:

We are excited to invite all eligible India youths to participate in this transformative experience. If you are between the ages of 18-30 and passionate about exploring the rich tapestry of India, interacting with fellow youth and broadening your horizons, we encourage you to register for Yuva Sangam (Phase – III)

## THE TIMES OF INDIA

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Sun, 15 Oct-23; Times Of India - Hyderabad; Size - 83 sq.cm.; Circulation: 267065; Page: 1

# IIT-H wheels out its own driverless car, ferries students and profs on campus

Amrita Dikshita  
@amritadikshita

Hyderabad: The city will soon have a say in the future of automobiles. Autonomous, driverless cars are already weaving their way through the crowded roads of IIT Hyderabad located at Kandi village on the outskirts of the city. The shuttle cars, as they are called, are transporting students and faculty within campus for the past two months.



Prof Rajakrishna poses with the autonomous car at IIT-H campus.

Aerial and terrestrial facility and two of these autonomous vehicles are now deployed on campus after a test run for nearly a year. "The autonomous cars possess the latest vision sensors and related technology. It was tested and deployed on campus. It has a LiDAR-based navigation system," said Prof P Rajakrishna, professor of electrical engineering at the institute and director of the TIRHAN centre.

Continued on P6

# Pedalling its way towards future: IIT-H's e-bike make its way to you on their own

Amrita Dikshita  
@amritadikshita

Hyderabad: Bicycles are going to get a futuristic pedal push. Autonomous bikes or e-bicycles, which can be summoned and reach you from parking lots or driveways, are currently being tested at the TIRHAN centre of the Indian Institute of Technology, Hyderabad (IIT-H) in Kandi.

The bikes – fitted with sensors, GPS navigation systems and cloud-based computing systems – can be summoned using an application on a mobile phone or smart watch. When summoned, the bicycle will unlock itself from the parking lot and travel to the location where it is called

## TEAM TO LAUNCH BIKE IN JUNE

- Bikes fitted with sensor, GPS navigation systems & cloud-based computing systems
- Can be summoned using mobile application or smart watch
- Bicycle will unlock itself from parking lot, travel to smart watch location
- One can ride bike like normal one once it reaches location campus & home
- IITH planning to launch it in near future



without anyone riding it – can also ghost vision where bicycles are more accurate without anyone riding it. However, once it reaches the location, the person riding for the e-bicycle can ride it like a normal one – pedalling it all the way. The autonomous bike can be left at a designated place from where it can find its way to a nearby parking lot again. "We are planning to launch it on the campus around June next year. It is in the testing stage and trials are on to the campus. We will launch five bikes which have been brought from others, converted into e-bikes and then developed into autonomous bikes,"

said P Rajakrishna, professor of electrical engineering at IIT-Hyderabad and director of TIRHAN centre. Apart from the convenience of having the autonomous bike at the back seat call with least waiting time in walking up to the parking lot, autonomous bike can be a game-changer when it comes to last mile connectivity. Prof Rajakrishna said the integrated autonomous mobility on roads will be readily in your future. "The autonomous bikes can be connected to smart watches and in future, we are looking at consumer vehicles talking to each other and transportation infrastructure, etc. This is the future of mobility," Rajakrishna added.

## THE BHANS INDIA

Tue, 03 Oct-23, The Hans India - Hydr, Size : 219 sq.cm.; Circulation: 78086; Page : 8

# IITH organises Swachhata Run campaign

Promoting physical fitness while emphasising the importance of cleanliness and sanitation



Have been approved for funding, cleanliness and sanitation.

IIT Hyderabad (IITH) participated in the "Swachhata 78 Seva" campaign as part of the nationwide cleanliness drive, emphasizing its commitment to not only enhancing the campus but also the surrounding communities. The event, held "On basis of clean, safe" was a collaborative effort involving IITH's National Service Scheme (NSS) volunteers, faculty staff and students, alongside the local residents of Channarayana village and the esteemed Additional Collector (Land Revenue) S. Govind Chandraiah Reddy, IAS. "This Swachhata 78 Seva campaign is a commendable initiative that promotes cleanliness and sanitation in the village. IITH's participation in this campaign reflects its unwavering dedication to fostering a cleaner and more sustainable environment. We are proud to work alongside our local community, showcasing that together, we can make a significant impact." Prof B S Murty, Director of IIT Hyderabad, said. "IIT Hyderabad, we believe in the holistic development of our campus and the surrounding communities. Our participation in the Swachhata 78 Seva campaign is a testament to our commitment to a cleaner, greener, and healthier environment. We are proud to work alongside our local community, showcasing that together, we can make a significant impact." Prof B S Murty, Director of IIT Hyderabad, said. "Our involvement in the Swachhata 78 Seva campaign reflects IITH's unwavering dedication to fostering a cleaner and more sustainable environment. We are proud to work alongside our local community, showcasing that together, we can make a significant impact."

# IITH IS INSTRUMENTAL IN PROMOTING INNOVATION IN THE COUNTRY : GUV TAMILSAI SOUNDARARAJAN



Sangareddy, Oct 16 : Executive Education, PhD programs, and Certification courses in the field of Entrepreneurship, consistent with NEP 2020. The school will significantly contribute to the existing programs of IITH such as Minor in Entrepreneurship, Dual Degree in Techno Entrepreneurship, MTech in Entrepreneurship, and Double Major in Techno Entrepreneurship and will come up with future programs jointly with the Department of Entrepreneurship & Management of IITH. Her Excellency Dr. (Smt.) Tamilasai Soundararajan, Hon'ble Governor of Telangana and Hon'ble Lt. Governor of Puducherry. The event was also attended by Dr. Krishna M. Ella, Executive Chairman, Bharat Biotech International Ltd, as Guest of Honor, and Prof. B. S. Murty, Director, IIT Hyderabad, as a Special Guest. The BVR SCIENT is a first-of-its-kind initiative in collaboration with IIT Hyderabad (IITH), which aims to nurture and develop world-class innovation and entrepreneurial talent from India in light of the country's ambition to become Atma Nirbhar Bharat. The SCIENT, jointly with the Department of Entrepreneurship & Management of IITH, will take leverage and access to various departments in IITH and their technical knowledge and expertise. Prof B S Murty, Director, IITH, said, "We are very happy Ciyent Foundation has started BVR SCIENT at IITH. Dr. Mohan Reddy has been IITH for the last decade and to the best of my knowledge, he is the only Chairman Board of Directors of an IIT who has taught at that IIT. He has demonstrated his pas-



THE TIMES OF INDIA

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Circulation:267065; Page : 2

# 5G, 6G projects draw big bucks for IIT-Hyd

Projects Worth ₹570Cr Okayed In Last 5 Years

Hyderabad: Projects on the development of indigenous 5G and 6G testbeds are among the most significant ones funded by the institute in the last five years. The institute has received a total of ₹570 crore in funding for such projects over the last five years.

While three of these are sponsored by the ministry of electronics and information technology (MeitY), the rest are sponsored by IITB (International Institute of Information Technology), Bangalore, COMNET Foundation and the Department of Telecommunications.

"Our major focus is on 5G and 6G testbed development of the first indigenous '5G/6G' testbeds worth ₹500 crore (₹100 crore for 5G and ₹400 crore for 6G) and other related projects," said Prof. Renu John, IIT-H.



Year	Projects	Value (₹ Cr)
2018-21	528	1177cr
2021-23	552	1149cr
2023-25	108	290cr
<b>Total</b>	<b>1188</b>	<b>570cr</b>

Category	Value (₹ Cr)
Medical devices	115cr
5G & 6G test beds	175cr
Clean energy	11cr
Tech for smart highways	12cr

# IIT-H takes up 3.5k projects in 15 years

► From P1

In the last 15 years, the institute has taken up 3,550 projects, many of which are interdisciplinary projects, with a funding of ₹1,012 crore. The largest win was the ₹75 crore project awarded to Kiran Kumar Kuchi from the electrical engineering department that was funded by the IITB-COMET Foundation.

The other big-ticket works, sanctioned in the last five years, included a ₹15 crore project of Renu John from biomedical engineering department by the Indian Council of Medical Research and ₹3 crore (approx) project of Kuchi by ministry of electronics and information technology (MeitY). Kuchi is working on the

development of indigenous 5G and 6G test beds, while John's project is on clinical validation of MedTech products.

So, what's IITH strongest traits: Young faculty; interdisciplinary research; and aligning research with government initiatives such as Make in India, clean energy and Swachh Bharat, say officials. "We have over 300 faculty and the average age is 38. The young faculty is keen on collaborating and solving bigger problems," said Sharma and pointed out that the R&D has resulted in about 140 to 150 startups to spring up, generating a revenue of ₹1,200 crore.

He added that IITH invested hugely in R&D and has the capability to double this figure in the next five years or so.

THE HANS INDIA

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Sat, 14 Oct-23; The Hans India - Hyd; Size : 403 sq.cm.; Circulation:78696; Page : 2

# Model G20 award ceremony at IIT-H recognises 7 pan-India winners

Hyderabad

The India Institute of Technology, Hyderabad (IIT-H), in collaboration with INVAS under the aegis of the Union Ministry of Education, has organised an award ceremony to honour the outstanding achievements of young leaders at the Model G20 award ceremony from all over the country.



Prof. Anil Kumar, IIT-H, who was the chief guest, said that the award ceremony is a platform to recognise the achievements of young leaders who are working tirelessly to address global challenges. He mentioned that IIT-H has supported 120 startups so far, which have created 1200+ new jobs and recruited 700+ students across the country to foster a culture of innovation in our young minds.



Prof. Renu John, IIT-H, who was the chief guest, said that the award ceremony is a platform to recognise the achievements of young leaders who are working tirelessly to address global challenges. He mentioned that IIT-H has supported 120 startups so far, which have created 1200+ new jobs and recruited 700+ students across the country to foster a culture of innovation in our young minds.

# బహుళపాఠాల్లో పూర్వ విద్యార్థుల సమ్మేళనం

● పూర్వ విద్యార్థుల రిసెస్ట్ జనరేషన్ అవార్డుల ప్రధానం

మన దేశంలోని మూడు వేల మంది ముగిసిన విద్యార్థుల సమ్మేళనం జరిగింది. ఈ సమ్మేళనంలో 2013 వార్షిక విద్యార్థుల సమ్మేళనం, పూర్వ విద్యార్థుల అసోసియేషన్ ప్రధానంగా ఉంది. సమ్మేళనం యొక్క ప్రధాన లక్ష్యం, పూర్వ విద్యార్థులను కలుపుకోవడం మరియు వారి అభివృద్ధిని ప్రోత్సహించడం. సమ్మేళనం యొక్క ప్రధాన లక్ష్యం, పూర్వ విద్యార్థులను కలుపుకోవడం మరియు వారి అభివృద్ధిని ప్రోత్సహించడం.



సమ్మేళనంలో పాల్గొన్న 2013 వార్షిక విద్యార్థులు

ఈ సందర్భంగా, పూర్వ విద్యార్థుల అసోసియేషన్ ప్రధానంగా ఉంది. సమ్మేళనం యొక్క ప్రధాన లక్ష్యం, పూర్వ విద్యార్థులను కలుపుకోవడం మరియు వారి అభివృద్ధిని ప్రోత్సహించడం. సమ్మేళనం యొక్క ప్రధాన లక్ష్యం, పూర్వ విద్యార్థులను కలుపుకోవడం మరియు వారి అభివృద్ధిని ప్రోత్సహించడం.

THE TIMES OF INDIA

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# IIT-Hyderabad research funds swell to record ₹1k crore, highest among peers

Nirupa.Vatyam @timesgroup.com

Hyderabad: With the Indian Institute of Technology, Hyderabad (IITH) focusing on cutting-edge research since its inception, the cumulative funding for research and development (R&D) projects that it has received so far has crossed the Rs 1,000-crore mark. The figure is about 30% to

“Since 2008, even when we did not have buildings and other infrastructure ready, we have focused on R&D. We started our work from temporary structures and that paid off as we managed to cross the ₹1,000-crore mark in just about 15 years”  
— Chandra Shekhar Sharma | DEAN (SPONSORED RESEARCH AND CONSULTANCY), IITH

40% higher than what the other second-generation IITHs in the country have managed to garner. A majority of this funding for IITH — about 72.5% — came through grant-

in-aid. Of the remaining, 13.3% was through sponsored projects, 9.7% through consultancy projects, and 3% through internal projects, said institute officials.

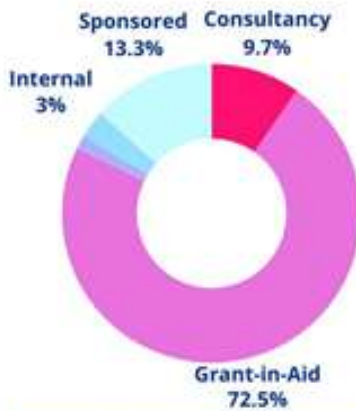
He claimed that the institute is way ahead of other second-generation IITHs where funding for R&D projects are about Rs 600 to Rs 700 crore.

► Continued on P2

## IIT HYDERABAD SURPASSES

# ₹ 1,000+ Cr R&D Projects Funding \*

\*Cumulative projects funding



Projects	Completed	Active	Proposed	Open	Total	
Projects	828	173	336	1378	623	3538
Amount (Cr)	732.84	30.07	134.85	97.8	15.82	1011.38

**Congratulations to all Faculty, Researchers, and Staff for their contribution to make it happen!!!**

Source: Sponsored research & Consultancy (SRC) Office, IIT Hyderabad; Email: office.src@iith.ac.in

IITH achieves a milestone with total cumulative R&D project funding surpassing 1000+ Cr INR.



UFIS (Urban Flood Information System) project showcases our commitment to real-world challenges.

Read more: <https://pr.iith.ac.in/pressrelease/UFIS.pdf>

Video Abstract:  
<https://youtu.be/zz9i62ucZ3c>



IITH Researchers proposed the Use of GFRP Rebar and Discrete Fiber-Based Reinforcing Systems in Concrete Constructions for Improved Durability.

Read more: <https://pr.iith.ac.in/pressrelease/GFRPR.pdf>

Video Abstract:  
<https://youtu.be/CQZdR5hnnOQ>



TiHAN IITH wheels out its own driverless car, ferries for students, staff & and professors on campus and pedals its way towards the future with IIT-H's e-bike making its way to you on its own.

Video Abstract:  
<https://youtu.be/IuYtghOtB8>

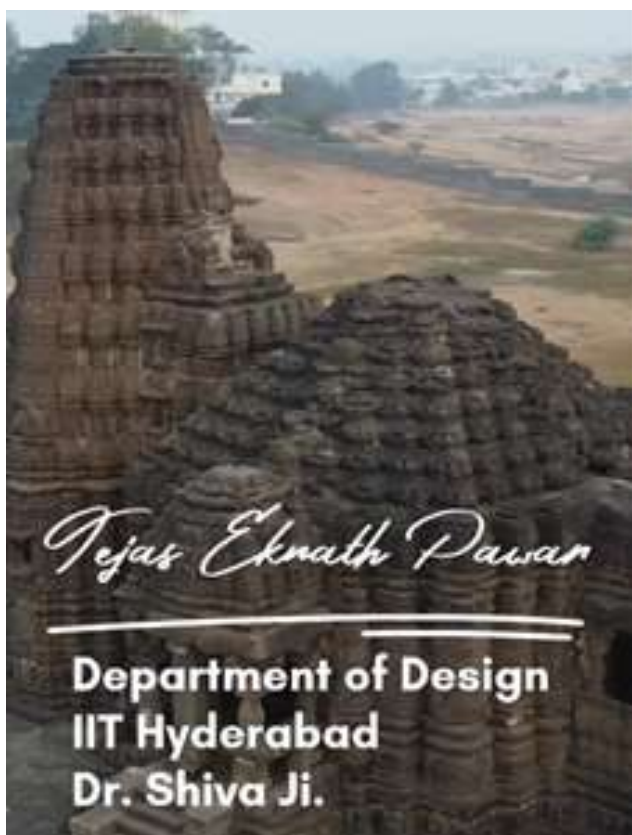




IITH reveals Winners for the inaugural Research Exhibition Expressed by Lens (R.E.E.L.) competition.



2nd Prize - REEL Competition.  
REEL Link: <https://youtube.com/shorts/tuDknqX7sFk>



1st Prize - REEL Competition.  
REEL Link: <https://youtu.be/8SOyA6Ms110>



3rd Prize - REEL Competition.  
REEL Link: <https://youtu.be/UIHx0a9HcpA>



1st Consolation Prize - REEL Competition.  
REEL Link: <https://youtu.be/nCMR-uBNahc>



2nd Consolation Prize - REEL Competition.  
REEL Link: <https://youtube.com/shorts/GcEjBT h5W7I>



3rd Consolation Prize - REEL Competition.  
REEL Link: <https://youtu.be/EITu9-zdewo>



3rd Consolation Prize - REEL Competition.  
REEL Link: <https://youtube.com/shorts/EDj04 Gfx-o8>





“Space Warfare and Space-Based Capabilities” organized by TIFAC, New Delhi & DIA-COE, IITH.



IITH's Department of Entrepreneurship and Management in collaboration with IIC\_IITH, hosted a talk on 'Entrepreneurial Leadership' by Ms. Madhuri Duggirala, VP of Operations and Techno.



IITH recently hosted a dynamic session on 'Problem-Solving and Ideation' organized by the BVRSCIENT and the Department of Entrepreneurship and Management, by Dr Nakul Parameswar.



Workshop on “Entrepreneurship and Innovation as a Career Opportunity” by Professor Suresh Bhagvatula, IIM Bangalore.



IITH Motivational Session by Successful Innovators by Ms Pratima Vishwanath, Founder of Amamma Foods.



BVRSCIENT & Innovation Council at IITH celebrated "Institution's Innovation Day" in honour of Dr APJ Abdul Kalam's Birth Anniversary.



My Story Motivational Session by Successful Start-up Founder by Aakrit Vaish Vice President, Co-Founder & CEO, Haptik.AI.



IITH actively engaged in the 2nd Japan-India Universities Forum in Kyoto, Japan fostering academic and scientific collaboration Prof B S Murty and Prof Tarun K Panda met leaders from Top Japanese universities and industry representatives.

## Campus Corner

Seminars & Talks



VIKSIT BHARAT @2047 Utsav @IITH Launch with Inaugural Address by Hon'ble Prime Minister.



Prof Amitabha Ghosh delivered a motivational lecture at IITH.



The GENDER & GESTURE International Photography Exhibition at IITH.



Nature Chat at IITH uncovered the mysteries of nature in 'Demystifying The Nature' with Prof Chandra Shekhar Sharma and Dr Mudrika Khandelwal, in conversation with Mrs Mitalee Agrawal. Book's Video Abstract: <https://www.youtube.com/watch?v=IlwXpUx3z7k>

## Campus Corner

Celebrations



ECell\_IITH at IITH celebrated National Entrepreneurship Day with the event EMerge organized under IIC at IITH.



Foundation Week Celebrations at the newly constructed Dr BVR Mohan Reddy School of Innovation and Entrepreneurship (BVRSCIENT), IITH. Read more: <https://pr.iith.ac.in/pressrelease/SCIENTFW.pdf>





**BiMlaap, Biomedical Engineering Department Foundation Day Celebration at BTBM Building**



**Bio-Vridhi, Biotechnology Department Foundation Day at Convention Centre.**



**Hindi Diwas Closing Ceremony and Prize Distribution with Dr Anish Kumar Sharma, Director (Technical), ECIL, as our Chief Guest.**



**EBSB's IITH Dussehra Celebration was a mesmerizing blend of traditional customs and modern festivities featuring Bathukamma, Rangoli, Doll Making, vibrant Dance Music, and Memorable moments.**

**Campus Corner**  
Visits/ Tours



**Hosted Journalists and Editors from Bangladesh.**



**IITH hosted Prof V Ramgopal Rao, VC, BITS Pilani and obliged with his kind inputs and testimony about Electrical Engineering.**



**IITH hosted Mr Tuure-Eerik Niemi, Deputy Consul General of Finland, Mumbai.**



**IITH hosted X<sup>th</sup>-Grade Students of Vinner's High School, Nirmal, Telangana.**



## Campus Corner

Visits & Tours



Raja Narayanlal Lahoti English School Latur's Student visited the IITH Facility.



Young Architects admired the GreenTour by the GRIHA Council at IITH.

Read more:

<https://pr.iith.ac.in/pressrelease/IITHGGT.pdf>

## Campus Corner

Collaborations



IIT Hyderabad & Monash University Australia (Academics & Research)

Read more: <https://pr.iith.ac.in/pressrelease/MUJP.pdf>



College of Defence Management, Hyderabad and iTIC Incubator at IITH (Startups Program)

Read more:

<https://pr.iith.ac.in/pressrelease/ABCDC2.pdf>



IIT Hyderabad and CSIR-CRRI (Research & Development)



MRF Limited and IIT Hyderabad (Research & development)

## Campus Corner

Green Campus



IITH proudly participates in the "Swachhata Hi Seva" Campaign!

Video Snippet:

<https://youtu.be/QKKTOMgEluQ>



Read more:

<https://pr.iith.ac.in/pressrelease/SHS23.pdf>





Swachhata Pledge at IITH Commit to daily cleanliness for a healthier environment. Together, we create a lasting impact.



IITH has successfully conducted the Plantation Drive for October 2023 by planting approximately 100 fruit-bearing plants nurtured in our very own nursery.



IITH has successfully conducted the Plantation Drive for November 2023 by planting approximately 100 fruit-Jamun and Jackfruit plants nurtured in our very own nursery.



IITH has successfully conducted the Plantation Drive for December 2023 by planting approximately 200 Plumberiapudika and Ganneru.

## Campus Corner Campus Highlights



Chief Guest Shri Amitabh Kant, G20 Sherpa of India, and Guest of Honor, Shri K Sanjay Murthy, Secretary, HE, Ministry of Education, GoI, at IITH, along with INYAS, celebrated the incredible contributions of Model G20 winners and participants!

Read more: <https://pr.iith.ac.in/pressrelease/MG20A.pdf>  
Video Snippet: <https://youtu.be/r36qnZRHk4E>



iTIC Incubator at IITH Select 75 innovators under the iTIC - IITH - Greenko BUILD Program.

Read more: <https://pr.iith.ac.in/pressrelease/BUILD75R.pdf>



Precision Center Metrology Lab at The iTIC Incubator at IIT H in partnership with Hexagon.

Read more: <https://pr.iith.ac.in/pressrelease/PCML.pdf>





Team IITH visited Sarvodaya Women Entrepreneurs Cottage Industries Gongloor, Sangareddy.



Fire Awareness Program at IITH.



The enchanting SPICMACAY Classical Evening event at IITH.



Students at IITH collaborated to create a powerful music video titled 'Surface'.

Music Video: <https://youtu.be/vcplNafubfE>







*Congratulations to the Winners !!*

 <b>Smartkosh Technologies</b> Market Focus: Industrial & IoT	 <b>Dr. Rashi Dutt</b> Co-Founder and CEO Application Focus: Next generation battery management system	 <b>Droame LLP</b> Market Focus: Other	 <b>Mridul Natani</b> CEO Application Focus: Building highly efficient drones that consume 54% less battery power, with increased flight time and range	 <b>FermionIC Design</b> Market Focus: Communication Infrastructure	 <b>Abhra Bagchi</b> Co-Founder and Architect Application Focus: Fabless semiconductor in PMIC, Mixed Signal and RF IC
 <b>Smartway Electronics</b> Market Focus: Industrial & IoT	 <b>Dr. Bibhuti Bikramaditya</b> Director Application Focus: Pulse oximeter integrated with IR thermometer	 <b>Pramatra Space Technology</b> Market Focus: Other	 <b>Richa Hukumchand</b> Founder & CEO Application Focus: Generate and distribute ultra-secure quantum encryption keys	<p><i>Special Jury Award</i></p>  <b>MOKKOMOTTO (OPC)</b> Market Focus: Automotive	
				 <b>Subhendu S Satpathy</b> Co-Founder and Director Application Focus: Ultracompact and highly efficient smart EV chargers	

**SEMICONDUCTOR STARTUP INCUBATION & ACCELERATION PROGRAM** **SEASON 2**

NXP India, in collaboration with FabCI, IITH proudly announces the Season 2 winners of the semiconductor Startup Incubation Program.

Read more: <https://pr.iith.ac.in/pressrelease/SSIAPS2.pdf>





IITH proudly participates in the “Walkathon Vigilance Awareness” Campaign.



Integrity Pledge and Talk by Mr V Venkat Rao, Registrar, IITH talk on Vigilance Awareness.



Valedictory Function of the VAW2023.



TDS and TCS session with Shri K Meghanath Chowhan and Shri Dr P Sudhakar Naik.



Mr Sarvanan, Joint Controller at ODF shared insights during the Vigilance Awareness Week 2023 Talk at IITH.

## Campus Corner Yuva Sangam Highlights



IITH collaborated with BHU Varanasi for Yuva Sangam, Phase-3.  
ReadMore: [https://pr.iith.ac.in/pressrelease/YSIITH\\_H.pdf](https://pr.iith.ac.in/pressrelease/YSIITH_H.pdf)

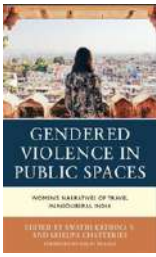


IITH showcased Cheriyal Mask Painting and other highlights of the State during Yuva Sangam, Phase3.  
Video Snippet: [https://youtu.be/syMfmh4\\_6G4](https://youtu.be/syMfmh4_6G4)  
Readmore: <https://pr.iith.ac.in/pressrelease/YSIITHUT.pdf>



42 Youths from across Uttar Pradesh explored the uniqueness of Telangana for Yuva Sangam, Phase-3.  
Video Snippet: <https://youtu.be/5pl7IQ6LM4Q>  
Read more: <https://pr.iith.ac.in/pressrelease/YSIITHFO.pdf>





Dr Swathi Krishna S PhD (2017) & Dr Srirupa Chatterjee, Associate Professor, Department of Liberal Arts authored 'Gendered Violence in Public Spaces'.

Grab your copy from:

1 - Rowman.com: <https://rowman.com/ISBN/9781666902327/Gendered-Violence-in-Public-Spaces-Women%E2%80%99s-Narratives-of-Travel-in-Neoliberal-India>

2 - Amazon: <https://www.amazon.in/Gendered-Violence-Public-Spaces-Narratives/dp/1666902322>



IITH Alumni Meet & Greet at IISc, Bengaluru.



IITH Alumni Meet & Greet at IIT Delhi.

## Decennial Celebration for Graduates of 2013 and the Annual Alumni Day 2023



IITH celebrated its 4th Annual Alumni Day on December 17, 2023, in hybrid mode to facilitate larger involvement. This year, the Institute has announced the 4th set of Alumni Awards to encourage entrepreneurship among IITHians and serve the motto to serve Humanity. The following alumni have received the awards under the categories:

Read more: <https://pr.iith.ac.in/pressrelease/AD23.pdf>

- **Dr Arghya Pal**, BTech (2021), Department of Computer Science and Engineering: Excellence in Academics and Technology Development.
- **Dr Md Azahar Ali**, PhD (2014), Department of Biomedical Engineering: Excellence in Academics and Technology Development.
- **Mr Aditya Aagare**, BTech (2016), Department of Chemical Engineering: Promising Entrepreneur.
- **Mr Vishnu Vikyath G.**, BTech (2014), Department of Electrical Engineering: Promising Entrepreneur (Special Mention).
- **Mr Pramod Rangarajan**, BTech (2012), Department of Mechanical and Aerospace Engineering: Distinguished Contribution to the Institute Building.
- **Dr Rajesh Reddy Datla**, PhD (2022), Department of Computer Science and Engineering: Distinguished contribution to society and nation-building.



Awardees of Annual Alumni Award 2023 with IITH authorities.

Inauguration of the first-ever legacy project at IITH (Lawn Tennis Court).





IITH secures Historic Victory at  
37th InterIIT Aquatics Meet 2023.

IITH Final Medal Tally:  
Gold - 3, Silver - 2, Bronze - 3 Total - 8 Medals.

Read more: <https://pr.iith.ac.in/pressrelease/IIA23.pdf>

## Inter-IIT Sports Meet (Students):

Coach: Mr Baba Aditya Varma P & Ms Purva Kherkar- Athletics:

- Ms Safa Fatima - 2nd year BTech, Department of Biomedical Engineering - 100m & 200m Run (women) - Gold & 400m Run (women) - Silver
- Mr Yashveer Gahalot - 3rd year BTech, Department of Civil Engineering - 200 m, 400m & 400m Hurdle Run (men) - Silver
- Ms Sugirtha, PhD Scholar, Department of Mathematics - Shot put (women) - Bronze
- Mr Sonu Anirudh, PhD scholar: Shot-put(men) - Silver
- Mr Punith, PhD scholar: shot-put(men) - 4th position
- 4th Place is the 4\*100m men relay run participated by: Mr Hurday, Mr Sapnal, Mr Yeshveer & Mr Bharath.
- Ms Safa Fatima was awarded the best woman athlete at the Inter-IIT Sports Meet.

Coach: Dr Mallikarjun - Table tennis (Women) - 2nd Runner up (Bronze):

- Ms Devapriya MS, PhD Physics 4th year
- Ms Avani Gupta, BTech Mechanical 3rd year
- Ms Banavathu Damayanthi, BTech Computational Engineering 1st year

Coach: Ms Ruchi Yadav - Basketball (Men) - 4th position

Team( Mr A Anish, Btech 4th year, Mr K Vinay Kumar, Phd 5th year, Mr Rishabh Shukla, Mtech 1st year, Mr S Aditya Kumar Reddy, Phd 2nd year, Mr Yash Choudhary, Btech 2nd year, Mr Faheem Arif, Btech 1st year, Mr B Lokesh, Mtech 1st year, Mr Vildaam Ahmed, Btech 2nd year, Mr Mathew M Philip, Btech 2nd year, Mr Sameer Kendal, Btech 2nd year, Mr Neeraj Balachandar, Btech 2nd year, Mr Arjun Millind, Btech 2nd year

Coach: Mr Anil Kushwaha - Volleyball (Men) - 4th position

Mr G Nikhil (Captain), Mr Murali Duddi, Mr Chirumamilla Vamsi, Mr Aditya Kalluri, Mr Vilas G, Mr Boda Premchand, Mr N Kiran Kumar, Mr Kothuri Manish, Mr Marie Amalore Nambi, Mr Kotteda Sandeep Kumar, Mr B Charan Chandra, Mr Bobbili Pavan Kishore







## Inter-IIT Sports Meet (Staff):

Coaches: Mr Baba Aditya Varma P, Ms Purva Kherkar, and Dr Mallikarjun - Athletics:

- Ms Purva Kherkar - Shot Put - Gold and Discus Throw - Silver
- Mr Hardeep - Discus Throw - Silver
- Mr Anil Kumar Kushwaha - Shot Put - Bronze
- Ms Ruchi Yadav - Discus Throw - Bronze

Table tennis:

- Men's Team (Dr Mallikarjun, Dr Karteek Sreenivasaiah, Dr Rahul Kumar, and Dr Digvijay S Pawar) - Gold
- Women's Team (Ms Ruchi Yadav, Dr Sonia Naik, Ms Purva Kherkar, and Ms Aruna Nenavath) - 4th position
- Dr Mallikarjun - Best Player of the Tournament (Men)

Coach: Ms Ruchi Yadav - Basketball (Men) - Bronze:

Team: Mr Anil Kumar Kushwaha, Mr Hardeep, Mr Palle Mohan, Dr Avinash Eranki, Dr Subha Narayan Rath, Dr Upendra Sunkari, Mr Srisailam, Mr Vinod Kumar, Mr Nikith Reddy, and Mr Vinay Kumar Beesa

Championship:

Athletics Women's - Runner-up  
Overall - 5th position

## Top 2% Scientists by Stanford University (Published by Elsevier)




**Prof Kirti Chandra Sahu**  
Department of Chemical Engineering  
Joined as Editorial Advisory Board of *Langmuir*



**Dr Shuhita Bhattacharjee**  
Assistant Professor  
Department of Liberal Arts  
Received Prestigious UKRI Arts and Humanities Research Council (AHRC) Research Grant




**Ms Shalakha Saha**  
Phd Scholar,  
Department of Chemical Engineering  
Received 2nd Prize in Sci-Art Image Competition at the 10th edition of the prestigious ChEmference 2023 at BITS Pilani (Goa campus)




**Mr Rajesh Kumar Roul**  
PhD Scholar  
Department of Physics  
Awarded the Best Poster Award at ICMAGMA -2023



IITH received the Best Educational Institute Exhibit Award at India Mobile Congress 2023  
Congratulations to Prof Kiran Kuchi & Team



**Ms Swarna Prabha Maharana**  
PhD Scholar  
Department of Physics  
Awarded the Best Poster Prize Award on Heavy Quarks and Leptons - 2023 held at Mumbai




IITH Hindi E-Magazine 'Pravaat'  
Second Prize in Best E-Magazine Category by TOLIC-4 Hyderabad for 2022-23



**Mr Narnepati Krishna Chaitanya**  
Phd Scholar,  
Department of Civil Engineering  
Received The Mitacs Globalink Research Award






**Prof Sai Santosh Kumar Raavi**  
Department of Physics  
*Invited as Associate Editor Elsevier's Journal (Optical Materials)*




**Ms Jesna Fathima**  
PhD Scholar,  
Department of Civil Engineering  
*Received The Mitacs Globalink Research Award*



**Ms Priyanka**  
PhD Scholar  
Department of Physics  
*Awarded the Best Poster Presentation ICACMP 2023 held at GITAM University*



**Mr Sudeep Singh**  
PhD Scholar  
Department of Physics  
*Awarded the Best Poster Award at ICMAGMA -2023*



**Ms Sony K Cherian**  
PhD Scholar,  
Department of Chemical Engineering  
*Received 2nd Prize in Best Oral Presentation in the Energy Materials category at the 10th edition of the prestigious ChEmference 2023 at BITS Pilani (Goa campus)*



**Ms Bhavya Surendran V S**  
PhD Scholar  
Department of Biotechnology  
*Awarded Khannal Foundation Award For Poster Presentation at the International Conference on NHBT-2023 at Trivandrum*



**Prof Kirti Chandra Sahu**  
Department of Chemical Engineering  
*Selected as Associate Editor Industrial and Engineering Chemistry Research (American Chemical Society)*




**Ms Revathy Manohar**  
PhD Scholar,  
Department of Civil Engineering  
*Receiving Best Oral Presentation Award (2nd Position) at Indian Geotechnical Conference 2023, IIT Roorkee*



**Ms Debasmita Behera**  
PhD Scholar,  
Department of Civil Engineering  
*Received The Mitacs Globalink Research Award*




**Dr Nagarajan Ganapathy**  
Assistant Professor,  
Department of Chemical Engineering  
*Selected as Editorial Board Member for the IEEE Transactions on Affective Computing Journal*



**Mr Ayushman Bhattacharya**  
PhD Scholar,  
Department of Civil Engineering  
*Received The Mitacs Globalink Research Award*




**Ms Vaishnavi Bherde**  
PhD Scholar,  
Department of Civil Engineering  
*Receiving Best Oral Presentation Award (2nd Position) at Indian Geotechnical Conference 2023, IIT Roorkee*




**Dr Aravind Kumar Rengan**  
Associate Professor  
Department of Biomedical Engineering  
*Awarded Merck Young Scientist Award (Runner-Up) Biological Sciences Category*



**Ms Shweta Sagar**  
PhD Scholar,  
Department of Chemistry  
*Receiving The Best Poster Award at SPSI-MACRO-2023, IIT Guwahati*



**Prof Mahendrakumar Madhavan**  
Department of Civil Engineering  
*Selected as a Member of the Global Advisory Committee of Construct steel*



**Dr Shaik Moin Ahmed**  
PhD (2021),  
Department of Civil Engineering  
*Receiving GS - Dr B B Rai -S N Gupta Biennial Award at Indian Geotechnical Conference 2023, IIT Roorkee*



**Mr Krishna Chaitanya Nuli**  
PhD Scholar,  
Department of Materials Science  
And Metallurgical Engineering  
*Receiving Best Poster Award at NMD -  
ATM 2023, KIIT Bhubaneswar*



**Ms Annu**  
PhD Scholar,  
Department of Electrical Engineering  
*Receiving The Best Paper Award in  
Women in Engineering Track at IEEE  
ANTS'23*



**Prof B Munwar Basha**  
Department of Civil Engineering  
*Awarded Best Reviewer of 2022  
(Non-editorial Board Member)- 3rd Prize  
at Indian Geotechnical Conference 2023,  
IIT Roorkee*



**IIC, IITH Team**  
*Won the Best Poster Prize at  
IIC Regional Meet 2023*



**Ms Peerzadi Arzeena**  
Imtiyaz  
PhD Scholar,  
Department of Civil Engineering  
*Receiving Best Oral Presentation  
Award (1st Position) at Indian  
Geotechnical Conference 2023, IIT  
Roorkee*



**Mr Arkajyoti Jha**  
PhD Scholar,  
Department of Mechanical & Aerospace  
Engineering  
*Receiving Best Paper Award organized by  
IIT Madras*



**Ms Priyanku Nath**  
Phd Scholar,  
Department of Chemistry  
*Receiving The Best Poster Award  
at SPSI-MACRO-2023, IIT Guwahati*



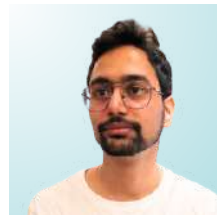
**Prof Tarun's Research Group**  
Department of Chemistry  
*For publishing A Review Article in  
Chemical Reviews*



**Team CfHE**  
(Center for Healthcare Entrepreneurship)  
*Awarded Best Bioincubation Centre  
Exhibit at the Global Bio-India 2023  
held at Pragati Maidan, New Delhi*



**Mr Raja Dharavathu**  
Research Scholar,  
Department of Mechanical & Aerospace  
Engineering  
*Receiving Best Paper Award organized by  
IIT Madras*



**Mr Jagdish Chandra  
Pandey**  
MTech,  
Department of Mechanical & Aerospace  
Engineering  
*Receiving Best Poster Award organized  
by IIT Madras*



**Mr Pawas Dwivedi**  
BTech,  
Department of Electrical Engineering  
*Receiving Overall Best Cadet Camp  
Award In NCC (CATC-6) at Adilabad*



**Dr Chalavadi Vishnu**  
PhD (2022),  
Department of Computer Science &  
Engineering  
*Appointed as an Assistant Professor  
at IIT Tirupati*



**Mr Harsh Raj Gond**  
MDes (2023),  
Department of Design  
*Master of Design Thesis Documentary  
Film "The Legacy from Beyond"  
received recognitions at National &  
International Film Festivals*





**Prof Kiran Kumar Kuchi**

*Professor  
Department of Electrical  
Engineering*

Dr Kiran Kuchi currently serves as a Professor at the IITH, where he has been instrumental in shaping the institution's academic and research spheres since June 2011. With a robust background in telecom standards development and an impressive portfolio boasting over 200 patents, he has played a crucial role in advancing wireless communication technologies, particularly within India. He earned his BTech degree from Sri Venkateswara University College of Engineering, Tirupati, India (1991-1995), and subsequently completed his PhD in Electrical Engineering at The University of Texas at Arlington, USA (2000-2006). Prior to joining IITH, he accumulated a decade of experience working with Motorola Labs and Nokia Research in the USA, followed by over 14 years dedicated to teaching and research within the IIT system.

#### My Life at IITH:

IITH has been profoundly enriching. After over a decade in the United States, I felt a strong desire to return to India and contribute to its technological progress. Transitioning from an industrial background, I embraced full-time academic pursuits at IITH in 2011. The academic environment at IITH nurtures innovation and collaboration, granting me the freedom to pursue my research interests in wireless communication technologies. With robust institutional support and governmental backing, we've achieved groundbreaking research outcomes that have elevated IITH's global standing. Additionally, IITH's emphasis on translational research, highlighted by initiatives like the i-TIC foundation, has nurtured entrepreneurial ventures such as WiSig Networks, specializing in 5G and 6G technologies. Overall, I consider myself privileged to contribute to India's technological landscape within the vibrant community of IITH.



**Prof Shantanu Desai**

*Professor  
Department of Physics*

Dr Shantanu Desai did his BTech in Engineering Physics at IIT Bombay, followed by PhD in Physics at Boston University, where he was fortunate to work on the Nobel-prize-winning Super-Kamiokande experiment which discovered evidence for non-zero neutrino mass and helped solve the 40-year solar neutrino problem. His thesis on upward-going muons provided powerful constraints on the neutrino oscillation parameters and also constraints on dark matter couplings. Since then, his research stints at Penn State, University of Illinois, Ludwig-Maximilians-Universität where I worked at different times on LIGO, SPT, and DES projects before joining IITH in 2016.

#### My Life at IITH:

IITH, I have had the fortune of working with very good students and have also worked with colleagues in the CSE and EE departments, and had a lot of fun doing science with all of them. About a year after joining IITH, I joined the Indian Pulsar Timing Array collaboration which last summer found evidence for nanoHz gravitational wave background along with the European Pulsar Timing Array. I have also enjoyed my teaching stint at IITH and learned a lot of new stuff in the midst.



**Prof Suryanarayana  
Jammalamadaka**

*Professor  
Department of Physics*

Dr Suryanarayana Jammalamadaka is a Professor at the Department of Physics, IITH. Prior to his appointment at IITH, he finished his Master of Science from the University of Hyderabad (Central University) and pursued his PhD from Indian Institute of Technology Madras during 2003 - 2007. He was a recipient of the Prof A L Laskar award for his contribution, as part of his thesis to the magnetostrictive materials and transducers at IIT Madras. He was a postdoctoral research fellow at Tata Institute of Fundamental Research, Mumbai, the National University of Singapore, and the Catholic University of Leuven, Belgium, where he enriched his broad knowledge in the field of Nanomagnetism, Quantum Materials as well as in devices based on spin and semiconductors. His current research is heading towards understanding the physics behind various nanoscopic and mesoscopic magnetic materials and the realization of their usage in practical devices such as spin-electronics and optoelectronics. He published nearly 60 international journals and delivered a number of seminars at various reputed institutes in India as well as abroad. He also received many awards for pursuing his research nationally as well as internationally. He was a visiting scientist at Karlsruhe Institute of Technology, Germany through the IIT - DAAD Faculty exchange program during May - Jun 2014 and in Dec 2018. He is an IEEE Senior member and, a life member of the Magnetics Society of India, Electron Microscopy of India Indian Physics Association, etc. He is also an associate fellow, at the Telangana Academy of Sciences and a reviewer for many reputed international journals. He has 2 published patents to his credit and one more patent is in the process. He graduated a total of 6 PhD students and presently 8 PhD students are working with him.

**My Life at IITH:**

It has been a wonderful experience, as a faculty at IITH is fabulous. IITH gives the academic freedom to flourish in the research interest. I established a lab “Magnetic Materials and Devices” at the Department of Physics, IITH. The main activities of this lab are to explore new materials and devices based on spin and semiconductors to realize their applications in spintronics, quantum phenomena, and neuromorphic devices. In my opinion, teaching is not a job. It is a passion, the faculty would get a lot of self-satisfaction. During my experience, while teaching students I ended up with enormous happiness after the class. Teaching also helped me to have a better understanding of research problems. I could also design new problems after having clear concepts through teaching.



**Prof Sai Santosh Kumar Raavi**  
.....  
*Professor*  
*Department of Physics*

Dr Raavi Sai Santosh Kumar as a faculty member in the Department of Physics, IITH since 2014, holds a PhD in physics from the University of Hyderabad (2009). With postdoctoral research experience at esteemed institutions like Istituto Italiano di Tecnologia in Milan, Italy, and Nanyang Technological University in Singapore, his research focuses on utilizing transient absorption and photoluminescence spectroscopy to explore excited state dynamics in organic molecules, halide perovskites, and the charge injection and recombination dynamics of emerging materials. His group actively contributes to the device physics of organic photovoltaics (OPV) and halide perovskite-based optoelectronic devices.

**My Life at IITH:**

Living at IITH has been exciting and productive, and it has given me an excellent platform for my academic and research work. One thing that makes IITH stand out is its interdisciplinary research ecosystem, which has shown me a lot of different research possibilities in many different areas. This new way let me look at many different problems from a big-picture point of view by focusing on the good things for society. The institute's commitment to foreign engagement has helped me a lot. These opportunities gave me more experience with global research by letting me travel and do short study stays in the USA, Japan, and Brazil after obtaining three international research visiting grants. The academic community at IITH is impressive. It comprises bright, highly qualified faculty colleagues who inspire each other through deep conversations and group projects. The excellent student intake challenges the teacher in me and has helped me grow as an academician. The institute's management team has always provided excellent help, streamlined non-academic tasks, and ensured everyone in the IITH community has a perfect experience. All things considered, IITH has a great culture of working together and supporting each other, as well as a solid academic support system.



**Prof Antony Franklin**  
.....  
*Professor*  
*Department of Computer Science and Engineering*

Prior to joining IITH in 2015, Dr Antony Franklin served as a Senior Engineer at the DMC R&D Center, Samsung Electronics, South Korea, from 2012 to 2015. During this period, he played a pivotal role in advancing the development of 5G networking technologies. Before his tenure at Samsung, he worked as a Research Engineer at the Electronics and Telecommunications Research Institute (ETRI), South Korea, contributing to research on cognitive radio technology from 2010 to 2012. He completed his BE degree in electronics and communication engineering at Madurai Kamaraj University, India, in 2000. Continuing his academic journey, he earned an ME degree in computer science and engineering from Anna University, India, in 2002. Subsequently, he obtained a PhD degree in computer science and engineering from the esteemed Indian Institute of Technology in Madras, India, in 2010. His research focus centers on the development of cutting-edge mobile network architectures and protocols. Currently, his research interests encompass cloud radio access networks (C-RANs), mobile edge computing (MEC), Internet of Things (IoT), and Software-Defined Networking (SDN) / Network Functions Virtualization (NFV), with a particular emphasis on their applications in the context of 5G/6G technology.

**My Life at IITH:**

In 2015, I joined IITH, starting my journey at the temporary campus in ODF. Since then, I've been actively involved in contributing to the department and the institute's growth. It has been a fulfilling experience to witness the remarkable evolution of IITH during my time here. Throughout my tenure at the Computer Science and Engineering (CSE) department, I've had the pleasure of working with outstanding colleagues within CSE and across various departments of IITH. I extend my gratitude to all those who have offered invaluable support during different phases of my academic journey. At the Networked Wireless Systems Lab (News Lab), where I lead a dedicated research group, we have achieved significant milestones with constant support from the institute.



These accomplishments include successful research projects, numerous publications, the filing of patents, and the development of various prototypes. The collaborative efforts of students who have worked with me over the past 8 years have played a crucial role in these achievements. I sincerely thank all the students who have actively contributed to the research endeavours of the News Lab.



**Prof Vineeth N  
Balasubramanian**

.....  
*Professor  
Department of Computer  
Science and Engineering*

Dr Vineeth N Balasubramanian joined IITH as a faculty in 2013 and is currently a Professor in the Department of Computer Science and Engineering, as well as an affiliate faculty in the Department of Artificial Intelligence at IITH. He was also a Fulbright-Nehru Visiting Faculty Fellow at Carnegie Mellon University in 2022-23. He holds a PhD in Computer Science and Engineering from Arizona State University, as well as a Masters in Maths and a Masters in Computer Science from Sri Sathya Sai Institute of Higher Learning. His research interests include deep learning, machine learning, and computer vision, with focused contributions in the areas of explainable AI and continual learning in recent years.

#### My Life at IITH:

I am grateful to have been a part of the IITH community for over a decade. With wonderful colleagues in the department of CSE and AI over the years and visionary leadership, contributing to the growth of IITH has been the catalyst of my professional growth over these years. It has been a joy to see and participate in the growth of IITH from a fledgling institution to a bold one that is creating its niche in the Indian academic ecosystem with a wide range of research expertise, contemporary teaching programs, a burgeoning innovation thrust, and at its heart, an energetic student body. From a time when every faculty in the institution knew each other, watching the institution grow to a 570-acre vibrant campus brings back nostalgia as well as a feeling of pride. Importantly, it feels exciting to await what lies ahead in the near future. I look forward to seeing and contributing to the dynamic, vibrant environment at IITH for many more years to come.



**Prof Rajakumara Eerappa**

.....  
*Professor  
Department of BioTechnology*

Dr Rajakumara Eerappa was an assistant professor at IITH from Jan 2014 to May 2018, and an associate professor from May 2018 to Oct 2023. Prior to joining IITH, he worked as a postdoctoral fellow at Memorial Sloan-Kettering Cancer Center, New York, and at The FIRC Institute of Molecular Oncology, Milan. He obtained his BSc(Agri) degree from GKVK, University of Agricultural Sciences, Bengaluru, and an MSc in Plant Pathology from the Indian Agricultural Research Institute (IARI), New Delhi. He did his PhD from CSIR-The Centre for Cellular and Molecular Biology (CCMB), Hyderabad. His recent research interests are in Macromolecular Structural Biology to unravel the structure-function relationship of biological macromolecules: proteins, DNA, and Poly-ADP ribose. He also works on designing small molecules to modulate the sperm competence for in vitro fertilization (IVF), unraveling allosteric cross-talk in cancer drug targets such as Poly ADP ribose polymerases and synthesis of non-natural highly polyanionic polymers for biomedical applications.

#### My Life at IITH:

I had a wonderful and enriching experience for the past 10 years at IITH. My journey in IITH started at the Ordinance factory and moved to the IITH campus in 2015. My initial years at IITH were frustrating because of no lab space availability and the lack of basic research facilities. However, because of a very dynamic, wonderful, and supportive director, things have streamlined and research facilities and infrastructures have been improved immensely. I had an enriching experience teaching biology to engineering students with a class strength of 150-250 students. I had the freedom to pursue my research interests, including research collaborations at the Institute, within the country, and abroad, and design courses for undergraduate and postgraduate students. Also, the JICA funding to buy high-end equipment helped me to pursue cutting-edge research. I want to express my gratitude to the very supportive administrative staff who work round the clock and in a very time-bound manner. Due to their support, placing any research reagents here in IITH hardly takes a few weeks, compared to the months taken in other institutes. My wonderful students have helped me immeasurably in setting up my lab from scratch. They have also carried out productive and passionate research. I would like to thank my family members for their support in this wonderful journey.



**Prof Sri Rama Murty  
Kodukula**

*Professor  
Department of Electrical  
Engineering*

Dr K Sri Rama Murty has been with IITH since 2009. He obtained his BTech. from JNTU Hyderabad and PhD from IIT Madras. His research interests include signal processing, speech analysis, and machine learning.



**Prof Vaskar Sarkar**

*Professor  
Department of Electrical  
Engineering*

Dr Vaskar Sarkar received his PhD degree in Electrical Engineering, with specialization in Power Electronics and Power Systems, from IIT Bombay in 2009. In the same year, he joined the Department of Electrical Engineering of IITH as a Visiting Assistant Professor. He obtained the regular Assistant Professor position in 2010 and became Associate Professor in 2016. Since October 2023, he has been working here as a Full Professor. His research pursuit covers areas such as the grid integration of renewables, flexible control of renewable power generation, microgrids, and grid stability.

**My Life at IITH:**

Being with IITH since its inception has been an amazing experience, which is full of all the flavors of life. Of course, it was not pleasing to see a small school building as the workplace and a small room for accommodation on the day of my arrival here. However, the work culture and the mutual bonding among the faculty and staff members always kept my energy high to continue my professional career only at IITH. It gives me immense happiness to see the continuation of the same tradition even when IITH has become large both in volume and mass today. I like the environment in which my students can go to other laboratories and students of other faculty members can come to my laboratory to do their experiments. I enjoy the moment when both junior and senior faculty members sit together to discuss different departmental issues without any hierarchical discrimination. I do not hesitate to use money from my personal account for the timely execution of work as I know that our staff members are responsible enough to process my bills at their earliest convenience. The dynamic spirits, energetic attitudes, and the great sense of humanity of all my colleagues always make me feel that I am at the right place where I can do something for my nation. My professional career is well supported by the serenity in my personal life because of our easy access to fantastic medical, schooling, and other facilities as we are privileged to have our place near the mega-city Hyderabad. To end my words, I am proud and extremely satisfied to be a member of the IITH fraternity and wish my institute to reach the pinnacle of glory soon both at national and international levels.



**Prof Ravikumar Bhimasingu**

*Professor  
Department of Electrical  
Engineering*

Dr Ravikumar Bhimasingu has been with IITH since July 2013. He worked in the Department of Electrical Engineering, IITH as an Assistant Professor (from July 2013 to November 2017) and as an Associate Professor (from December 2017 to October 2023). Prior to joining IITH, Ravikumar worked as a Senior Executive – Technology at Global R&D Centre, Crompton Greaves Ltd., Mumbai from June 2010. He did his BTech from RVR&JC College of Engineering (Nagarjuna University) in 2002. He obtained his MSc (Engg.) and PhD degrees both from the Department of Electrical Engineering, IISc Bangalore in 2004 and 2009 respectively. He also served as a Senior Research Associate at the Department of Electrical Engineering, IISc Bangalore from December 2009 to June 2010. His research interests are in the fields of Integration of Renewable Energy Sources, AI techniques applications for power systems, Power System Protection, and Power Electronics Applications to Power Systems.

**My Life at IITH:**

IITH is very good. Students are top-notch. Faculty colleagues are friendly and mature enough to support each other. Lots more to learn. Institute policies and guidelines make us work peacefully, think out of the box, and aim high. Administration support is fantastic and lets things go on smoothly and fast. Overall, the experience at IITH is very good.





**Prof C Malla Reddy**

*Professor  
Department of Chemistry*

Dr C Malla Reddy was appointed as a Professor in the Department of Chemistry, IITH in December 2023. He brings over 15 years of experience, having started his career as an Assistant Professor at IISER Kolkata in 2008. He attained the position of Professor in 2018 and held various roles, including Chair of the Department of Chemical Sciences and member of the Board of Governors at IISER Kolkata. Prior to this, he was a postdoctoral fellow at Karlsruhe Institute of Technology, Germany, from 2007 to mid-2008. Reddy earned his PhD from the University of Hyderabad. His research focuses on crystal engineering, solid-state pharmaceutical chemistry, and the development of mechanically flexible and self-healing organic single crystals with optical, electrical, and piezoelectric properties. Recognized for his contributions, he received the Swarnajayanti Fellowship by DST in 2015. Currently, he serves as the Associate Editor for CrystEngComm (Royal Society of Chemistry) and co-editor for Acta Cryst B (International Union of Crystallography).

#### My Life at IITH:

When I first visited IITH, sometime in 2022, I was pleasantly surprised to witness the enormous infrastructure, and meticulously planned buildings with wonderful architecture, landscaping, and research infrastructure. More importantly, the welcoming faculty, staff, and students at IITH made me very comfortable. It took me no time to settle down as everyone in the Department of Chemistry and in all sections of the admin office, enthusiastically helped me out on all fronts. Particularly, my first day at the Department of Chemistry, IITH will remain in my memories forever; I was given office space and adequate lab space within a few hours of my formal joining! Thanks to all those at IITH for working tirelessly to put things in place. IITH, with excellent infrastructure, well-designed administrative protocols, and energetic academic and administrative staff and students, has a great potential to contribute to the nation's growth. I am excited to devote all my energies to making it count, both nationally and internationally.



**Dr Shubho Ranjan Roy**

*Associate Professor  
Department of Physics*

Dr Shubho Ranjan Roy was a theoretical physicist specializing in String Theory, Quantum Field Theory, and Classical and Quantum Gravity. He joined IITH in 2016 as an Assistant Professor in the Department of Physics. He did his PhD at Brown University, Providence, RI, USA (2010) and he has held postdoctoral positions at the City University of New York, (CUNY) NY at the Center for High Energy Physics (CHEP) of the Indian Institute of Science (IISc), Bangalore, India at the Racah Institute of Theoretical Physics of the Hebrew University, Jerusalem, Israel (HUJI). He grew up in Kolkata, India, and attended Birla High School, Kolkata. His undergraduate degree (BSc) was in Physics (honours) from Presidency College (now Presidency University), Kolkata (2002), and was followed by a postgraduate degree (MSc) in Physics from IIT Kanpur, UP (2004). He held visiting positions at the UPMC, Paris at the University of Bern, Switzerland; and at ICTP, Trieste, Italy.

#### My Life at IITH:

IITH has been incredibly stimulating and fulfilling. Most of my faculty colleagues have distinguished themselves in their respective fields of research and share the vision and ambition of making IITH the best research institute in the country. Their top-tier scholarship, infectious enthusiasm, tireless dedication, and affectionate camaraderie provide me with the ideal intellectual environment for me to work towards fulfilling my professional aspirations. The other great experience has been the top-notch students with whom I've been able to interact with who have reshaped the way I think about physics and didactics fundamentally- they truly are the creme-de-la-creme of the country, and I am sure they will go on to make their mark in their careers pretty soon. I also immensely appreciate our super-committed and ever-helpful staff members who have always gone above and beyond their call of duty to ensure the smooth running of the institute. Finally, I will also mention that the uniquely impressive futuristic architecture and layout of the campus, with all the magnificent features and amenities, has greatly enhanced the experience of my campus life.



**Dr Raghavendra Srikanth Hundi**

.....  
*Assistant Professor*  
*Department of Physics*

Dr Raghavendra Srikanth Hundi did his MSc from the University of Hyderabad and obtained PhD from Harish-Chandra Research Institute at Allahabad. After that, he had three post-doctoral research positions at the following places: the University of Hawaii, USA, the Indian Association for the Cultivation of Science, Kolkata, and the Indian Institute of Science, Bangalore. Before joining IITH, he was an assistant professor at IIT Kharagpur.

**My Life at IITH:**

My experience is great at IITH. Before becoming a faculty, I was concerned with mostly physics, which is what I have been working on. After coming to IITH, I was getting news from various other departments and sections here, through which I got to know about others. I feel I am fortunate that I am in IITH and experiencing the diversified atmosphere here.



**Dr Bhakti Bhusan Manna**

.....  
*Associate Professor*  
*Department of Mathematics*

Prior to joining IITH in 2016, Dr Bhakti Bhusan Manna worked as an assistant professor in the Department of Mathematics, IITH, until October 2023. From October 2023, he started working as an associate professor in the Department of Mathematics. Before joining IITH, He was a postdoctoral fellow at the Harish Chandra Research Institute and the National Autonomous University of Mexico (UNAM). He completed my PhD from TIFR-CAM, Bangalore, in December 2014. His thesis was on the theory of Elliptic PDEs. Prior to that, He pursued his master's degree in Applied Statistics and Informatics from IIT Bombay and completed his bachelor's in Mathematics from Ramakrishna Mission Vidyamandira (Belur).

**My Life at IITH:**

I joined the Department of Mathematics in November 2016. It was a very joyful moment for me to be selected as a part of the esteemed institute. So far, it has been an incredible journey witnessing the growth of our institute. I started as a part of a relatively smaller department and now have many young faculty members, making the department a vibrant and prosperous environment. We have gradually grown to be self-sufficient. I am thankful to my colleagues for all their support and the friendly atmosphere I got from the first day I joined. So far, our administration has been excellent and supportive of our academic growth. I am incredibly thankful to the nonacademic staff for all their prompt responses I got whenever I needed any. Last but not least, our bright students. Teaching at IIT was never easy as we have got so many young and brilliant minds. I learned a lot while teaching these students. I take this opportunity to thank all my colleagues, staff, and students, and look forward to having a pleasant and prosperous journey ahead.



**Dr Anindita Majumdar**

.....  
*Associate Professor*  
*Department of Liberal Arts*

Dr Anindita Majumdar has been appointed as an Associate Professor in the Department of Liberal Arts, IIT Hyderabad. Prior to joining IITH in 2016, Dr Anindita Majumdar was an Assistant Professor at Manipal Centre for Philosophy and Humanities, Manipal University from 2015. She has been a postdoctoral teaching fellow at the Swedish South Asian Network (SASNET), University of Lund, Sweden, and a Social Sciences Public Policy (SSPP) Global Fellow at King's College London. Anindita graduated from Hindu College, University of Delhi, and did her Masters and MPhil from the Delhi School of Economics, University of Delhi, before obtaining her doctorate from IIT Delhi. Her research interests include reproduction, medical anthropology, reproductive technologies, and kinship.

**My Life at IITH:**

I have learned a lot during my tenure at IITH. The opportunity to engage with engineering undergraduates and social science postgraduates has been the most rewarding experience during my 7 years here.



**Dr Rupesh Ganpatrao  
Wandhare**

.....  
*Associate Professor*  
*Department of Electrical*  
*Engineering*

Dr Rupesh Wandhare prior to joining IITH in 2018, co-founded a start-up called Kisan Solar, which was later registered under the name Kinetica Solar Pvt Ltd. Dr Rupesh earned his BE from Nagpur University and obtained his MTech. and PhD degrees from IIT Bombay. Broadly, his research interests are in Power Electronics, Embedded System Designs, Electric Drives, Renewable Energy Sources, Hybrid Energy Generation, and Microgrid.

**My Life at IITH:**

I am deeply thankful to IITH for providing me with an opportunity to pursue my passion for teaching and research in power electronics. The institute provided an encouraging environment where I revelled in the symbiotic relationship between teaching and learning. I enjoyed the experience of engaging in extensive technical discussions with students both inside and outside the classroom. The enthusiasm of students, coupled with their creative ideas and eagerness to explore, made these interactions not only informative but also enjoyable. I appreciate the support from the institute in undertaking new research projects with industries. The friendly and efficient staff members of the institute alleviated the burden of non-technical and laborious tasks associated with my teaching and research, allowing me to concentrate on my technical endeavours. My immense gratitude to the Department of Electrical Engineering at IITH for fostering a work culture that resembles a close-knit family. Throughout my journey, my esteemed colleagues consistently supported my research activities with their valuable assistance and guidance whenever faced with challenges. In every instance, my colleagues offered their help and direction, creating a collaborative and supportive atmosphere. Lastly, I extend my sincere thanks to the Director Sir for his visionary leadership in transforming the institute into a more liveable, joyful, and conducive space for both my research pursuits and the well-being of my family. I am truly grateful for the wonderful experience at IITH.

**Dr Lakshmi Prasad Natarajan**

.....  
*Associate Professor*  
*Department of Electrical*  
*Engineering*

Prior to joining IITH in 2016, Dr Lakshmi Prasad Natarajan obtained his BE degree from the College of Engineering, Guindy, and PhD from the Indian Institute of Science, Bangalore. He worked as a Research Fellow at Monash University, Melbourne. His primary research interests are in communication engineering, especially its physical layer aspects.

**My Life at IITH:**

It has been an enriching and exciting experience I find the educational atmosphere in IITH very good. I thank to the staff and faculty colleagues for their continuous support, and the students for their inspiring interactions.

**Dr V Seshadri Sravan  
Kumar**

.....  
*Associate Professor*  
*Department of Electrical*  
*Engineering*

Prior to joining IITH in 2017, Dr V Seshadri Sravan Kumar obtained his Masters and PhD from the Indian Institute of Science, Bangalore. Before joining IITH, he was a postdoctoral research associate at Texas A&M University.

**My Life at IITH:**

IITH has been pleasant so far, thanks to the support from wonderful colleagues and staff. Interacting and working with students has been an enriching and motivating experience.



**Dr Jaladhar Neelavalli**

.....  
*Associate Professor*  
*Department of Biomedical*  
*Engineering*

Dr Jaladhar Neelavalli Joined as an Assistant Professor in November, 2023 in the Department of Biomedical Engineering. He is a biomedical engineer by training and a Magnetic Resonance Imaging (MRI) Physicist by profession. He did his doctoral studies in magnetic resonance imaging physics and its applied clinical aspects. His bachelor's studies happened in the center of our city, Hyderabad, at the College of Engineering in Osmania University campus. He did his doctoral studies at Wayne State University, Detroit, Michigan, USA. After my doctoral studies, he underwent 3 years of postdoctoral training at different institutions – first at the University of Oxford's Nuffield Department of Surgery, then at a non-profit imaging research institute, and later at the Wayne State University School of Medicine's Department of Radiology. He took up the role of Research Assistant Professor at the Department of Radiology at Wayne State University, with a joint appointment in the Department of Biomedical Engineering which came along a bit later. Throughout this time, he worked on various problems related to Neuro-imaging and fetal MRI and developed novel quantitative imaging methods for measuring brain iron content, blood oxygenation, blood flow, etc. After a stint of about 6 years as a faculty, he moved back to India and served in the medical imaging industry, specifically Philips Healthcare as a Senior Scientist, working out of their Bangalore campus. In this role, he continued to work in the area of MRI, with a much-sharpened focus on technology scouting for novel imaging applications and their translation to clinical adoption. As part of this role, and also contributed to several clinical MRI applications that were released as a product and are being used in diagnostic imaging today. After spending about 7 years at Philips Healthcare, He moved back to his first passion, which is academics, by taking up my current role as an Associate Professor at the Department of Biomedical Engineering on our campus. Here at IITH, he focuses on developing, validating, and translating novel MRI methods for clinical or medical applications.

**My Life at IITH:**

It has been about 7 weeks since I joined IITH and I am pretty excited. Apart from great colleagues in the department, I find a general atmosphere of collaboration and cooperation on the campus, which is highly positive. The campus is vast and the green cover is just starting to grow – I am looking forward to the future years when there will be a lot of greenery in the entire campus. On the personal front, my spare time is split into spending time with my family and friends and pursuing hobbies like learning to play the Carnatic/Hindustani flute or some sort of home improvement projects, etc.

**Campus Corner**  
Bank of Knowledge  
(BoK - Non-Academic)



**Ms S Swapna**

.....  
*Junior Assistant*  
*Hostel Office*

Ms S Swapna completed a BCom from Osmania University. After completing her education, She worked as an office assistant at Jagruthi Degree College. She joined IITH as a Multi-Skill Assistant in 2019. After that, she joined as a Junior Assistant at IITH in 2023.

**My Life at IITH:**

It has been a great opportunity for me to work at IITH. I am pleased to contribute to the institute's growth and career.



**Mr M Sandeep**

.....  
*Junior Assistant*  
*HR Section*

Mr M Sandeep completed his Bachelor of Science (BSc) and Master of Computer Applications (MCA) from Osmania University, Hyderabad. Possess extensive experience in various aspects of Academics, ERP tools, and Administration.

**My Life at IITH:**

It has been an enriching and proud to be part of the IITH, Recently I joined the HR Section as a Junior Assistant, and it is the best place for me to learn and sharpen my knowledge in the various fields of Establishment. I am pleased to contribute to the institute's growth and career. In my professional journey, I have gained valuable expertise in Student admissions, Maintenance of Student Databases, Conduction of Examinations, and Facilities Management.



**Mr Ajith Kanakambaran**

*Junior Technical  
Superintendent  
Central Workshop*

Mr Ajith Kanakambaran holds a Diploma in Mechanical Engineering, BTech in Mechanical Engineering, and MTech in Machine Design. With over 11 years of experience in Mechanical Engineering and Administration, he previously served as an Assistant Professor at Sree Narayana Mangalam Institute of Management and Technology, Kerala, and as a Graduate Engineer at The Kerala Minerals and Metal Ltd., Kollam. His expertise spans design and modeling, automated manufacturing, and precision manufacturing.

**My Life at IITH:**

I feel very fortunate to be a part of IITH and grateful to the ITH community for giving me great support during this period. It's a great opportunity for me to excel in my field learn new things and enhance my skills by Working together with the eminent research community at IITH. Let us work together for the future growth and achievements of IITH.

**Mr Rekhala Vikram**

*Junior Technical  
Superintendent  
Department of Mechanical  
and Aerospace Engineering*

Mr Rekhala Vikram Joined as a Junior Technical Superintendent, IITH. Before joining the IITH in the MAE department as a Junior Technical Superintendent, He worked as a Junior Technician in the same MAE department at IITH. He worked as a Laboratory Assistant in the Electronics and Communication Engineering department at RGUKT - Basar his MTech in Embedded Systems from Nova College of Engineering and Technology (Affiliated to JNTU Hyderabad).

**My Life at IITH:**

I am very much privileged to work in one of the top IITs. My work experience in the MAE department at IITH is very good. The work environment and the work culture in the department are ethical and professional. The technical discussions that I had with my colleagues during this tenure made me learn a lot of technical stuff and also paved a path for technical thinking. I would also like to bring out, that my interactions with the administrative staff during my joining were pleasant, and they were helpful. Overall, I am very excited to be a part of IITH, which gives me a unique opportunity to make considerable contributions to the growth of IITH while shaping my technical career. I would also like to thank the HoD, FIC, faculties, Technical Officers and Colleagues of the MAE department at IITH who were always supportive and encouraging in my career.

**Mr Munugala Dakaiah**

*Junior Technical  
Superintendent  
Department of Mechanical  
and Aerospace Engineering*

Mr Munugala Dakaiah worked as a project staff in the MAE department and was later appointed as a Junior Technician in the central workshop. he completed his BTech in Mechanical Engineering from DVR College of Engineering and Technology (Affiliated with JNTU Hyderabad).

**My Life at IITH:**

Privileged to work at a top IIT, and my experience in the MAE department at IITH has been excellent. The ethical work environment, engaging technical discussions, and support from colleagues have enriched my understanding and fostered a technical mindset. Interactions with administrative staff were pleasant, and their support was noteworthy. Excited to contribute to IITH's growth and shape my technical career, I extend special thanks to the HoD, FIC, Faculties, and Technical officers for their consistent support in my career.

**Mr Venkanna Bolagani**

*Section Officer  
HR Section*

Mr Venkanna Bolagani served as an Executive Assistant at the IITH since March 2021. Prior to his tenure at IITH, he worked at IIT Kharagpur for 3 years and at Rajiv Gandhi University of Knowledge Technologies, Basara for 9 years. He has over 15 years of experience in Academic Administration, Recruitment, and Establishment matters. He has completed a Master of Computer Applications degree from Indira Gandhi National Open University.

**My Life at IITH:**

I am about to complete three years at IITH, and it has been an incredibly enriching journey filled with valuable learning experiences. The work environment at IITH is both conducive and challenging, constantly pushing me to set new professional goals and strive for excellence. Collaborating with such a talented team has been an absolute pleasure, and I'm grateful for the opportunity to learn and grow alongside them. Reflecting on my time here, I'm truly grateful for the wonderful experiences and lessons that will undoubtedly shape my future endeavors.



**Ms Priyanka Patheparapu**  
 .....  
*Section Officer*  
*Centre for Continuing*  
*Education*

Ms Priyanka Patheparapu has done BTech in Biotechnology but out of her passion, and chose Banking. Before joining IITH as a Section Officer, She worked as an Executive Assistant at IITH in the CCE Office and before that as a Manager at the Bank of Baroda. She has good experience in the field of Banking and general administration.

**My Life at IITH:**

It has been a privilege to be a part of the IITH family. I got good support from the administration team throughout my joining process. With the constant support and encouragement from my superiors and the measures taken by the IIT for its employees, I feel secure and find it a happy working environment. I feel blessed to have good guidance from my former Chair, CCE - Prof B Umashankar through which I could open up my wings and explore the happiness in my work. I am always very excited to grow with the organization and IITH always proved to me that the efforts of the employees are recognized with encouragement which actually gives a positive motivation that helps to show one's full potential that is hidden and boosts confidence.



**Ms G Komala Priya**  
 .....  
*Junior Assistant*  
*HR Section*

Ms G Komala Priya has done BCom and possesses extensive experience in various aspects of finance and accounting. In her professional journey, she has gained valuable expertise in accounts management, banking operations, payroll administration, and generating detailed MIS (Management Information System) reports.

**My Life at IITH:**

My experience in IITH was incredibly enriching. I honed my organizational skills through record-keeping, deepening my understanding of HR functions. Working on engagement initiatives showed me the importance of a motivated workforce. Overall, this role is broadening my HR knowledge and enhancing my communication and administrative abilities.



**Mr Chetty Nikhil Kumar**  
 .....  
*Accountant*  
*Finance & Accounts*  
*Section*

Mr Chetty Nikhil Kumar is an alumna of Osmania University, where he earned his degree in Bachelor of Commerce in computers. The rigorous academic curriculum at Osmania University not only provided me with a strong theoretical foundation but also instilled in me a dedication to excellence and a passion for continuous learning. In addition to his graduation, he is a proud holder of the US Certified Public Accountant (CPA) professional qualification. This prestigious credential has equipped him with a comprehensive understanding of accounting principles, financial management, and regulatory compliance, reflecting my dedication to achieving the highest standards of professionalism in the field. In terms of his professional journey, he has the privilege of working in the field of Finance and accounts for 5.5 years. His experience includes roles where he has actively contributed to financial management, budgeting, and ensuring compliance with industry standards. Accounts have honed his analytical skills, attention to detail, and ability to navigate complex financial landscapes. In his previous role, he had the opportunity to work at Accounting firms, Genpact, and Wipro, where I actively managed End-to-end reporting activities. This experience not only deepened my understanding of accounts but also allowed him to cultivate valuable skills in communication, teamwork, and adaptability.

**My Life at IITH:**

It has been enriching and exciting to join IITH. I am eager to bring my expertise in finance and accounts to contribute effectively to the team. I have been impressed by IITH's commitment to innovation, and what excites me the most about the prospect of working at IITH is the collaborative and forward-thinking culture that I have heard about from current team members and outside. I am confident that my background and experiences align well with the dynamic and challenging environment at IITH, and I am eager to contribute to the shared success of the team. Thank you for considering my application, and I am genuinely looking forward to the opportunity to contribute to IITH's success.



**Ms Bhimaraju Hemalatha**

*Junior Assistant  
Academics Section*

Ms Bhimaraju Hemalatha is a BTech in Computer Science and Engineering with a Post Graduate MBA with a specialization in Human Resource Management and served as an Administrative Assistant at AGIES from 2014 to 2017, Junior Assistant at GITAM University, Hyderabad from 2017 to 2019, Project Assistant at IITH from 2019 to 2021 in the Academic Section, and later as a Payroll Lead in Sapphire Software Solutions. She has 9+ years of experience in different Administrative works.

**My Life at IITH:**

It has been my pleasure to be a part of IITH, as I worked as a project assistant here and a half year in the Academic section. Staff and higher authorities are very supportive. I learned many things in this prestigious organization that will help me in my entire career.

**Mr Parla Somasekhar**

*Junior Assistant  
Stores & Purchase*

Mr Parla Somasekhar has a BSc in Computers and a BEd and PG in MA (English). He worked as an Office Assistant (highly skilled) in the Administration Section at IIITDM Kurnool for the last 3 years and worked as a Mathematics Teacher at Kesava Memorial High School, Kurnool for 5 years.

**My Life at IITH:**

I feel very happy to be part of one of the prestigious institutes in India, and it is the best place for me to learn new things. I am confident that my skills and experience align well with the responsibilities of the Junior Assistant.

**Mr Marmala Ranadeep  
Kumar**

*Junior Engineer (Civil)  
Construction  
& Maintenance Division*

Mr Marmala Ranadeep Kumar completed his Mtech in Geotechnical Engineering from the National Institute of Technology Warangal, After completing his education, he worked for more than Three years in Hyderabad (Manglam consultancy services) in various large geotechnical engineering projects.

**My Life at IITH:**

I am delighted to be a part of IITH, one of India's premier institutes, and find immense joy in collaborating with exceptionally talented individuals whose technical prowess and dedication serve as a true inspiration. I am committed to contributing to the institute's growth and dedicating myself to its promising future.

**Mr Chandrika Sai Teja**

*Accountant  
Finance & Accounts  
Section*

Mr Chandrika Sai Teja Joined IITH as an Accountant in the finance and accounts Section. He graduated with Bcom Honours from Delhi University, and he is pursuing a Distance MBA with IGNOU. He has more than 3 years of experience in the field of Finance and accounts with specialization in Financial Reporting, Audit & Indian Taxation.

**My Life at IITH:**

It has been enriching and exciting to step onto the campus; I was captivated by impressive buildings and a vibrant atmosphere. Privileged to be part of an organization dedicated to nurturing bright minds and fostering innovation, I view colleagues as friends, creating a supportive work environment. Excited to engage with the student and faculty community, and understand their needs and aspirations, I'm committed to contributing to the overall success and growth of IITH.



**Mr Samala Rajashekar**

*Junior Assistant  
Office of the Registrar*

Mr Samala Rajashekar Joined IITH completed his BTech in Information Technology from DVR College of Engineering & Technology, Kandi, and pursued my MTech in Software Engineering from BVRIT, Narsapur, both of which are affiliated with JNTUH. With a comprehensive academic background, I bring to the table seven years of professional experience in the realm of Administration and Accounts. During this period, I served in the capacity of Junior Assistant cum DEO at Telangana Social Welfare Residential Degree College for Women, located in Jagathgirigutta, under the auspices of the TSWREI Society.

**My Life at IITH:**

It has been an enriching and exciting experience for me so far. I am deeply honored and derive immense gratification from my association with the esteemed institution of IITH. The opportunity extended to me aligns seamlessly with my professional background, and the conducive environment herein is instrumental in fostering the enhancement of my skills. I wish to express my sincere gratitude to the esteemed members of the IITH fraternity for graciously affording me this position.



**Mr A Dinesh Chakrapani**

*Junior Technician  
Department of Mechanical  
and Aerospace Engineering*

Mr A Dinesh Chakrapani completed his Bachelor of Technology in Mechanical Engineering from Jawaharlal Nehru Technological University Hyderabad. Upon graduation, he joined Best Engineering Technologies as a Graduate Trainee Engineer and served for a tenure of 3 years. He has 3 years of experience in the manufacturing of Boilers. His areas of interest are Vibrations, Thermodynamics, and fluid Mechanics.

**My Life at IITH:**

It has been enriching and exciting. I feel elated being part of the IITH fraternity. I must applaud the transparency maintained during the recruitment process. Everyone here is very welcoming in their own way. All my colleagues are extremely supportive of being acquainted with the workspace. With the latest technology and machinery available in the labs, we get to work with advanced equipment with great ease. Every day here is thrilling, as we tackle peculiar challenges we strive to bring elegant solutions to those.



**Mr Gajanand Kumar Kaushik**

*Library Information  
Assistant, Library*

Mr Gajanand Kumar Kaushik worked as a Project Assistant from 2017 to 2020. He joined as a Library Information Assistant on December 26, 2023. His master's in library and information science from Guru Ghasidas Vishwavidyalaya Bilaspur (A Central University). He completed a Post Graduate Diploma in Computer Applications (PGDCA) and also qualified for NTA-UGC-NET & CG-SET. He has 9 years of professional experience in state and central government educational institutions.

**My Life at IITH:**

It has been proud and excited to contribute to the new Library Knowledge Resource Center (KRC). The transformation is remarkable many new buildings have been constructed across the campus, changing its new face. Moreover, the growth of the IITH, especially in the global ranking and impressive facilities, ensures that it is an excellent hub for STEM academic activities. I am eager to be part of this continued journey of academic excellence and positive change at IITH, professionally and personally.



**Mr Manukonda RahulTeja**

*Junior Technical  
Superintendent  
Computer Centre*

Mr Rahul Teja is a skilled professional with a Bachelor of Technology (BTech) degree in Computer Science Engineering. He currently serves as a Junior Technical Superintendent and brings a wealth of experience to the role. With a system administration background and prior web application development roles, Rahul possesses a diverse skill set. His expertise includes back-end development and system administration encompassing servers and the cloud. Rahul is keenly interested in staying updated with the latest advancements in the field. His professional journey reflects a commitment to web application development and system administration excellence.

**My Life at IITH:**

IITH is one of the best institutes in India to work. My experience in this institute has been great. IITH has given me many opportunities to learn and grow professionally and personally, and I can take full advantage of the infrastructure to help my career growth. Working under highly professional faculty has helped me immensely in enriching my skills, and they always motivated and guided me on the correct path



**Mr Velagandhula  
Karthik Kumar**

.....  
*Junior Assistant  
HR Section*

Mr Velagandhula Karthik BTech (Electrical and Electronics Engineering) and worked as a skilled work Assistant - II in the Administration Section of the Centre for DNA Fingerprinting and Diagnostics for the last two years.

**Mr Gosu Sreenivasu**

.....  
*Accountant  
Construction &  
Maintenance Division*

Mr Gosu Sreenivasu has done BCom from (Railway Degree College ) at Osmania University and also done MBA in Finance and Marketing from (Avanthi Group of Institutions Hyderabad) Jawaharlal Nehru Technological University Hyderabad. After completing his education, he joined as an Office Clerk in ICAR-NAARM (National Academy of Agricultural Research Management on contract mode in the Training and PG Studies Unit of the Academy from December 2014 to December 2018 and later worked as a Junior Office Assistant in (IISER Tirupati) Indian Institute of Science Education and Research Tirupati on Office Contract and Outsourced basis for five years from January 2019 to December 2023 in Academic Section.

**My Life at IITH:**

It has been an excellent opportunity to enhance my skills and knowledge. I want to thank the Administrative, HR, Finance and Accounts, Hospitality Services, and CMD departments for providing good services and helping me to start my career smoothly at IITH. I will contribute my best skills and knowledge by using available resources to develop IITH and my personal growth. Thanks to IITH for allowing me to work with this Institution.

**Mr Mashetti Vamshi**

.....  
*Junior Horticulturist  
Green Office*

Mr Mashetti Vamshi holds a Bachelor's degree in Horticultural Science from SKLTH University, Hyderabad, and a post-graduate diploma in Digital Marketing from Great Lakes Institution, I bring a unique blend of expertise to his role.

**My Life at IITH:**

I perceive this opportunity as a platform to enhance my skills and knowledge. My goal is to contribute significantly to the beautification and greenery of the IITH campus, leveraging my horticultural background and incorporating innovative technologies. I am driven by the vision of transforming IITH into a landscape paradise, setting a benchmark for green campuses. It is my aspiration to make a lasting impact on the well-being and aesthetic appeal of this esteemed institution. In my short tenure at IITH, I have experienced a profound sense of gratitude and pride. The campus, adorned with lush greenery, state-of-the-art facilities, and a welcoming atmosphere, has left an indelible impression on me. The congeniality of the staff and the conducive working environment further contribute to the excellence of this Institution.

**Mr Pawar Chandra Prakash**

.....  
*Junior Technician  
Academics Section*

Mr Pawar Chandra Prakash has completed a BTech in Electronics and Communication Engineering from DVR College of Engineering and Technology, Kandli. He worked as a Casual Technician at the State Institute of Educational Technology (SIET) in Hyderabad. During this time, he developed over 2000 multimedia/digital content for Class I to X and contributed to infrastructure maintenance for a period of five years. Later, he joined as a System Administrator through outsourcing at the National Institute of Animal Biotechnology (NIAB) in Hyderabad.

**My Life at IITH:**

I am delighted to be a part of the IITH family. IITH provides an incredible opportunity for any individual to work and explore their potential. I am enthusiastic about the journey ahead. Thank you.



Mr Maloth Harish Naik completed his graduation from BRAOU, Hyderabad. After completing his education, he learned the basics of Computer applications and the basics of web designing.

**My Life at IITH:**

Life at IITH, like any IIT campus, is known for its academic rigour, vibrant student community, and diverse extracurricular activities. The campus offers a mix of challenging coursework, research opportunities, and a lively social environment.

**Mr Maloth Harish Naik**

.....  
*Junior Technician  
Department of  
Liberal Arts*



Mr Rathod Rameshwar completed a BTech in Biomedical Engineering from Padmasri Dr B V Raju Institute of Technology, Narsapur, Medak, and an MTech in Medical Electronics from Osmania University. After completing his education, he worked for the Telangana government for 4 years in the capacity of village panchayat secretary and police constable.

**My Life at IITH:**

Happy to join this esteemed national institution where work is worshipped, I wish to visit the campus once in a lifetime while travelling to my home but now it is a lifetime opportunity to learn and work here. Sports Facilities at the campus are exceptional and remember the old college days. The collaborative environment at IITH is truly exceptional. It nurtures us in all aspects of life. Thank you for giving me an opportunity to be part of this IITH fraternity.

**Mr Rathod Rameshwar**

.....  
*Junior Technician  
Department of Biomedical  
Engineering*



Mr Darelli Pullarao completed an MTech in Biomedical Engineering from Osmania University and a BTech in Biomedical Engineering from Jawaharlal Nehru Technological University Hyderabad. After completing his education, he immediately joined Archana Multispecialty hospital-Hyderabad, then worked at Malla Reddy Institute of Medical Sciences and Hospital-Hyderabad, again moved to under National Health Mission-Commissioner, Health, and Family Welfare Telangana state and was later selected as Junior Technician in Mechanical and Aerospace Engineering at IITH itself. He has more than 8 years of experience in Hospital Medical Equipment Service, Maintenance, Calibration, Training, maintaining safe operation, and approval of new equipment.

**Mr Darelli Pullarao**

.....  
*Junior Technician  
Department of Mechanical  
and Aerospace Engineering*



Mr Katam Santhosh Reddy brings a strong educational background with a BTech in Information Technology and an MTech in Computer Science & Engineering. With over 6 years of experience, he has showcased expertise in diverse technical skills, including RHEL/Centos configuration, network troubleshooting, and server maintenance. His professional journey includes roles as a Guest Faculty at RGUKT, a Trainee IT Engineer at USOFT Technologies, and a Software Engineer at RGUKT, Basar.

**My Life at IITH:**

The day at IITH was a whirlwind of excitement and nerves. The sprawling campus, alive with students, set the stage for a journey filled with challenges and opportunities. Navigating academic buildings and meeting new faces marked the promising start of this adventure.

**Mr Katam Santhosh Reddy**

.....  
*Junior Technical  
Superintendent  
Department of Mathematics*



**Ms Buddala Venkata Satya  
Ramanamma***Staff Nurse, Hospital*

Ms B Venkat Satya Rammanamma has attended High School at ZP GH School, MPHW From Govt Junior College, Tuni, GNM (Nursing) from NTR Health University, Vijayawada, and BSC (nursing) from Rajiv Gandhi University, Bangalore. She worked as a Staff Nurse at KIMS Srikakulam for a Period 3 Years.

**Mr Santosh Kumar  
Sahoo***Accountant, R&D Section*

Mr Santosh Kumar Sahoo has done an MBA in Finance from ICFAI University, Tripura, and also done Master in Commerce from IGNOU. Before he joined IITH he was working as an Accounts Assistant at NISER (National Institute of Science Education and Research) in Bhubaneswar, Odisha. He has more than 8 years of experience in the field of Maintaining Accounts in Tally, Processing Vendor Bill Payments (According to GFR rules), Briefly knowledge of all taxations that may be on Direct or Indirect tax, Process of Payments through PFMS (Public Finance Management System), Preparation of Bank Reconciliation Statement, Process of Payment to Foreign Vendors, Preparation of Annual Financial Statement & Budgets.

**My Life at IITH:**

It is a great opportunity for me to work with this prestigious institute of national importance and I also feel proud to be a part of this institute. I am working with the SRC Section and this section's staff are very supportive and dedicated and working like a family member in IITH. I am also glad to be a new family member of this section and also a part of IITH. I hope to level up my work as much possible as by me. I am pleased to contribute to the institute's growth and development and I will be happy to serve IITH.

**Mr G Prashanth***Junior Technician  
Central Workshop*

Mr G Prashanth completed his Diploma in ECE from SBTET-AP and BTech in Electronics and Communications Engineering from SDIES affiliated college of JNTU Hyderabad and also did MTech in Microwave and Radar Engineering from Osmania University.

**My Life at IITH:**

It has been a great opportunity at IITH that aligns with my professional aspirations and provides a platform for further growth in my career. I am truly grateful for the departmental support, valuable suggestions, and day-to-day experiences I have received during this time at IITH. I hope the knowledge and skills acquired here have been instrumental in shaping my career. This is the right place to apply my experience to grow with the institute.

**Mr Mohammed Salman***Junior Technician  
Department of Materials  
Science and Metallurgical  
Engineering*

Mr Salman Mohammed did his bachelor's at Yogi Vemana University Kadapa. Before joining IITH. He worked as a Process Control Engineer at Mishra Dhatu Nigam Limited for a period of 2 years and gained expertise in superalloy production.

**My Life at IITH:**

It has been a grateful opportunity to work at IITH. I had the privilege of working in a dynamic and intellectually stimulating environment. This experience not only honed my technical skills but also exposed me to diverse challenges.

**Mr Guhan Kanniyappan**

*Junior Technician  
Department of Physics*

Mr Guhan Kanniyappan, Prior to joining IITH as a Junior Technician, and worked as a Professional Assistant -I in the Department of Electrical and Electronics Engineering at CEG Campus, Anna University, Chennai. During his tenure, he provided technical assistance in conducting various electrical & and electronics laboratories and he maintained a power system simulation laboratory for the past 5 years. Before his tenure at Anna University, he gained experience as a Technical Support Engineer at Future Technicks India Pvt. Ltd., Chennai, where he was involved with vending machines and quality control equipment.

My Life at IITH:

On the first day, I was impressed by the institute's excellent infrastructure and environment. I am honored to work at one of our country's splendid educational institutions. I am glad to be part of a nurturing place where I can grow both personally and professionally.

**Mr Perumalla Nagarjun**

*Junior Technician  
Department of  
Civil Engineering*

Mr Perumalla Nagarjun completed his MTech in Highway Engineering from Ashoka Institute of Engineering & Technology and BTech from CVSR College of Engineering and he worked as a Site Engineer at Greater Hyderabad Municipal Corporation (GHMC). He has 6 Years of experience as a Site Engineer in the Town Planning Department, GHMC.

My Life at IITH:

Being a part of this prestigious institution in India. Working in the field of Geotechnical Engineering, I am fortunate to receive tremendous support from renowned faculty members who guide me in exploring diverse approaches to accomplish my tasks. I am grateful for the opportunity and committed to delivering my best in all future endeavours.

*The Issue ends here!*

**Mr Saurav Basumotari**

**MDes (2022-2024)**  
**Front and Back Page Design**





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