



IIT PALAKKAD

Nurturing minds for a better world  
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Sahyadri  
**TECHXPRESS**

REFLECTIONS OF IIT PALAKKAD



**Journey of A Decade**



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## AT A GLANCE

- 1370+ Students
- 120+ Faculty
- 90+ Staff
- 25 Advanced Scientific Labs
- 3371 Research Publications
- 11 Departments & Centres
- 14 Course Based Programs
- 17 Research Based Programs
- 90+ Crores Sponsored Projects
- 10+ Crores Consultancy Projects

The Indian Institute of Technology in Palakkad is an autonomous premier science and technology institute under the Ministry of Education, Government of India. Nestled in the Sahyadri mountain range, IIT Palakkad swiftly emerged as one among India's foremost hubs for engineering education. With unwavering dedication to academic brilliance and holistic growth, we champion the mantra of 'Nurturing Minds for a Better World'.



# DIRECTOR'S DESK

"THE TRUE ESSENCE OF TRIUMPH IS FOUND IN THE JOURNEY, NOT IN THE DESTINATION".

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Prof. A Seshadri Sekhar, Director, IIT Palakkad

It is with immense pleasure that I bring to you the second volume of our institute newsletter, Sahyadri TechXpress. As IIT Palakkad celebrates a decade of its inspiring journey, we stand at a momentous juncture—one of pride, gratitude and reflection. This special edition is a testament to ten transformative years of IIT Palakkad cherishing the essence of its remarkable exploration.

From its humble beginnings in 2015, the institute has charted a remarkable path of growth and transformation, evolving into a beacon of excellence and innovation. What began as a vision in 2015 has now flourished into an eminent institution shaping future innovators and leaders. Our roots were firmly planted in the picturesque Ahalia campus, where we commenced with just four core engineering disciplines—Civil, Computer Science, Electrical and Mechanical. These formative years were pivotal, shaping a foundation steeped in academic rigour and a spirit of discovery. The move to the sprawling Nila campus in Kanjikode in 2019 heralded a new dawn, bringing with it state of the art infrastructure and an ecosystem that fostered creativity, collaboration, and limitless ambition.

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## EDITORIAL BOARD

**Editors:** Ms. Devika Sujith, Ms. Sreeja OK

**Guest Editors:** Dr. Manas Kumar Jena, Dr. Veena Venudharan

**Designs and Content:** Ms. Sreeja OK, Ms. Devika Sujith

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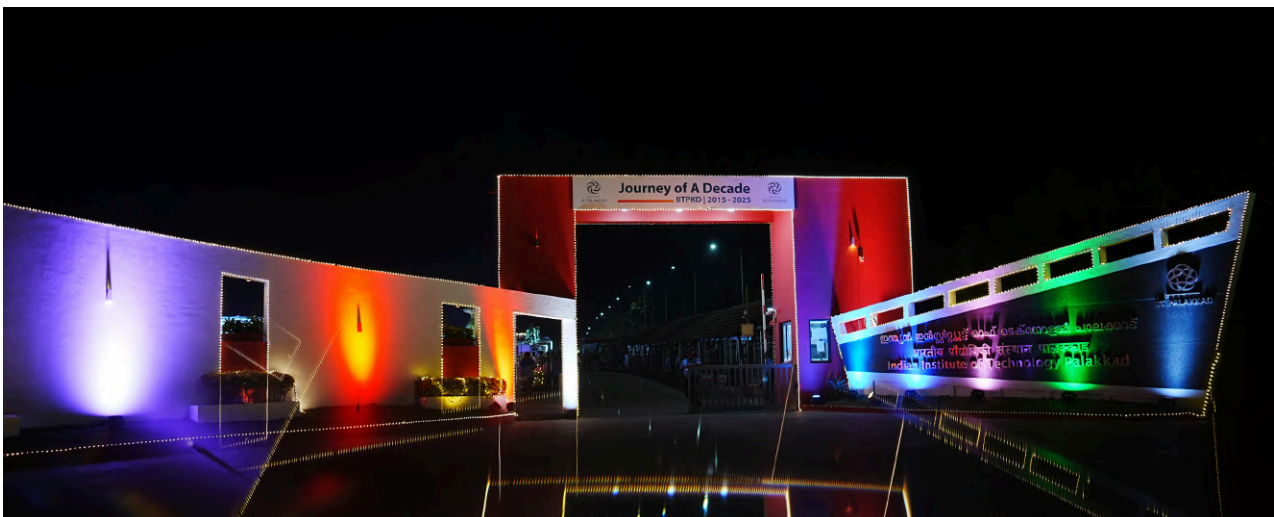
By 2023, the institute had fully flourished at the Sahyadri campus, expanding its academic tapestry to encompass eleven vibrant departments, each embodying the essence of multidisciplinary learning and progressive research.

Today, as we commemorate the tenth year of IIT Palakkad, the institute stands as a luminous example of what can be achieved through resilience, vision and collective endeavour. IIT Palakkad has showcased its mettle by securing commendable positions in both technical and cultural fests. The relentless efforts of our students, faculty and staff have contributed immensely, driving innovative research and earning recognition across the IIT ecosystem. Sahyadri TechXpress is a reflection of the institute's vibrant expedition, serving as a window into the academic, research and cultural pursuits that define its identity. I extend my heartfelt gratitude to our fraternity for their unwavering support. I welcome you to delve into the variety of articles in this edition and contribute to the success of Sahyadri TechXpress through your readership and constructive suggestions.



IITPKD | 2015 - 2025

# JOURNEY OF A DECADE



A journey that began in 2015 has blossomed into a thriving legacy. Over ten transformative years, IIT Palakkad has not only nurtured intellectual curiosity but has also served as a beacon of knowledge and progress. From groundbreaking research to fostering global partnerships, a decade of IIT Palakkad stands as a testament to the power of dreams and unwavering commitment to shape a brighter future.



Institute day celebration





## MITRA: NURTURING MINDS, INSPIRING GROWTH

**MITRA**, a vital arm of the Wellness Hub of IIT Palakkad, is dedicated to nurturing the psychological well-being of the institute community. The team comprises three Clinical Psychologists (two female and one male) and dedicated student volunteers.

**MITRA** offers confidential one-on-one counselling sessions and is available on call during crises. The counsellors collaborate with the academic section, faculty, and hostel section to identify and support students facing academic or mental health challenges. In partnership with the Medical Officer, students requiring psychiatric assistance are referred to empanelled hospitals.



### BEST PRACTICES ON CAMPUS

**MITRA** is a beacon of emotional support, fostering a culture of compassion and resilience. Through peer support programs, trained student volunteers serve as pillars of encouragement, while orientation sessions and personalized one-on-one interactions with counsellors for freshers pave the way for an empathetic and stigma-free environment. Days of significance, such as World Mental Health Day and World Suicide Prevention Day, are celebrated with inspiring activities, while group discussions, workshops, and expert-led talks on topics like anger management and exam stress create safe spaces for self-discovery and growth.



Thoughtful initiatives nurture a culture of mindfulness and self-expression, with art therapy, yoga sessions, and interactive activities like Notes of Hope and the Happiness Wall, encouraging self-expression and mindfulness. Photography contests, themed movie screenings, and enriching publications add vibrancy, while focused surveys, gatekeeper training, and faculty workshops ensure holistic well-being across the campus. MITRA is a sanctuary where emotional wellness flourishes, weaving threads of support into the very fabric of campus life.



## MITRA ACTIVITIES



## FLUORESCENT SENSING OF ORGANOARSENIC FEED ADDITIVES IN WATER

The quest for a targeted antimicrobial solution led to the discovery of Salvarsan, the first arsenic-based antisyphilitic drug. This breakthrough opened the door to exploring arsenicals for various medical applications. Among these, Roxarsone (ROX) and p-Arsanilic acid (ASA) (Fig. 1) have emerged as animal feed additives to prevent intestine-related illnesses and treat cecal coccidiosis in poultry. ROX and ASA act as livestock growth promoters, enhancing feed conversion, weight gain, egg production, and meat pigmentation. In recent years, the use of organoarsenic feed additives in cattle has increased due to their therapeutic properties and cost-effectiveness. However, the environmental impact of these feed additives is often overlooked due to their perceived lower toxicity compared to inorganic arsenicals and a limited understanding of their metabolic activities.

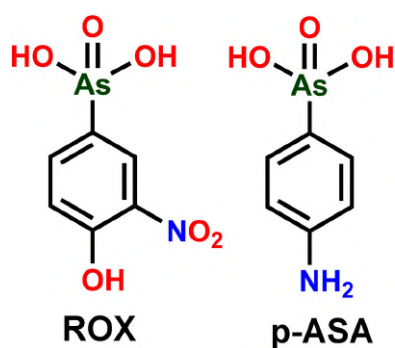


Fig. 1



Dr. S Shanmugaraju's research team

(Ananthu Shanmughan, Karuppaiya Balamurugan and Sankarasekaran Shanmugaraju)

ROX and ASA are water-soluble compounds that animals cannot fully digest, and they enter the soil through urine and manure, eventually contaminating groundwater. Through biodegradation processes, ROX and ASA are converted into highly toxic inorganic arsenicals, such as arsenite As(III) and arsenate As(V), posing serious risks to human health and the environment. Given these harmful effects, developing a suitable sensing method for detecting ROX and ASA in wastewater from livestock farms is imperative.



In the light of this, Dr. Shanmugaraju's research team in the Department of Chemistry at IIT Palakkad recently developed a practical fluorescent organic polymer (TB-Py-COP) for the selective and reversible detection of ROX and ASA at trace levels in groundwater. The team employed a fluorescence-based detection method, which is more sensitive, faster, and cheaper than existing methods. They synthesized the TB-Py-COP polymer by reacting a 'V-shaped' green-emitting compound, TBNap, with cyanuric chloride in DMF at 100°C for three days (Fig. 2). The polymer was fully characterized using various spectroscopic and microscopy techniques available at IIT Palakkad.

TB-Py-COP was strongly fluorescent, but its emission was quenched (turn-off) after binding with ROX and ASA through multiple weak non-covalent interactions in water (Fig. 3A). The polymer displayed high selectivity, even in the presence of competing analytes (Fig. 3B), and reversible sensing responses for ROX and ASA with nanomolar sensitivity. The researchers further demonstrated the polymer's selective sensing ability for ROX and ASA in competitive environments, lake water, and buffer solutions.

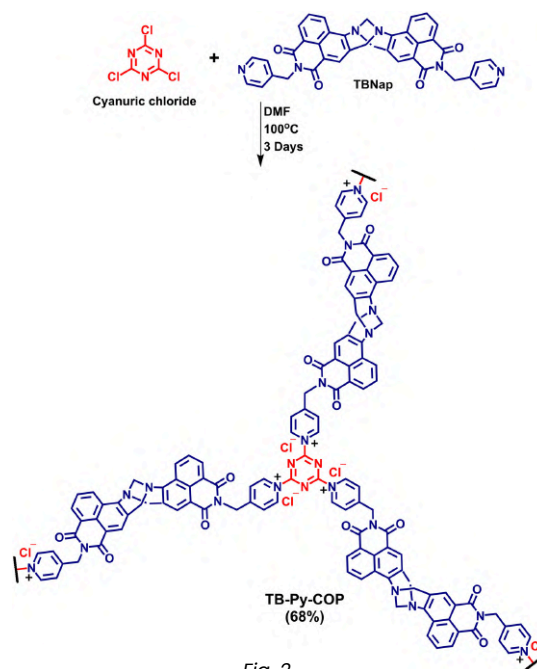


Fig. 2

In summary, TB-Py-COP is a promising fluorescent sensor for ultra-trace detection and removal of organoarsenic feed additives in wastewater, contributing positively to public health and environmental safety. This work has recently been published in the journal ACS Measurement Science Au (<https://doi.org/10.1021/acsmesuresciau.4c00059>), an international journal of the American Chemical Society.

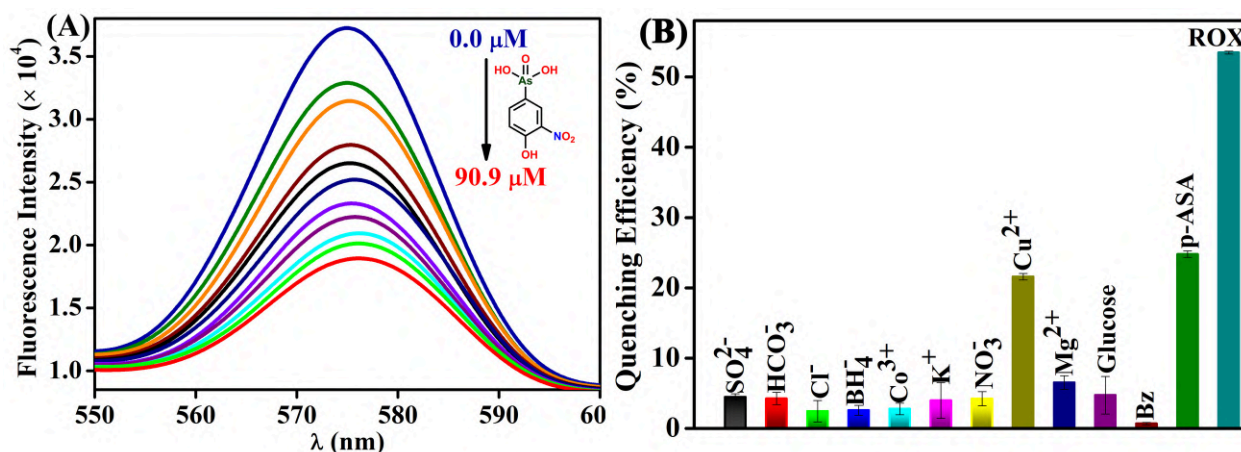


Fig. 3

# STUDENT'S ALCOVE



## THE FINANCE CLUB CHRONICLES: MOMENTS AND MILESTONES

The Finance Club at IIT Palakkad has always stood out as a beacon of excellence, innovation, and team spirit. This year, the club reached new heights with its well-organized activities and remarkable achievements. From forming a dedicated core team to winning accolades at Tathva and conducting a riveting quiz competition, the Finance Club has set a standard for others to follow.

Every successful endeavour begins with a strong foundation, and for the Finance Club, this foundation was the formation of its core team. Composed of enthusiastic and highly capable individuals, the team was selected with a focus on leadership, creativity, and expertise. Each member brought their unique perspective, creating a synergistic environment that fueled the club's initiatives.

The structured delegation of responsibilities ensures smooth operations, enabling the team to plan and execute activities that leave a lasting impact on the student community.

### TRIUMPH AT TATHVA

One of the crowning achievements of the club this year was its performance in Tathva, the flagship techno-cultural festival of NIT Calicut. The Finance Club not only participated but excelled, securing top-three positions in the finance competition. This victory was a testament to the hard work, analytical skills, and financial acumen of the members. It also highlighted the club's commitment to fostering a culture of competitive excellence and continuous learning.



*FinQuiz Team*

### **FINQUIZ: IGNITING FINANCIAL CURIOSITY**

Among the notable initiatives of the year, the club successfully organized and conducted FinQuiz, a finance-themed quiz competition. The event aimed to spark interest in financial concepts and create a platform for students to engage with topics such as economic trends and market insights. While the scale of participation was modest, the event marked an important step in the club's journey to promote financial awareness on campus. It also served as a valuable learning experience for the team, paving the way for more impactful events in the future.

Through these activities, the Finance Club has reinforced its position as a pivotal part of campus life. The triumph at Tathva showcased the members' capability to compete and succeed on a larger stage, while FinQuiz reflected the club's dedication to spreading financial literacy and engagement. The core team's efforts were instrumental in ensuring that every initiative was executed to perfection, leaving a mark of professionalism and excellence.



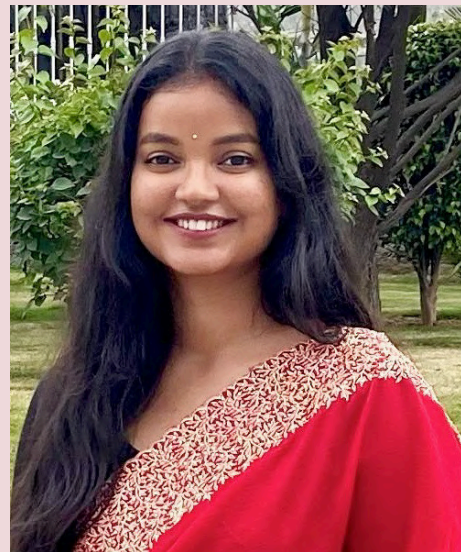
*The Core Team*

"I am currently employed as a Design Engineer at TI. I'm someone who enjoys creating and building things, especially through engineering projects that challenge my skills. IIT Palakkad played a pivotal role in shaping my career and overall perspective. The institute provided a nurturing environment that encouraged growth and exploration. The momentum of the experiences I gained at IIT Palakkad shaped my technical skills, problem-solving abilities and prepared me for the journey ahead."



**Harsh Anand**  
2018–2022 Batch  
Department of Electrical Engineering

**Bhavana Sharma**  
2020–2022 Batch  
M.Tech in Power Electronics  
and Power Systems



"Life has a way of surprising us, and we are all so young, so don't hesitate to seize opportunities and take risks. I am a Power System Software Developer at Siemens, Bangalore. By the final year of my B.Tech degree, I was sure I wanted to delve more into power system software used by the industry. It was a moment of pride for me to be able to get into such a prestigious institution to pursue my interest. IIT Palakkad gave me a great platform to dive deep into my interest with so many industry experts as our professors and peers."

**Sarthak Dash**  
2021-23 Batch  
M.Tech in Power Electronics and  
Power Systems



“After graduating from IIT Palakkad in 2023, I joined GE Vernova as a Software Engineering Specialist. My experience at IIT Palakkad provided me with the technical expertise and broader perspectives that have been invaluable in both my professional and personal growth. I had the opportunity to undergo a truly transformative education. I was fortunate to serve as a teaching assistant and undertake a research-driven M.Tech thesis, experiences that not only enhanced my academic growth but also played a significant role in shaping my professional career.”

“My time at IIT Palakkad was pivotal. The demanding coursework and vibrant intellectual atmosphere pushed me to constantly strive for improvement. I developed strong technical skills and problem-solving abilities, which prepared me for the fast-paced challenges of today's world. I am a Software Engineer at 'EEPLUS' which is an energy advisory firm. I work on projects that combine technology with innovative solutions to advance the energy sector. IIT Palakkad has greatly shaped the person I am today.”



**Rishav Kumar**  
2020-24  
B.Tech in Electrical Engineering

# IMPACT STORIES

Impact Stories encapsulates the spirit of IIT Palakkad's initiatives, illustrating how the knowledge nurtured within classrooms, laboratories, and seminar halls flourishes into transformative changes that resonate far beyond the campus. It serves as a powerful testament to the boundless potential of education and innovation, demonstrating how even the smallest efforts can pave the way for a brighter, more inclusive future.

## PALE BLUE DOT LECTURE SERIES

The lecture conducted in collaboration with the Electrical Engineering Association of Government Engineering College Palakkad, Government Moyan Model Girls Higher Secondary School, and the Palakkad District Public Library, explored how effective information design can positively impact social outcomes. It demonstrated how mathematics and design principles can enhance social well-being.



## UYARE



Unified Youth Advancements for Research and Entrepreneurship Program (UYARE), an initiative by IIT Palakkad Technology IHub Foundation aimed at empowering students, youth and entrepreneurs from Scheduled Tribe (ST) communities through technology skilling and entrepreneurial training. The program chose 20 students for 6-month in-house training and 10 technology development projects for funding.

## SOLAR STUDENT AMBASSADOR WORKSHOP

The Department of Electrical Engineering, IIT Palakkad, hosted a full-day event designed to inspire and engage students with a variety of activities and discussions on renewable energy and sustainability. The program shared insights on the significance and future of renewable energy technologies. The event was well-received, offering an enriching experience that combined theoretical knowledge with practical insights into renewable energy.



## SEMINAR ON SUSTAINABLE APPROACHES TO SANITATION

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GSCOE organized a seminar on sustainable approaches to sanitation. The talk highlighted the experiences of the Water Group within the Ashank Desai Centre for Policy Studies, IIT Bombay in developing protocols for technology choices, facilitating sustainable sanitation planning for small towns and creating a 'Living Lab' in a small town in Kerala. The group also strives to identify sustainable pathways for transitioning environmental services like solid and liquid waste management and scaling them up to other locations, thereby rejuvenating urban local bodies.



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## WORKSHOP ON SUSTAINABLE MATERIALS



A workshop on 'Sustainable Materials' was conducted by the Environmental Science and Sustainable Engineering Centre (ESSENCE) at IIT Palakkad. The sessions highlighted critical topics such as sustainable development goals (SDGs), the circular economy, the utilization of renewable resources, and the growing importance of environmental, social, and governance (ESG) factors.

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## THEMATIC EXPLORATION SERIES

The Department of Humanities and Social Science at IIT Palakkad hosted a talk in the thematic exploration series on 'The Caste and Gender Question in India.' The talk delved into the dynamics of missionary education for poor, 'untouchable caste' girls in colonial Kerala, shedding light on how British Protestant missionaries shaped educational experiences that reinforced existing caste and gender hierarchies.



# GLIMPSES



*Institute day*



*Republic Day*



*UYARE Launch*



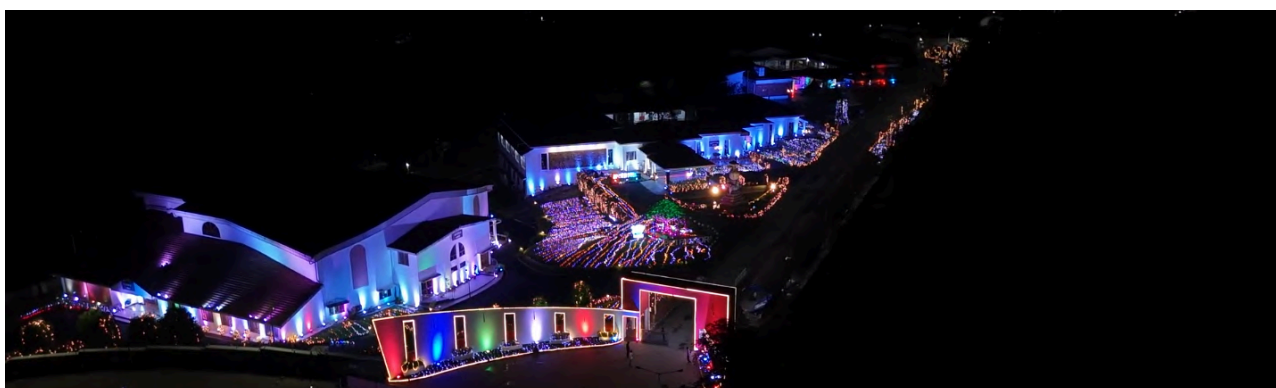
*GIAN Workshop*



*Book fair - Open House and Petrichor*



*International Students Meet 2025*







IIT Palakkad at Sakura Science Program 2024



IIT Palakkad at COPEN 13



IIT Palakkad at PIWOT 2025



Childrens' day



Mitra Gambol



Unity day



DOUGHBOX - Baking workshop



CLAYFORGE - Pottery workshop




Inter IIT - Sports Meet



Inter IIT - Technical Meet




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