

# Samvid

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## IIT Tirupati Becomes Fully Functional from its Permanent Campus

IIT Tirupati shifted all its operations from its temporary campus situated on the Tirupati-Renigunta Road in the premises of Krishna Teja Group of Institutions to its permanent campus located on the Yerpedu-Venkatagiri Highway in Merlapaka Village in July 2022. The Institute started its first operations from the permanent campus in the year 2019. Currently, the Stage 1C project of the campus construction is on the verge of completion. The buildings constructed in the academic zone include two Department Buildings with offices for about 100 faculty members and the associated laboratories, a Central Instrumentation Facility, a Lecture Hall Complex and Administrative Building. In the hostel zone, two hostels with 500 rooms each, along with a

Central Dining facility, and sports facilities have been constructed. In the residential zone, 168 apartments for faculty and staff and Director's bungalow have been occupied, while a 20-room guest house with a beautiful mountain backdrop is ready to be operational. Two lakes spanning over 10 acres of land have been created to store water. The buildings constructed in the stages 1 A and B of the permanent campus include five G+3 and one G+4 floor hostels, one dining-cum-kitchen facility, an indoor-sports complex, a residential block with four apartments, one G+1 floor multipurpose building, a class-room building, an Engineering-Unit building, and two laboratory buildings.

### MoUs Signed by IIT Tirupati

#### Tata Consultancy Services Ltd. (TCS)

IIT Tirupati signed an MoU with Tata Consultancy Services Ltd. on August 8, 2022, for academic and research collaborations.

#### Hindustan Shipyard Limited (HSL)

An MoU was signed between IIT Tirupati and Hindustan Shipyard Limited (HSL) in the presence of the defence minister Hon'ble Shri Rajnath Singhji during DEFEXPO-2022, Bandhan event at Gandhinagar, Gujarat on October 20, 2022.



### **M/s KYNDRYL Pvt. Ltd**

In order to promote research, innovation and incubation activities, IIT Tirupati entered in an MoU with M/s KYNDRYL Pvt. Ltd on October 31, 2022. The agreement will bring academic and innovation related growth for the students and research community in the Institute.

### **IIT Guwahati Technology Innovation and Development Foundation**

To enable research work in the area of Hydrogen Storage, IIT Tirupati signed the MoU on November 21, 2022, with IIT Guwahati Technology Innovation and Development Foundation.

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## **Invited and Special Lectures/Talks held at IIT Tirupati**

- Prof. S. Kaleemullah, Principal Scientist and Head, Post-Harvest Engineering and Technology Centre, Tirupati, delivered an inaugural lecture on “Millets in diet,” on July 27, 2022.
- Dr. D. Sujatha, Assistant Professor, Institute of Pharmaceutical Technology, Sri Padmavati Mahila Visvavidyalayam, Tirupati, delivered a lecture on “Nutraceutical aspects and commercial potential of millets,” on October 26, 2022.
- Dr. G. Sireesha, Assistant Professor, Department of Home Science, Sri Padmavati Mahila Visvavidyalayam, Tirupati, delivered a lecture on “Millets: A Solution to Agrarain and Nutritional Challenges,” on October 26, 2022.
- Prof. Mukul G. Asher Professorial Fellow (Retired) , Lee Kuan Yew School of Public Policy, National University of Singapore, delivered a talk on “Public Policy Education : How can it help lead to better citizen-centric outcomes?” on July 27, 2022.
- Dr. Arabinda Kumar Padhee, IAS Director, Country Relations and Business Affairs, ICRISAT, New Delhi, delivered a talk on “Policy Pathways for a Sustainable Indian Food System,” on July 28, 2022.
- Prof. Vishal Narain, Management Development Institute, Gurgaon, New Delhi, delivered a talk on “Managing the Commons: Concepts, Issues and Challenges,” on July 29, 2022.
- Dr. Nilanjan Ghosh, Director, Centre for New Economic Diplomacy, & ORF Kolkata Centre, & President, Indian Society for Ecological Economics, delivered a talk on “Water Governance in South Asia: From Reductionist Arithmetic Hydrology to Holistic Ecohydrological Paradigm,” on August 1, 2022.
- Dr. Badri Narayanan Gopalkrishnan, Head, Trade and Commerce, NITI Aayog, New Delhi, delivered a talk on “Global Trade and Disruptive Technologies,” on August 2, 2022.
- Dr. Sumit Vij, University of Geneva, Switzerland & Wageningen University and Research, the Netherlands, delivered a talk on “Public Policy: Perspectives from Global South and the North,” on August 8, 2022.
- Prof. Jens Newig, Head, Institute of Sustainability Governance, Leuphana University Luneburg, Germany, delivered a talk on “Participatory Governance towards Sustainability,” on August 18, 2022.
- Prof. Jeffrey R. Vincent, Clarence F. Korstian Professor of Forest Economics and Management, Nicholas School of the Environment, Duke University, USA, delivered a talk on “Restoring Global Forests: Opportunities and Challenges,” on September 27, 2022.

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## **Conferences, Workshops, Symposiums Organized by the Institute**

### **Industry Academia Conclave focusing on Electronics Manufacturing**

An Industry Academia Conclave focusing on Electronics Manufacturing was organized by the Centre for Sponsored Research and Consultancy (CSRC), IIT Tirupati on July 16, 2022, at IIT Tirupati, Yerpedu campus. It was part of an initiative to acquaint the industry with the facilities and competencies of the Institute and for the Institute to understand the needs of the industry better.

### **ICSSR-JSPS Joint Seminar on Socio-Economic Impacts of COVID-19**

A five-day seminar on “Understanding and addressing systemic risks behind the socio-economic impacts of COVID-19 in India and Japan: Developing a roadmap for a resilient and sustainable future” was jointly organized by IIT Tirupati and Institute for Global Environmental Strategies, Tokyo, Japan. The seminar was held during November 21-25, 2022 in Tokyo, Japan.

## Symposium on Innovation and Entrepreneurial Ecosystem



A one-day symposium on “Symposium on Building Innovation, Incubation & Entrepreneurial Ecosystem across HEIs of AP” was jointly organised by CSRC, IIT Tirupati and Sri Padmavati Mahila Visvavidyalayam (SPMVV). The Symposium was held on August 17, 2022, at Sri Padmavati Mahila Visvavidyalayam Tirupati. Dr. Abhay Jere, Chief Innovation Officer, Innovation Cell, Ministry of Education, Govt of India, interacted with the participants and delivered a talk focusing on the need for Innovation & Incubation.

## Workshop on Emerging Learning Methods and Systems (ELMS)

A three-day workshop on Emerging Learning Methods and Systems (ELMS) was organised as a part of the “Indo-Norwegian Collaboration in Intelligent Offshore Mechatronics Systems (INMOST)” project by the faculty members from Department of Electrical Engineering of the Institute and faculty of Engineering and Science, UiA during July 15-17, 2022. This workshop highlighted the basics of various learning methods, particularly (i) Supervised Machine Learning (ML) (ii) Deep Learning (DL) (iii) Reinforcement Learning (RL), and (iv) Social and Distributed Learning. It also presented an overview of the application of these methods to solving various system-level problems in various domains like computer vision, automotive, and industrial applications.

## CAMOST's Second Anniversary Colloquium Series

The “Center for Atomic, Molecular, and Optical Sciences & Technologies (CAMOST),” a joint initiative of IIT Tirupati and the IISER Tirupati, was inaugurated on the eve of the 73<sup>rd</sup> anniversary of India's Independence Day by Dr. Arabinda Mitra (Scientific Secretary, Office of the Principal Scientific Advisor, Government of India). The CAMOST's Second Anniversary Events started from September 10, 2022.

## 11<sup>th</sup> Annual Conference on Deep Foundation Technologies for Infrastructure Development in India (DFI-India 2022)

A three-day 11<sup>th</sup> Annual Conference of DFI-India 2022 on “Deep Foundation Technologies for Infrastructure Development in India” was organised by Deep Foundations Institute of India (DFI of India) in collaboration with Indian Institute of Technology Tirupati, and Indian Geotechnical Society – Tirupati Chapter during September 15-17, 2022. The Conference offered a broad forum to geotechnical professionals to present, discuss and debate many aspects of the latest technologies appropriate for the speedy execution of deep foundation for major infrastructure projects in India.

## Workshop on Writing R&D Grant Proposal for Women Engineers

A two-day workshop on “Writing R&D Grant Proposal for Women Engineers (Formulation, Defense and Implementation of a Grant Proposal)” was held during November 10-11, 2022. The workshop was sponsored by Science and Engineering Research Board and hosted by the Institute.

## International Conference on Credit Markets and Policies in South Asia

A 3- Day international conference on “Credit Markets and Policies in South Asia: Issues and Challenges” was organised by the Department of Humanities and Social Sciences in collaboration with YSI South Asia Working group & INET, New York. The conference was held during December 7-9, 2022.

## Entrepreneurship Interactive Session

CSRC organised an event titled “An Interactive Session from Lab to Market” to promote Startup/Entrepreneurship activity on August 24, 2022. Students and faculty members participated and interacted with the expert and Chief Guest Dr. Vivek Kumar Rai, Scientist-F, Technology Development Board, Department of Science and Technology.



## FDP on Developing Leadership and Team Management Skills

ATAL FDP on “Developing Leadership and Team Management Skills” was organised by the Department of Humanities and Social Sciences, IIT Tirupati during December 5-16, 2022. The programme was sponsored by AICTE Training and Learning (ATAL) Academy, New Delhi.

## Startup Interactive Session

CSRC organised an interactive session and technical talk titled “How to do a Startup” on November 12, 2022. The event was part of Institution's Innovation Council (IIC) activity at IIT Tirupati for the benefit of students and Faculty to promote Startup/Entrepreneurship, where students and faculty members participated and interacted with the expert and Chief Guest, Mr. D M Naveen Giri, Founder, ASN Fuel Pvt. Ltd.



## 18<sup>th</sup> International Conference on Information Systems Security (ICISS 2022)

The 18<sup>th</sup> edition of the international conference on Information Systems Security (ICISS 2022) was held during December 16-20, 2022. Around 16 high quality accepted papers were presented by the authors from across the globe.

## GIAN programme on Total Factor Productivity and Macroeconomic Development

A week-long virtual GIAN programme on “Total Factor Productivity and Macroeconomic Development” was organised by the Department of Humanities and Social Sciences, IIT Tirupati during December 12-19, 2022. The course was coordinated by Dr. Rahul A. Sirohi and delivered by Dr. Paulo Henrique Vaz, Assistant Professor and Vice-head of the Graduate Program in Economics at the Federal University of Pernambuco (UFPE), Brazil.

## Workshop on Geospatial Data Science

The Department of Mathematics and Statistics in collaboration with IIT Tirupati Navavishkar I-Hub Foundation (IITT NiF) organised a workshop on “Geospatial Data Science” during December 9-14, 2022.

## Workshop on Advanced Metrology

The Department of Mechanical Engineering organised a workshop on “Advanced Metrology” during December 5-9, 2022.

## Sponsored Research Projects

S. No.	Title	Funding Agency	Investigator and Dept.
1.	Development of Ultra-High-Performance Concretes (UHPCs) for Road/Bridge Infrastructure in Urban Areas	Kerala Highway Research Institute	Dr. Bijily Balakrishnan Civil and Environmental Engineering
2.	Design, Development, Testing and Commercialization of Porous Radiant Burners for Domestic Cooking and Industrial Applications	Indian National Academy of Engineering (INAE)	Dr. Muthukumar Palanisamy Mechanical Engineering
3.	Optimal protocols beyond adiabaticity	Department of Science and Technology (DST)	Dr. Ranjan Modak Physics
4.	Chanakya Fellowship	IIT Tirupati Navavishkar I-Hub Foundation	Dr. Roshan Srivastav Civil and Environmental Engineering
5.	Polyoxovanadate Decorated Supramolecular Architectures for Energy Storage Application	Science and Engineering Research Board (SERB)	Dr. Sourav Chakraborty Chemistry
6.	The Cyclopiane Diterpenes: Total Syntheses of Conidiogenone B, Conidiogenone, and Conidiogenol	Science and Engineering Research Board (SERB)	Dr. Venkaiah Chintalapudi Chemistry
7.	Carbonless alternative fuels for transportation	Science and Engineering Research Board (SERB)	Dr. Krishna S Addepalli Mechanical Engineering

S. No.	Title	Funding Agency	Investigator and Dept.
8.	The quantum complexity of dual-unitary and Bernoulli quantum many-body circuits	Science and Engineering Research Board (SERB)	Dr. Aravinda S Physics
9.	Asymmetric Synthesis of Alkyl Amines by Enantioselective Umpolung Nickel Catalysis of Imines	Science and Engineering Research Board (SERB)	Dr. Srikrishna Bera Chemistry
10.	DST-IIT Bombay Energy Storage Platform on Hydrogen	Department of Science and Technology (DST)	Dr. Muthukumar Palanisamy Mechanical Engineering
11.	Synthetic Studies Towards Glycoconjugate Vaccine Against Antimicrobial Resistant Enterococcus faecium	Science and Engineering Research Board (SERB)	Dr. Someswara Rao Sanapala Chemistry
12.	Design, Development and Integration of Hydrogen based energy storage and conversion system for underwater applications	IIT Guwahati Technology Innovation and Development Foundation (TIH/TD)	Dr. Muthukumar Palanisamy Mechanical Engineering
13.	CSRC Promotional Activity at IIT Tirupati	M/s Wunderman Thompson	Dr. E. Anil Kumar Mechanical Engineering
15.	Research on 3D Printing of Waste Porcelain	Department of Science and Technology (DST)	Dr. Mamilla Ravi Sankar Mechanical Engineering
16.	Enabling Silicon Carbide Based Power Converters for Integrating Photovoltaics and Multiple Energy Sources	Science and Engineering Research Board (SERB)	Dr. Viju Nair R Electrical Engineering
17.	Single-crystal growth and magnetic studies of novel geometrically frustrated magnets	Science and Engineering Research Board (SERB)	Dr. Koteswara Rao Bommiseti Physics
18.	Semi-Automatically Generating Documentation to Facilitate Software Maintenance in Legacy Software Systems	Science and Engineering Research Board (SERB)	Dr. Sridhar Chimalakonda Computer Science and Engineering
19.	IKS center for Kalamkari art, natural farming, and food preservation at IIT Tirupati	IKS Division of MoE@AICTE	Prof. KSMS Raghavarao Chemical Engineering
20.	Evaluation of Various Traditional Indian Blood Purification (Raktamokshan) Medicines using 3D Bio-Printed Microfluidic Organ-On-Chip Platforms	IKS Division of MoE@AICTE	Dr. Mamilla Ravi Sankar Mechanical Engineering
21.	DST FIST Program to strengthen Research Facility in the department	Department of Science and Technology (DST)	Dr. B. Krishna Prapoorna Civil and Environmental Engineering
22.	DST FIST Program to strengthen Research Facility in the department	Department of Science and Technology (DST)	Dr. N N Murty Electrical Engineering

## Industrial Consultancies

1.	Experimental Study on Pervious Concrete: An Eco-Friendly Concrete Pavement; Investigations of Thermophysical Properties of Pervious Concrete: Phenomenological and Climatological Perspectives	University of Sharjah	Dr. B. Krishna Prapoorna Civil and Environmental Engineering
2.	Structural vetting of the steel super structure of BMRCL repair bay shed	Metroof Structures Private Limited	Dr. M. Nithyadharan Civil and Environmental Engineering
3.	Preparation & submission of design and drawings of sheet pipe wall at EPCC-06-SRU UNIT for Rajasthan Refinery Project (RRP), Pachpadra, Rajasthan.	Meha Engineering and Infrastructure Limited	Dr. B. Janaki Ramaiah Civil and Environmental Engineering
4.	Source Apportionment Studies: Chemical analysis of air samples	Indian Institute of Technology Madras	Dr. Shihabudheen M Maliyekkal Civil and Environmental Engineering

S. No.	Title	Funding Agency	Investigator and Dept.
4.	Source Apportionment Studies: Chemical analysis of air samples	Indian Institute of Technology Madras	Dr. Shihabudheen M Maliyekkal Civil and Environmental Engineering
5.	Laboratory testing of plastic concrete specimens of 681 numbers prepared 81 panels of the diaphragm wall at the downstream cofferdam of Polavaram project, A.P.	Meha Engineering and Infrastructure Limited	Dr. B. Janaki Ramaiah Civil and Environmental Engineering
6.	Reviewing Grant Applications	The Welcome Trust Limited	Dr Chandra Sekhar Bahinipati Humanities and Social Sciences
7.	SiNON consulting project for Drug Encapsulation - Phase III	SiNON-USA	Dr Shihabudheen M Maliyekkal Civil and Environmental Engineering
8.	Design vetting of concrete 3D printed structures	MICOB Private Limited	Dr. Bijily Balakrishnan Civil and Environmental Engineering
9.	Study of Existing Lighting Protection Systems at LPG Plant of IOCL with respect to provisions in OISD GDN 180 and IEC/IS 62305	Indian Oil Corporation Limited (IOCL)	Dr. Vignesh V Electrical Engineering
10.	The residual stress and distortion analysis of the multi-pass are welded joints of Naval grade steel plates	Defense Research and Development Organization (DRDO) - Naval Materials Research Laboratory (NMRL)	Dr. Degala Venkata Kiran Mechanical Engineering
11.	Proof checking of design and drawings of reinforced soil wall at Deoli-Kota section in the state of Rajasthan	M/s Ramesh Kumar Bansal	Dr. B. Janaki Ramaiah Civil and Environmental Engineering
12.	Vetting of 4 Geotechnical Investigation Reports for MES EPC Vizag Project Site	CH Veeraraghavulu Construction Pvt Ltd	Dr. Murali Krishna Civil and Environmental Engineering
13.	Testing of DI and D2 device for performance improvement in LPG Stove	M/s Mittal Intellectual Properties OPC Pvt. Ltd.	Dr. P. Muthukumar Mechanical Engineering
14.	Investigation of the Roof at Srikalahasteeswara Temple, Srikalahasti, A. P.	Sri Kalahasteeswara Swamy Vari Devasthanam	Dr. Behera Prasanna Kumar Civil and Environmental Engineering

## Recent Faculty Publications

### Journals

#### Civil & Environmental Engineering

- S.M. Allabakshi, P.S.N.S.R. Srikar, S. Gomosta, R.K. Gangwar, and **S.M. Maliyekkal**. "UV-C photon integrated surface dielectric barrier discharge hybrid reactor: A novel and energy-efficient route for rapid mineralisation of aqueous azo dyes", *Journal of Hazardous Materials*, vol. 446, March 2023, 130639.
- S. M. Allabakshi, P.S.N.S.R. Srikar, R. K. Gangwar, and **S. M. Maliyekkal**. "Feasibility of surface dielectric barrier discharge in wastewater treatment: Spectroscopic modeling diagnostic, and dye mineralization", *Separation and Purification Technology*, vol. 296, September 2022, 121344.
- Y. Tao, **A. V. Rahul**, M. K. Mohan, K. Van Tittelboom, Y. Yuan, and G. De Schutter. "Blending performance of helical static mixer used for twin-pipe 3D concrete printing", *Cement and Concrete Composites*, vol. 134, November 2022, 104741.
- Y. Tao, M. K. Mohan, **A. V. Rahul**, Y. Yuan, G. De Schutter, and K. Van Tittelboom. "Stiffening controllable concrete modified with redispersible polymer powder for twin-pipe printing", *Cement and Concrete Research*, vol. 161, November 2022, 106953.
- Y. Tao, **A. V. Rahul**, M. K. Mohan, G. De Schutter, and K. Van Tittelboom. "Recent progress and technical challenges in using calcium sulfoaluminate (CSA) cement", *Cement and Concrete Composites*, vol. 137, March 2022, 104908.

## Computer Science & Engineering

### Electrical Engineering

- Ashif S. Iquebal, Aakash Yadav, Bhaskar Botcha, **Rama Krishna Gorthi**, and Satish Bukapatnam. "Tracking and quantifying spatter characteristics in a laser directed energy deposition process using Kalman filter", *Manufacturing Letters*, Vol. 33, September 2022, pp. 692-700.
- M. Laxmi Naresh Kumar, D. Sen, and **P. Mohapatra**. "Design and Performance Analysis of Intra-Vehicle VLC System With Random Receiver Orientation", *IEEE Transactions on Intelligent Transportation Systems*, vol. 23, no. 9, September 2022, pp. 16170-16184.

### Mechanical Engineering

- Sayantana J, Nithin N. Raju, and **Muthukumar P**. "Parametric Investigations on LCC1 based Hydrogen Storage System Intended for Fuel Cell Applications", *International Journal of Hydrogen Energy*, Article in press, Available online April 2022.
- Alok Kumar, and **Muthukumar P**. "Experimental Studies on Poisoning of La<sub>0.9</sub>Ce<sub>0.1</sub>Ni<sub>5</sub> based Hydrogen Purification System with CO<sub>2</sub> as Impurity", *International Journal of Hydrogen Energy*, Article in press, November 2022.
- Sangjukta Devi, **Muthukumar P**, and Niranjan Sahoo. "Comparative performance evaluation of a porous radiant burner with a conventional burner: Biogas combustion", *Applied Thermal Engineering*, vol. 218, January 2023, 119338.
- Satyaki Chandra, Pratibha Sharma, **Muthukumar P**, and SankaraSarma V Tatiparti. "Experimental hydrogen sorption study on a LaNi<sub>5</sub>-based 5 kg reactor with novel conical fins and water tubes and its numerical scale-up through a modular approach", *International Journal of Hydrogen Energy*, Article in press, Available online September 2022.
- Nayanita K, Sofia Rani S, and **Muthukumar P**. "Comparative study of Mixed-Mode type and direct mode type solar dryers using Life Cycle assessment", *Sustainable Energy Technologies and Assessments*, vol. 53, Part C, October 2022, 102680.
- Mrinal Bhowmik, Juri Sonowal, **Muthukumar P**, and Anandalakshmi R. "Experimental Investigations on a Solar Assisted Packed Bed Regeneration System Using a Binary Desiccant Solution", *Thermal Science and Engineering Progress* 236, 2022, pp. 356-368,
- Sunku Prasad J, and **Muthukumar P**. "Performance and Energy Efficiency of a Solid-state Hydrogen Storage System: An Experimental Study on La<sub>0.7</sub>Ce<sub>0.1</sub>Ca<sub>0.3</sub>Ni<sub>5</sub>", *Applied Thermal Engineering*, vol. 216, 2022, 119030.
- Sayantana J, **Muthukumar P**, and Nithin N. Raju. "Hydrogen charging and discharging studies on embedded cooling tube metal hydride reactor designed for fuel cell applications", *International Journal of Hydrogen Energy*, Article in press, 2022.
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- K. Sarath Babu, **E. Anil Kumar**, and S. Srinivasa Murthy. "Thermochemical energy storage using coupled metal hydride beds of Mg-LaNi<sub>5</sub> composites and LaNi<sub>5</sub> based hydrides for concentrated solar power plants", *Applied Thermal Engineering*, Accepted for publication.
- K. Sarath Babu and **E. Anil Kumar**. "Compressor operated sorption system for high temperature thermochemical energy storage using Mg based hydrides", *International Journal of Hydrogen Energy*, Available online, 10.1016/j.ijhydene.2022.09.262.
- Dinesh Dashbabu, **E. Anil Kumar**, and I.P. Jain. "Thermodynamic analysis of a metal hydride hydrogen compressor with aluminium substituted LaNi<sub>5</sub> hydrides", *International Journal of Hydrogen Energy*, Available online, 10.1016/j.ijhydene.2022.09.094.
- Ondrej Cejpek, Milan Maly, Jaroslav Slama, **Madan Mohan Avulapati**, and Jan Jedelsky. "Interaction of pressure swirl spray with cross-flow", *Continuum Mechanics and Thermodynamics*, vol. 34, no. 6, 2022, p.1497-1515.
- Dipayana Chakraborty, Tumula Tirumala, Srihari Chitral, B. N. Sahoo, **D. V. Kiran** and **P. Ajay Kumar**. "The State of the Art for Wire Arc Additive Manufacturing Process of Titanium Alloys for Aerospace Applications", *Journal of Materials Engineering and Performance*, vol. 31, 2022, pp. 6149-6182.
- S Shaik, **B Radhika**, and **V Pandurangan**. "Auxetic hexachiral cantilever beams for piezoelectric vibration energy harvesting", *Smart Materials and Structures*, vol. 31, 2022, 105015.

### Chemistry

- A. Mizrahi, S. Bhowmik, **A. K. Manna**, W. Sinha, A. Kumar, M. Saphier, A. Mahammed, M. Patra, N. Fridman, I. Zilbermann, L. Kronik, and Z. Gross. "Electronic Coupling and Electrocatalysis in Redox Active Fused Iron Corrole", *Inorg. Chem.* 61, December, 2022, pp. 20725-20733.
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- S. C. Pal, R. Ahmed, **A. K. Manna**, and M. C. Das. "Potential of a pH-Stable Microporous MOF for C<sub>2</sub>H<sub>2</sub>/C<sub>2</sub>H<sub>4</sub> and C<sub>2</sub>H<sub>2</sub>/CO<sub>2</sub> Gas Separations under Ambient Conditions", *Inorg. Chem.* 61, November, 2022, pp.18293-18302.
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## Mathematics and Statistics

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- I. Das, Mathews, J., Bhattacharya, S., and Sen, S. "Multiple inflated negative binomial regression for correlated multivariate count data", *Dependence Modeling*, Vol. 10(1), 2022, pp. 290-307.
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- K. Kishore. "Matrix Waring Problem", *Linear Algebra and its Applications*, Vol. 646, 2022, pp. 84-94.
- P. Mariappan, Gangadhara B, and Ronan F. "A point source model to represent heat distribution without calculating the Joule heat during radiofrequency ablation", *Frontiers in Thermal Engineering*, online, 2022.
- S. Rajesh and Rashmi M. "Fixed points of asymptotically nonexpansive type mappings", *Advances in Operator Theory*, 2022, pp. 1-10.
- S. Rajesh. "Proximal normal structure in Banach spaces", *Rocky Mountain Journal*, 2022, pp.1-12.

## Humanities and Social Sciences

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- Paul, B., U. Patnaik, Subash S., K.K. Murari and C.S. Bahinipati. "Fertilizer use, Value and Knowledge Capital: A case of Indian Farming", *Sustainability*, vol. 14(19), September 2022, 12491.
- Biswal, D., and C.S. Bahinipati. "Why are farmers not insuring crops against risks in India? A Review", *Progress in Disaster Science*, vol.15, October 2022, 100241.
- Biswal, D., M. Singh and C.S. Bahinipati. "COVID-19 in India: Reflections from Behavioral Economics", *Journal of Developing Areas*, vol. 56, no.3, 2022, pp. 383-391.
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- Yadav, V. K., Dasgupta, S., and B. Kumar. "B. R. Ambedkar on the Practice of Public Conscience: A Critical Reappraisal", *Journal of Human Values*, SAGE, vol. 28, no. 3, July 2022, pp.1-9.

## Books/Book chapters

- Kannan, U., Pullangott, G., Singh, G., and Maliyekkal, S.M. "Nanoscale silver-based point of use disinfection of drinking water in Nanoremediation: Modern Technologies for treatment of environmental pollutants", *Elsevier*. 2022.

## Newspaper Articles

- A. Raghuramaraju "Robust Bridge: A Philosopher's Contribution to Harmony," *The Telegraph*, July 11, 2022.
- A. Raghuramaraju "Treasure Trove: A Policy on Unpublished Manuscripts is necessary," *The Telegraph*, August 15, 2022.
- A. Raghuramaraju "Second Look: Reappraising Independence and its Promises," *The Telegraph*, September 12, 2022.
- A. Raghuramaraju "Lost Childhood: What Indian Parents can learn from *Citizen Cane*," *The Telegraph*, October 16, 2022.
- A. Raghuramaraju "Bearers of Light: The Ingenuity of India's Social Reformers," *The Telegraph*. November 14, 2022.
- A. Raghuramaraju "Tools of Wisdom: Revisiting Tilak's Interpretation of the Gita," *The Telegraph*, December 12, 2022.

## Conferences/Proceedings

### Chemical Engineering

- C. Naga Lakshmi, and N. Singh. "Fabrication of electrospun Sn doped  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanofibers for the environmental applications", *CHEMON 2022*, HBTU Kanpur, December 27-30, 2022.
- N. Singh. "Social Issues and the Environment", Sree Vidyanikethan Engineering College, Tirupati, July 23, 2022.

### Civil & Environmental Engineering

- S.M. Allabakshi, P.S.N.S.R. Srikar, R.K. Gangwar, and S.M. Maliyekkal. "Photo-plasma: A new approach for efficient and enhanced mineralization of organic molecules", *75<sup>th</sup> Gaseous electronic conference*, Bulletin of the American Physical Society, Sendai, Japan, October 3-7, 2022.
- S.M. Allabakshi, P.S.N.S.R. Srikar, R.K. Gangwar, and S.M. Maliyekkal. "Energy efficient degradation of dye in wastewater by a novel photo-plasma reactor", *VII International Conference on Sustainable Energy and Environmental Challenges (VII SEEC)*, IIT BHU, December 16-18, 2022.
- P.S.N.S.R. Srikar, S.M. Allabakshi, S.M. Maliyekkal, and R.K. Gangwar. "Optical diagnostic and reactive species characterization of atmospheric pressure argon plasma jets under various operating conditions", *75<sup>th</sup> Gaseous electronic conference*, Bulletin of the American Physical Society, Sendai, Japan, October 3-7, 2022.
- Syed Arwa A. Balkhi, S.M. Allabakshi, P.S.N.S.R. Srikar, R.K. Gangwar, and S.M. Maliyekkal. "Atmospheric pressure non-thermal plasma: A chemical-free approach for antibiotics degradation in wastewater", *VII International Conference on Sustainable Energy and Environmental Challenges (VII SEEC)*, IIT BHU, December 16-18, 2022.
- Syed Arwa A., Balkhi, S.M. Allabakshi, P.S.N.S.R. Srikar, R.K. Gangwar, and S.M. Maliyekkal. "Nonthermal atmospheric pressure plasma jet: An energy-efficient route for mineralizing ciprofloxacin in water", *the UNESCO-IWRA Online Conference on Emerging Pollutants: Protecting Water Quality for the Health of People and the Environment*, January 17-19, 2023.



- M.S.V. Naga Jyothi, P. Amesh, B.J. Ramaiah, and **S.M. Maliyekkal**. "Removal of aqueous selenium using chitosan-ALOOH granular adsorbent", *International Conference on Water for Life*, IIT Madras, December 15–17, 2022.
- B.P. Damodhar, T.P. Gandhi, P. Amesh, and **S.M. Maliyekkal**. "Phosphate functionalized granular iron-chitosan composite for the adsorption of U (VI) from groundwater", *International Conference on Water for Life*, IIT Madras, December 15-17, 2022.
- A. Abins, **Bijily Balakrishnan**, **M. Nithyadharan**, and **S.M. Maliyekkal**. "Calcium-Doped Chitosan-GO Nanocomposite Film with Enhanced Tensile Strength and Flexibility", *VII International Conference on Sustainable Energy and Environmental Challenges (VII SEEC)*, IIT BHU, December 16-18, 2022.
- **S.M. Maliyekkal**. "Sustainable point-of-use water purification system: Opportunities and challenges", *International Conference on Water for Life*, IIT Madras, December 15-17, 2022.
- **S.M. Maliyekkal**. "Nanotechnology-enabled point-of-use water treatment system: Closing the loop", *VII International Conference on Sustainable Energy and Environmental Challenges (VII SEEC)*, IIT BHU, December 16-18, 2022.
- **S.M. Maliyekkal**. "Bio-derived Sealant (Eco-Nano seal) for the Repair of Micro cracks in Concrete", NTPC Limited, November, 2022.
- **S.M. Maliyekkal**. "Cleaner technologies for pollution mitigation", *VII International Conference on Sustainable Energy and Environmental Challenges (VII SEEC)*, IIT BHU, December 16-18, 2022.
- **S.M. Maliyekkal**. "CDI: An emerging water desalination technology", *Bosch Global Software Technologies Private Ltd*, Coimbatore Campus, Coimbatore, August, 09, 2022.
- Boyalakuntla, Kowndinya, Meiyappan Nagappan, **Sridhar Chimalakonda**, and NuthanMunaiah. "RepoQuester: A Tool Towards Evaluating GitHub Projects", in *2022 IEEE International Conference on Software Maintenance and Evolution (ICSME)*, pp. 509-513. IEEE, 2022.
- Shanbhag, Shriram, **Sridhar Chimalakonda**, VibhuSaujanya Sharma, and Vikrant Kaulgud. "eTagger-An Energy Pattern Tagging Tool for GitHub Issues in Android Projects", in *2022 IEEE International Conference on Software Maintenance and Evolution (ICSME)*, pp. 484-488. IEEE, 2022.
- Rao, A. Eashaan, and **Sridhar Chimalakonda**. "Apples, Oranges & Fruits–Understanding Similarity of Software Repositories Through the Lens of Dissimilar Artifacts", in *IEEE International Conference on Software Maintenance and Evolution (ICSME)*, pp. 384-388. IEEE, 2022.
- Ali, Mir Sameed, Nikhil Manjunath, and **Sridhar Chimalakonda**. "COBEX: A Tool for Extracting Business Rules from COBOL", in *2022 IEEE International Conference on Software Maintenance and Evolution (ICSME)*, pp. 464-468. IEEE, 2022.

## Electrical Engineering

- A. V. Nandini Devi, P. N. S. Bhargav, S. Khandelwal, **V. K. Gurugubelli** and S. Karmalkar. "Karmalkar Numerical Simulation and Parameter Extraction of Pure Thermionic Emission Across Schottky Contacts", *6th IEEE International Conference on Emerging Electronics (ICEE)*, December 2022.
  - Arun Kumar S., Abhijit P., Konda Reddy Mopuri, and **R.K. Sai Gorthi**. "Adv-Cut Paste: Semantic adversarial class specific data augmentation technique for object detection", *International Conference on Pattern Recognition (ICPR)*, August 2022.
  - Murali M, and **R.K. Sai Gorthi**. "Visual Object Challenge Results 2022", In *Proceedings: Computer Vision – European Conference on Computer Vision (ECCV) 2022*, Visual object Tracking Workshops., October 23-27, 2022.
  - U. Somalatha, **P. Mohapatra**, and N. Pappas. "Performance Analysis of the Wiretap Channel with a Friendly Jammer under Finite Blocklength", *IEEE GLOBECOM Workshops*, December 2022.
  - D. Kumar, **P. Mohapatra**, and N. Pappas. "Short Packet Communication over a Two-user Z Interference Channel with Rayleigh Fading", *IEEE Global Communications Conference (GLOBECOM)*, December 2022.
  - **P Mohapatra**. "Secure Communication Over 2-User Gaussian Interference Channel with Caching", *2022 IEEE International Symposium on Information Theory (ISIT)*, June -July, 2022.
  - P. Makireddy and **P. Vooka**. "A three-electrode capacitive based sensing system to determine the direction of motion of humans", *2022 IEEE Sensors Applications Symposium (SAS)*, Sundsvall, Sweden, pp. 1-6, August 1-3, 2022.
- ## Computer Science & Engineering
- Rao, A. Eashaan, **Sridhar Chimalakonda**, and Vartika Agrahari. "BlockList: A Game to Teach Basic Linked Lists Operations to Novice Programmers", in *Proceedings of the 15<sup>th</sup> Annual ACM India Compute Conference*, pp. 35-40. 2022.
  - Sarmah, Prantik Parashar, and **Sridhar Chimalakonda**. "API+ code= better code summary? insights from an exploratory study", in *Proceedings of the 18<sup>th</sup> International Conference on Predictive Models and Data Analytics in Software Engineering*, pp. 92-101. 2022.
  - Shanbhag, Shriram, and **Sridhar Chimalakonda**. "Exploring the under-explored terrain of non-open-source data for software engineering through the lens of federated learning", in *Proceedings of the 30<sup>th</sup> ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering*, pp. 1610-1614. 2022.
  - Boyalakuntla, Kowndinya, Marimuthu Chinnakali, **Sridhar Chimalakonda** and K. Chandrasekharan. "eGEN: an energy-saving modeling language and code generator for location-sensing of mobile apps", in *Proceedings of the 30<sup>th</sup> ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering*, pp. 1697-1700. 2022.
- ## Chemistry
- **A. K. Manna**. "Modeling Excited-State Properties in Functional Organic Molecules", *Current Trends in Theoretical Chemistry (CTTC-2022)*, DAE-BRNS Symposium, BARC, Mumbai, 22-24 September, 2022.

## Mathematics and Statistics

- **K. Kishore.** "Matrix Waring Problem", Binhampton University, New York, USA, December 6, 2022.
- **P. Mariappan.** Five workshop on "Remote Sensing And Geospatial Technology For Landslide Mitigation And Management In North Eastern region", NIT Mizoram, July 24-28, 2022.
- **P. Mariappan.** Three days workshop on "Foundations of Abstract Mathematics and Applications", ANJAC Alumnus at ANJA college, December 28-30, 2022.
- **S. A. Prasad.** Online conference titled world meeting for women mathematics in the virtual mode from July 01-02, 2022.
- **D.P. Challa** participated in the International Conference on Analysis, Inverse Problems and Applications, ICAIPA-2022, IIT Madras. July 18-21, 2022.
- **D.P. Challa** participated in Inverse problems: modelling and simulation: IPMS2022 during May 22- 28, 2022 at Malta in Hybrid mode.

## Mechanical Engineering

- **M. M. Avulapati,** Thanos Megaritis, and Lionel Ganippa. "Evaporation and Puffing of Diesel-Biodiesel-Ethanol Blend Droplets Under Convective Conditions, *ILASS Europe-2022*, Online, September 7-9, 2022.
- OndrejCejpek, Milan Maly, **M. M. Avulapati,** Ondrej Hajek, Frantisek Prinz, and Jan Jedelsky. "Pressure Swirl Spray Characteristics Under Cross-flow", *ILASS Europe-2022*, Online, September 7-9, 2022.
- **Vignesh Kumar D. OndrejCejpek, Janjedelsky** and **Madan Mohan Avulapati.** "Evaluation of Air Assisted Impinging Jet Atomization for CO2 capture", *ILASS-Asia 2022*, Indore, October 28-30, 2022.
- **OndrejCejpek, MilanMalý, MiloslavBělka, Louis Decanay, Madan Avulapati** and **Janjedelsky.** "Single Orifice Effervescent Atomizer in simulated Counter-flow Conditions", *ILASS-Asia 2022*, Indore, October 28-30, 2022.
- **Gourav Parmar, Vignesh Kumar D. Janjedelsky** and **Madan Mohan Avulapati.** "Experimental studies on effect of neighbouring droplets on evaporation of aqueous ammonia and Monoethanolamine (MEA) droplets", *ILASS-Asia 2022*, Indore, October 28-30, 2022.
- **Gourav Parmar, Vignesh Kumar D, Janjedelsky** and **Madan Mohan Avulapati.** "A model for prediction of inflight micro explosion in bi-component fuel droplets", *ILASS-Asia 2022*, Indore, October 28-30, 2022.
- Harshavardhan Reddy, and **Balaji Subramanian.** "Aerodynamic Design of Three-Dimensional Bellmouth for Low-Speed Open-Circuit Wind Tunnel", *International Conference on Wind Tunnel Aerodynamics, ICWTA 2022*, Montreal, Canada, August 08, 2022.
- Yella, A., Chaudhary, A., Bharinikala, Y. V. A., and **Sundar, S.** "Noise generated by a drum brake at various operating conditions", *Inter-Noise 2022*, Glasgow, UK, August, 2022.

- Chaudhary, A., Yella, A., Bharinikala, Y. V. A., and **Sundar, S.** "Measurement of vibro-acoustic noise of drum brake under various contact conditions", *Inter-Noise 2022*, Glasgow, UK, August, 2022.
- Ramesh, A., Rangamani, A., and **Sundar, S.** "Influence of contact parameters on the radiated noise from an automotive drum brake", *Inter-Noise 2022*, Glasgow, UK, August, 2022.
- Shripad, K. M. R., Suryawanshi, S. S., and **Sundar, S.** "Development of experimental Vibro-acoustic transfer function for a system with impact", *Inter-Noise 2022*, Glasgow, UK, August, 2022.
- **G. K. Rajan.** "Understanding and modeling the dissipation of interfacial waves. Geophysical Fluid Laboratory Seminar Series", Indian Institute of Technology Madras, December 15, 2022.
- S. Pujari and **G. K. Rajan.** "Estimation of coefficient of damping for sloshing in rectangular tanks using CFD", *67<sup>th</sup> Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM)*, Indian Institute of Technology, Mandi, December 15, 2022.
- S. Pujari and **G. K. Rajan.** "CFD analysis of damping of sloshing in rectangular containers", *Fifth International Conference on Mathematical Modelling, Applied Analysis and Computation (ICMMAAC)*, Department of Mathematics, JECRC University, Jaipur, India, August 4-6, 2022.
- L. Suswanth and **G. K. Rajan.** "Estimation of interfacial wave dissipation rate using a viscoelastic model for the middle fluid layer in a three fluid system", *Fifth International Conference on Mathematical Modelling, Applied Analysis and Computation (ICMMAAC)*, the Department of Mathematics, JECRC University, Jaipur, India, August 4-6, 2022.

## Humanities and Social Sciences

- **A. Raghuramaraju.** "Unprecedented Nature of the Entry of the East India Company into India and Unique Exit by the Indian National Movement", Institute Colloquium at Indian Institute of Science, Education and Research Tirupati, August 24, 2022.
- **A. Raghuramaraju.** "Alternative formula of Nationalism: Lokamanya Bal Gangadhar Tilak and Mahatma Gandhi's interpretation of Bhagavad Gita", ICPR-sponsored Study Circle Programme of the Department of Philosophy, University of North Bengal, September 24, 2022.
- **A. Raghuramaraju.** "Relevance of Gandhi today", Amaravati Institute of Social Sciences, Guntur, October 2, 2022.
- **A. Raghuramaraju.** "Other as an Enabler: The Relationship between the Self and the Other in Modern Indian Philosophy," Karl H Potter Memorial Lecture Series in Philosophy On the Problem of the 'Other Minds' II, Department of Humanities and Social Science, Indian Institute of Technology, Bombay, October 6, 2022.
- **A. Raghuramaraju.** "Taking the present seriously: Visiting the writings of Indian National Movement Leaders," *online colloquium*, Sai University, Chennai, November 3, 2022.
- **A. Raghuramaraju.** Chaired a session in an *International Conference on Revisiting Social Theory: Challenges and Possibilities*, Department of Sociology, North Eastern Hill University, Shillong, November 16-17, 2022.

- **C.S. Bahinipati**, and A.K. Gupta. "Methodological challenges in assessing loss and damage from climate-related extreme events and slow-onset disasters: evidence from India", *International Conference on Multi-Hazard Risk and Loss and Damage Assessment Framework Consultative Conference*, International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal, December 8-9, 2022.
- **C.S. Bahinipati**, and A.K. Gupta. "Methodological challenges in assessing loss and damage from climate change: evidence from India", *International Conference on 'Water Security and Climate Change Conference (WSCC2022)*, Asian Institute of Technology, Thailand, December 1-3, 2022.
- **C.S. Bahinipati**. "Frameworks for assessing loss and damage to climate change, Urban Action School 2022", Kerala Institute of Local Administration, Kerala, November 23, 2022.
- **C.S. Bahinipati**. "Speaking from field experience: Impact of COVID-19 on informal workers in India", JSPS-ICSSR Joint Seminar on 'Understanding and Addressing Systemic Risks Behind the Socio-economic Impacts of COVID-19 in India and Japan: Developing a Roadmap for a Resilient and Sustainable Future', Tokyo, November 21-22, 2022.
- **C.S. Bahinipati**. "Application of climate risk management framework: evidence from Tamil Nadu and Himachal Pradesh", *Expert Dialogue on Approaches for Mainstreaming Climate Risk Assessments*, National Institute of Disaster Management, New Delhi, India, September 14, 2022.
- Prabhakar, SVRK, Y. Chiba, A.P. Abamo, **C. S. Bahinipati**, Md. A. Islam, and S. Shrestha. "Addressing non-economic loss and damages (NELDs) associated with climate change with a special focus on extreme events", Virtual Contributor Workshop on *Linking Climate Change Adaptation, Disaster Risk Reduction, and Loss & Damage*, Asia-Pacific Network for Global Change Research, Japan, August 30, 2022.
- M. Singh, and **C.S. Bahinipati**. "Household Appliance Ownership in Urban India: Do gender and neighbourhood effects matter?", *11<sup>th</sup> Congress of the Asian Association of Environmental and Resource Economics (AAERE)*, University of Economics, Ho Chi Minh city, Vietnam, August 19-20, 2022.
- **C.S. Bahinipati**, P.K. Viswanathan, and A. Singh. "Adoption of climate-smart agricultural practices in India: assessing the role of institutions, incentives and information", *International conference on 'System analysis for Enabling Integrated Policy Making'*, International Institute for Applied System Analysis (IIASA) and TIFAC, Government of India, Scope Convention Centre, New Delhi, August 10-12, 2022.
- **R.A. Sirohi**. "Learning From the Covid-19 Pandemic: Lessons for Economic Theory and Policy", JSPS-ICSSR Joint Seminar on 'Understanding and Addressing Systemic Risks Behind the Socio-economic Impacts of COVID-19 in India and Japan: Developing a Roadmap for a Resilient and Sustainable Future', Tokyo, November 21-22, 2022.

## Awards/Achievements

- **Dr. P. Mariapann** was honoured with DAAD Research Ambassador for the years 2022-2025.
- **Dr. Sridhar Chimalakonda**, Faculty, Department of Computer Science & Engineering received the 2022 IBM Academic Award in the area of Software Engineering.
- **Ms. K. Uthradevi**, PhD scholar, Department of Civil and Environmental Engineering received a 5 Lakhs "project grant" in the carbon zero challenge event at IIT Madras in December 2022.
- **Mr. S.M. Allabakshi**, PhD scholar, Department of Civil and Environmental Engineering received "International travel support grant (ITS)" from the Science and Engineering Research Board (SERB), Department of Science & Technology (DST), Govt. of India for presenting his work titled "Photo-plasma: A new approach for efficient and enhanced mineralization of organic molecules", 75<sup>th</sup> Gaseous electronic conference (GEC 2022) Sendai city, Japan in October 2022.
- **Mr. S.M. Allabakshi**, PhD scholar, Department of Civil and Environmental Engineering bagged the Best Paper Award for his work titled "energy efficient degradation of dye in wastewater by a novel photo-plasma reactor" VII International Conference on Sustainable Energy and Environmental Challenges (VII SEEC) held on 16<sup>th</sup> - 18<sup>th</sup> December 2022, IIT BHU.
- **S.M. Maliyekkal, M. Nithyadharan, A. Harafan, S.A Gafoor, A. Aziz, U. Kannan, and S. Srivatsava** awarded the Indian patent titled "Method of preparing an environmental-friendly bio-inspired sealant composite and uses thereof (Application No.: 201941031281; Grant no: 403018; Granted on: 04.08.2022).
- **S.M. Maliyekkal, Soujit Sengupta, Abin Aziz** awarded the Indian design patent titled "IOT Integrated automated capacitive deionisation (CDI) system" Design No: 349453-001, Granted on: 23-12-2022.
- **Mr. Shriram Shanbhag**, MS Scholar, Department of Computer Science and Engineering has received travel grants from ACM Special Interest Group on Software Engineering and Microsoft Research India to present the work titled "Exploring the under-explored terrain of non-open source data for software engineering through the lens of federated learning in the 30th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (Singapore).
- **Ms. Debeshree Das**, B.Tech Student, Department of Computer Science and Engineering has been awarded the IEEE World Congress on SERVICES, Women in Services Computing (WISC) Symposium Premier Scholarship.
- **Ms. Annette M. Tedy**, Ph.D. scholar, Department of Chemistry received the prestigious Prime Minister Research Fellowship (PMRF) for pursuing her research work at IIT Tirupati.

## Events and Activities

### 76<sup>th</sup> Independence Day

IIT Tirupati celebrated the 76<sup>th</sup> Independence Day on August 15, 2022. The programme started with the unfurling of the tricolour on the temporary campus by the Registrar, followed by unfurling of the tricolour by the Director, K. N. Satyanarayana, on the permanent campus at Yerpedu. The Director gave a speech on the occasion highlighting the significance of the day and asking students to unite in the pledge for the success and development of the country.



### Academic Orientation Programme

The Institute conducted its 8<sup>th</sup> Orientation Programme (Online) during October 31-November 02, 2022, to induct the 2022-2026 batch of B. Tech students. Also, Orientation Programmes were conducted on July 25-26, 2022 to induct the 2022-2024 batch of MPP, M.Tech and M.Sc students and MS/PhD scholars admitted during July-December 2022 semester. The students and their parents were briefed about the academic programmes and the facilities available at IIT Tirupati. It was followed by an interactive session for the parents with the Director and the Deans of the Institute.

### Academia Outreach Programme

Mechanical Engineering department and CSRC jointly organized "Academia Outreach programme" with



Aeronautics Research and Development Board (AR&DB) - Defence Research & Development Organisation (DRDO) to create awareness about the AR&DB Grant-in schemes and DRDO/NAL lab etc. on September 7, 2022.

### R&D Fair-IiInvenTiv-2022

IIT Tirupati, CSRC showcased IIT Tirupati innovations & Startups etc. at the IIT Delhi R&D Fair-IiInvenTiv-2022 during October 14-15, 2022, in which all 23 IITs from across the country participated to achieve the goal of "Made in India, Build for the World".

### National Energy Conservation Day Celebration

IIT Tirupati celebrated National Energy Conservation Day Celebration on November 16, 2022 as a part of the IIC activity. CSRC organized an interactive session and technical talk titled "Energy Conservation and Use of Energy Sources", where students and faculty members actively participated and interacted with experts. The Chief Guest for the occasion was Dr. K. Boopathy, Director & Division Head, Offshore Wind development and Data Analytics, National Institute of Wind Energy (MNRE), Chennai.

### National Pollution Control Day

CSRC organized an Interactive Session and technical talk titled "Policy and the Environment" on December 13, 2022 to celebrate National Pollution Control Day at IIT Tirupati as part of the IIC activity. The Chief Guest for the occasion was Prof. Jayasankar E Variyar, Pro Vice-Chancellor (Academics), GITAM Deemed to be University.

### TiE Global Summit 2022

The IIT Tirupati team comprising of faculty members, students & CSRC staff participated in TiE Global Summit 2022, during December 12-14, 2022, at Hyderabad. At this annual flagship conference for entrepreneurs, IIT Tirupati, CSRC enabled pitching of innovative products developed at IIT Tirupati and startups, etc.



## Student's Corner

### The Coding Club

Digital Wizards or The Coding Club signed an MoU with Geoffrey Hinton League an initiative under univ.AI in order to collaborate with ML clubs of top-tier institutes of the country to work in the domain of Data Science and AI. The Club collaborated with CDC, IIT Tirupati for contributing to the Mock Placement Contest hosted by the CDC by generating and stress-testing test cases for the problems appeared in the contest. Over the period, club hosted a number of events, such as CP Workshop, Installation Workshop, ML Workshop, DSA Series and Web Workshop for helping students with the basics and advanced problems of coding.

### The Astronomy Club

Gaganvedhi or The Astronomy Club collaborated with IISER Tirupati to organize various events regarding space and astronomy, such as Astrobiology Talkshow, Astrophysics Talkshow and LIGO workshop. LIGO workshop included two-days offline learning on Gravitational Waves Detection taught by Dr. Apratim and Dr. Suresh from IUCAA Pune. Other events that were independently organized by the club included Astronomy Memethon and Documentary Quiz in August, 2022.

### The Robotics Club

Techmaniacs or The Robotic Club organised Arduino Workshop on August 21, 2022 where students were given hands-on experience with Arduino, sensors, motors, etc. A 3D printing workshop was also organised by the club on September 14, 2022 where students learnt how to turn their cad model into a gcode file and how to use a 3D printer with these gcode files.

### The Automobile Club

Known as Winged Voyage, the club organised a 3D CAD modelling workshop where students were given a basic outline of how to create a 3D model in Fusion 360 and discussed about importance and necessity of creating a 3D model.

### Entrepreneurship Cell

IIT Tirupati's E-Cell signed MoUs with Ivy Camp and E-Cell, NIT Bhopal to increase entrepreneurial opportunities for the students in the Institute. The Cell organized a talk on "Innovation and Design Thinking for Entrepreneurs" on December 28, 2022, delivered by Dr. Kaustubh Dhargalkar, Dean - Business Design, Innove REDX & NISP, Weschool focused on the fundamentals of Design Thinking and how to leverage Design Thinking towards becoming an innovative entrepreneur. A 15-day Career Challenge by Explorin was organized in collaboration with the E-Cell and the CDC with the goal of providing the participants an exploration of software development, data analytics, design and product management.

### Augmented Reality Workshop

Technology Innovation Hub at IIT Tirupati in collaboration with the Ideas<sup>2</sup> team conducted a 2-day hands-on Augmented Reality Workshop during September 17-18, 2022, where student teams worked on developing AR mobile applications which can be implemented in the campus. The instructor for the session was Mr. Ambidi Raghu, Innovians Technologies.

Editors

**Dr. P. S. Dwivedi**, HSS, and **Dr. K. P. Naveen**, EE

Contact

**Indian Institute of Technology Tirupati**

Renigunta Road, Settipalli Post, Tirupati - 517506, A.P., India.

Ph.: (+91) 0877 2500334 Fax: (+91) 0877 2500370 Email: newsletter@iittp.ac.in

[www.iittp.ac.in](http://www.iittp.ac.in)