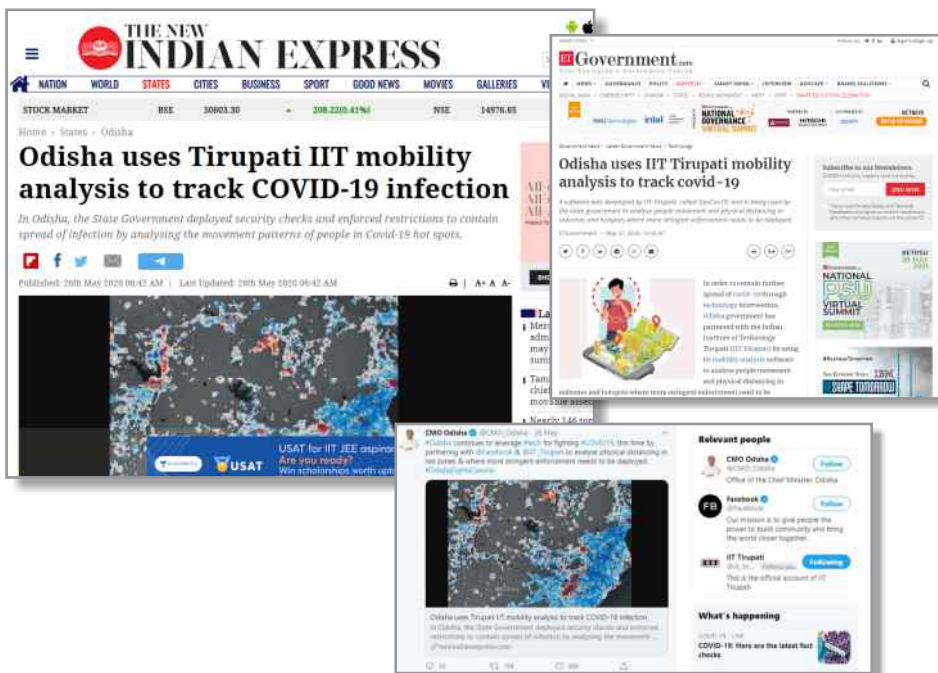


A Biannual Newsletter of IIT Tirupati Samvid

Volume 4 | Issue 1 | January 2021



IIT Tirupati Continues its Battle in Combating Covid-19 with GeoCov19



IIT Tirupati developed GeoCov19 algorithm to provide population mobility insights in and around containment zones or hot spots. The data on population density and mobility between tiles was provided by Facebook Inc. The GeoCov19 algorithm programmatically superimposes and synthesizes hot-spot information with mobility patterns to generate informative reports. The project was coordinated by Dr. Kalidas Y (Dept. of Computer Science and Engineering) and Dr. Krishna Prapoorna (Dept. of Civil and Environmental Engineering), and was supported by a team of about 20 students of the Institute. More details about the project can be found here: <http://services.iittp.ac.in/geocov19/iitfb/home>.

CAMOST, A Joint Initiative of IIT Tirupati and IISER Tirupati Inaugurated

The Center for Atomic, Molecular, Optical Sciences Technologies (CAMOST), a joint initiative of IIT Tirupati and IISER Tirupati, was inaugurated on August 14, 2020 in the gracious presence of Dr. Arabinda Mitra (Scientific Secretary, Office of the Principal Scientific Advisor, Government of India). Dr. Mitra highlighted the growing need for such a center to serve as a nodal hub for several ongoing and upcoming scientific National Missions related to Interdisciplinary Cyber Physical Systems (ICPS), Artificial Intelligence (AI), Quantum Technology Applications (QTA), and the Supercomputing Mission (SCM). CAMOST is a culmination of several joint projects in the field of AMO sciences undertaken by the two institutes in the past few years. Prof. P. C. Deshmukh (Adjunct Professor of Physics, IIT Tirupati) serves as the Mentor and Convener of CAMOST. The administrative council of CAMOST consists of Prof. K. N. Satyanarayana, Director, IIT Tirupati, and Prof. K. N. Ganesh, Director, IISER Tirupati. The scientific advisory committee is constituted by distinguished AMO scientists from India and abroad.

IIT Tirupati Launches an M.Sc. Programme in Chemistry

The Department of Chemistry launched a two-year M.Sc. programme in chemistry on August 31, 2020. Padma Bhushan Prof. Padmanabhan Balam, Former Director, IISc Bangalore, was the chief guest of the event. Prof. K. N. Satyanarayana, Director, IIT Tirupati, commenced the programme with his introductory remarks followed by a welcome address by Prof. C. P. Rao, the Head of the Department. The launch was co-programmed with a short symposium on "A Bird's Eye View of Excitements & Challenges in Chemistry" in order to enthuse and energize the incoming students so as to orient them into the profession of chemistry. The other eminent academicians who graced the occasion with their presence and addressed the gathering were

Prof. N. Sathyamurthy (Former Director, IISER Mohali), Prof. K. N. Ganesh (Director, IISER Tirupati), Prof. S. Umapathy (Director, IISER Bhopal), Prof. J. N. Moorthy (Director, IISER Thiruvananthapuram), Prof. Sourav Pal (Director, IISER Kolkata), Prof. V. Chandrasekhar (Director, TIFR Hyderabad), Prof. Sandeep Verma (Secretary SERB), Prof. G. K. Lahiri (Professor, IIT Bombay), Prof. T. Pradeep (Professor, IIT Madras), Prof. G. Mugesh (Professor, IISc Bangalore), and Prof. Vijayamohanan Pillai (Professor, IISER Tirupati).

MoUs Signed by IIT Tirupati

Central Food Technological Research Institute (CSIR-CFTRI)

IITT and CSIR-CFTRI signed on MoU on August 26, 2020 to establish academic and research collaborations in the area of Food Technology which is one of the thrust areas of the Institute.

ASN Fuels Pvt. Ltd.

IITT entered into an MoU with ASN Fuels Pvt. Ltd. on October 01, 2020, to collaborate on the pilot project of scaling up of the ASN Fuels POC to 10 litre/day 2nd Generation Bioethanol plant.

National Highways Authority of India

IITT entered into an MoU with National Highways Authority of India (NHAI) on October 19, 2020, to conduct research and implementation of new and novel technologies on National Highways in India under the "Adopt a Highway" program. As a part of the MoU, the following roadway stretches were adopted by IITT: Renigunta to Naidupeta (NH-71), and Tirupati to Chennai (NH-275).

Rajiv Gandhi University of Knowledge Technologies (RGUKT)

An MoU was signed between IITT and RGUKT, Andhra Pradesh, on October 31, 2020. As part of the MoU, both Institutions have agreed to facilitate collaborative research work and establish academic and scientific relationships. Further, the MoU aims at promoting mutual support in conducting PG and Ph.D programmes.

IISER Tirupati

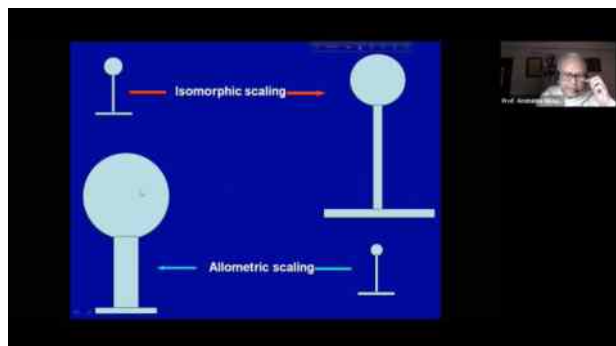
An MoU was signed between IITT and IISER Tirupati on November 04, 2020 to establish a long term strategic partnership for academic and research collaborations. As part of the MoU, both Institutes have agreed to work jointly on development of translational research activities like start-up and incubation facilities, in addition to the development of multimedia courses, etc., for effective teaching. The Institutes have further consented upon developing and sharing common research and infrastructure facilities.

Distinguished Lecture Series

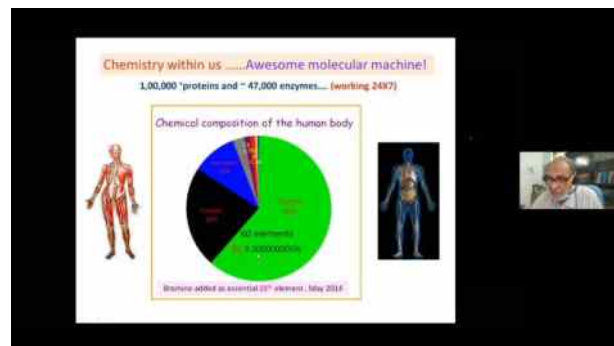
- **Prof. Amitabha Ghosh**, Former Director, Indian Institute of Technology Kharagpur, delivered a lecture on "Scaling Laws: The Science of Miniaturization," on December 02, 2020.
- **Prof. Goverdhan Mehta**, University Distinguished Professor, and Dr. Kallam Anji Reddy Chair, School of Chemistry, University of Hyderabad, and Former Director,

IISc Bangalore, delivered a lecture on "Dimensionality of Chemistry - A 21st Century Science for Global Sustainability," on November 27, 2020.

- **Prof. Gen Nakamura**, Professor Emeritus of Hokkaido University, Japan, delivered a lecture on "Invitation to Inverse Problems: MRE which uses Interior Measurements and EIT which uses Boundary Measurements," on October 14, 2020.



Prof. Amitabha Ghosh delivering the lecture



Prof. Goverdhan Mehta delivering the lecture

Invited and Special Lectures/Talks held at IIT Tirupati

Dr. Venu Madhav Govindu, Department of Electrical Engineering, Indian Institute of Science, Bengaluru, delivered a talk on "Gandhi's Economic Swaraj", on the occasion of Gandhi Jayanthi, on October 02, 2020.

Dr. Anik Bhaduri, Director, Sustainable Water Future Programme, Future Earth, Associate Professor, Australian Rivers Institute, Griffith University, Brisbane, Australia, delivered a talk on "Digitalisation towards sustainable water futures", on December 10, 2020.

Prof. N. R. Bhanumurthy, Vice Chancellor, Dr. B. R. Ambedkar School of Economics University, Bengaluru, delivered a talk on "COVID-19 and the Indian Economy", on November 26, 2020.

Prof. Rajib Shaw, Graduate School of Media and Governance, Keio University, Japan, delivered a talk on "Living with Uncertainties: COVID-19 and Beyond", on November 19, 2020.

Department of Chemistry Launches a Special Lecture Series

Department of Chemistry commences a monthly lecture series titled "*Chemistry Beyond Classroom*" on November 27, 2020 with an inaugural lecture by Prof. Goverdhan Mehta, University Distinguished Professor, and Dr. Kallam Anji Reddy Chair, School of Chemistry, University of Hyderabad,

and Former Director, IISc Bangalore. The second lecture under this initiative was delivered by Prof. Challa Vijaya Kumar, Department of Chemistry, University of Connecticut, Storrs CT, USA, on December 28, 2020 on "Protein-based Nano-Materials for Sustainable Development".

Conferences, Workshops, Symposiums Organized by IITT Faculty

National Symposium on Recent Trends in Chemical Sciences (NSRTCS2020)

The Department of Chemistry at IIT Tirupati organized an Online conference on "National Symposium on Recent Trends in Chemical Sciences" (NSRTCS2020) during October 3-4, 2020. In this symposium, 9 technical talks by eminent scientists along with 25 flash presentations by young researchers from across the country were the key highlights.

Advances in Atomic, Molecular, and Optical Sciences (AAMOS)

An online international conference was held on a sliding time-table enabling global participation during December

14-18, 2020. It was organised jointly by Centre for Atomic, Molecular, Optical Sciences Technologies (Joint Initiative of IIT Tirupati and IISER Tirupati) and Dayananda Sagar University, Bengaluru. The conference was convened by an international committee of distinguished scientists from Australia, Japan, India, Ireland, and USA. 37 talks over five days were delivered at AAMOS '20 by leading experts from across the world.

Workshop on Active Learning in Online Education

Centre for Continuing Education (CCE), IITT organized a Workshop on "Active Learning in Online Education" on October 03, 2020. The workshop was conducted by Dr. Rucha Joshi, Faculty at Department of Biomedical Engineering, University of California, Davis, USA.

Faculty and Staff News

New Faculty Entrants

Sl. No.	Name	Department	PhD	Previous Employment
1	Dr. Anil B. Vir	Chemical Engineering	Indian Institute of Technology Madras	Postdoctoral Researcher at Monash University, Australia
2	Prof. M. V. Kartikeyan	Electrical Engineering	Indian Institute of Technology, BHU	Professor, Indian Institute of Technology Roorkee
3.	Dr. Narendra Singh	Chemical Engineering	Indian Institute of Technology Kanpur	Assistant Professor, Centre for Advanced Studies, Dr. A. P. J. Abdul Kalam Technical University Lucknow

Sl. No.	Name	Department	PhD	Previous Employment
4	Dr. Trivikram Nallamilli	Chemical Engineering	Indian Institute of Technology Madras	Postdoctoral Researcher at Max Planck Institute for Polymer Research, Germany
5	Prof. KSMS Raghavarao	Chemical Engineering	Institute of Chemical Technology, Mumbai	Director, CSIR-CFTRI, Mysore

New Staff Entrants

Sl. No.	Name	Designation	Department
1	Kuppannagari Arun Kalyan	Assistant Registrar	Academics Affairs
2	Madhu N	Assistant Registrar	Finance and Accounts
3	Amit Kumar Goswami	Junior Superintendent	Academic Affairs

Sponsored Research Projects

S. No.	Title	Funding Agency	Investigator and Dept.
1.	An Approach for Incremental Generation of Knowledge Graphs from Source Code and Requirements	Robert Bosch R&D	Sridhar Chimalakonda, Computer Science and Engineering
2.	Antimicrobial Peptide-Graphene Decorated Anti Biofouling Reverse Osmosis RO Membranes for Desalination and Water Recycling	DST-WTI	Dr. Shihabudheen M. Maliyekkal, Civil and Environmental Engineering
3.	Design and development of a super capacitor working model based on graphene-based material	GoLeaf, USA	Dr. Shihabudheen M. Maliyekkal, Civil and Environmental Engineering
4.	Development of a New Generation Reusable Antimicrobial Reusable Respirator	SERB-SRG	Dr. Shihabudheen M. Maliyekkal, Civil and Environmental Engineering, and Dr. Degala Venkata Kiran, Mechanical Engineering
5.	Development of a Portable Optical Cavity Sterilization Unit	SERB-SRG	Reetesh Gangwar, and Arjit Sharma, Physics; Shihabudheen M. Maliyekkal, Civil and Environmental Engineering
6.	Development of the case studies on COVID-19	Institute for Global Environmental Strategies (IGES), Japan	Dr. C. S. Bahinipati, Humanities and Social Sciences
7.	Encapsulation of a therapeutic agent in carbon nanodots	SiNoN, USA	Shihabudheen M. Maliyekkal, Civil and Environmental Engineering
8.	Indo-Norwegian Collaboration in Intelligent Offshore Mechatronics Systems (INMOST) – a collaborative project with UiA, NTNU, NORCE, NIT Goa, IIT Tirupati, IIT Palakkad, and IIT Indore	The Research Council of Norway	Dr. Rama Krishna Gorthi (PI) Dr. Sai Krishna (Co-PI) Dr. Subrahmanyam Gorthi (Co-PI) Dr. Pooja V (Co-PI), Electrical Engineering
9.	Information Theoretic Limits of Secure Communication for Cache Aided Wireless Networks	SERB-MATRICES	Dr. Parthajit Mohapatra, Electrical Engineering
10.	Lateral Movement of Vehicles on Urban Roads in Disordered Traffic: Characterization, Evaluation and Modeling	SERB, DST	Dr. A. Gowri, Civil and Environmental Engineering

S. No.	Title	Funding Agency	Investigator and Dept.
11.	Machine Learning Algorithm Design for Anomaly Detection in Multivariate wave patterns	Toshiba R&D	Dr. Kalidas Y, Computer Science and Engineering
12.	Physical Layer Secrecy for IoT Networks with Heterogeneous Traffic	DST India - VR Sweden	Dr. Parthajit Mohapatra, Electrical Engineering
13.	SurviveCovid-19++ - A Game for Improving Awareness of Social Distancing and Health Measures for Covid-19 Pandemic	Richard Lounsbery Foundation, USA	Sridhar Chimalakonda, Computer Science and Engineering
14.	Ultra-Reliable Machine to Machine Communication with Short Packets for Mission Critical Applications	SERB-SRG	Dr. Parthajit Mohapatra, Electrical Engineering
Industrial Consultancies			
1	Acoustic Propellant Management for Fuel Tanks of Spacecraft and Launchers Upper Stages	Consultancy Project, from NUMA Innovation Ltd, UK	Dr. Panchatcharam Mariappan, Mathematics and Statistics

Recent Faculty Publications

Journals

Civil and Environmental Engineering

- A Singh, **P. V. Sampath**, and **K. P. Biligiri**, "A Review of Sustainable Pervious Concrete Systems: Emphasis on Clogging, Material Characterization, and Environmental Aspects," *Construction and Building Materials*, vol. 261, pp. 120491, November 2020.
- A. Singh, P. Vaddy, and **K. P. Biligiri**, "Quantification of Embodied Energy and Carbon Footprint of Pervious Concrete Pavements through a Methodical Lifecycle Assessment Framework, Resources," *Conservation & Recycling*, vol. 161, pp. 104953, October 2020.
- G. R. Mahajan, **B. Radhika**, and **K. P. Biligiri**, "A Critical Review of Vehicle-Pavement Interaction Mechanism in Evaluating Flexible Pavement Performance Characteristics," *Road Materials and Pavement Design* (Taylor & Francis), December 2020.
- NSP Peraka, and **K. P. Biligiri**, "Pavement Asset Management Systems and Technologies: A Review," *Automation in Construction*, vol. 119, pp. 103336, November 2020.
- **P. V. Sampath**, G. S. Jagadeesh, and **C. S. Bahinipati**, "Sustainable Intensification of Agriculture in the Context of the COVID-19 Pandemic: Prospects for the Future," *Water*, vol. 12, no. 10, pp. 2738, October 2020.
- P. Vaddy, A. Singh, **P. V. Sampath**, and **K. P. Biligiri**, "Multi-scale In Situ Investigation of Infiltration Parameter in Pervious Concrete Pavements," *Journal of Testing and Evaluation*, vol. 49, no. 5, July 2020.

Computer Science & Engineering

- A. Bhadra, and **K. Yeturu**, "Site2Vec: A Reference Frame Invariant Algorithm for Vector Embedding of Protein- Ligand

Binding Sites," *Machine Learning Science and Technology*, vol. 2, no. 1., December 2020.

- A. S. M. Venigalla, and **S. Chimalakonda**, "G4D-a Treasure Hunt Game for Novice Programmers to Learn Debugging," *Smart Learning Environments*, vol. 7, no. 21, pp. 1-21, August 2020.
- C. Marimuthu, and **S. Chimalakonda**, and K. Chandrasekaran, "How do Open Source App Developers Perceive API Changes Related to Android battery optimization? An Empirical Study," *Journal of Software: Practice and Experience*, pp. 1-20, November 2020.
- C. Marimuthu, K. Chandrasekaran, and **S. Chimalakonda**, "Energy Diagnosis of Android Applications: A Thematic Taxonomy and Survey," *ACM Computing Surveys*, vol. 53, no. 6, December 2020.
- **S. Chimalakonda**, and K. V. Nori, "An Ontology Based Modeling Framework for Design of Educational Technologies," *Smart Learning Environments*, vol. 7, no. 28, pp. 1-24., October 2020.

Electrical Engineering

- C. Sekhar, Viswanath P, **R. K. Sai S Gorthi**, and Prerana M, "OSVFuseNet: Online Signature Verification by Feature Fusion and Depth-Wise Separable Convolution Based Deep Learning," *Neurocomputing (Elsevier)*, vol 409, no. 7, pp. 157-172, October 2020.
- K. M. Rakesh, G. E. Spoorthi, K. Sumanth V, **S. Gorthi**, and **R. K. Sai S Gorthi**, "End-to-End Deep Learning-based Fringe Projection Framework for 3D Profiling of Objects," *CVIU - Computer Vision and Image Understanding*, vol. 199, October 2020.

Mechanical Engineering

- A. Oscar, S. Martnez-Martnez, **M. M. Avulapati**, R. Pos, T. Megaritis, and L Ganippa, "Biofuels and Its Spray Interactions Under Pilot-Main Injection Strategy," *Energy*, vol. 219, pp. 119464, March 2021.

- D. Panda, **E. Anil Kumar**, and S. K. Singh, "In Situ Casting of Rice Husk Ash in Metal Organic Frameworks Induces Enhanced CO₂ Capture Performance, Scientific Reports," vol. 10, pp. 20219, November 2020.
- D. Panda, **E. Anil Kumar**, and S. K. Singh, "Introducing Mesoporosity in Zeolite 4A bodies for Rapid CO₂ Capture, Journal of Co₂ Utilization," vol. 40, pp. 101223, September 2020.
- **E. Anil Kumar**, J. B. Kedar, and K. Sarath Babu, "Study of Ammonia Adsorption/Desorption Characteristics of CaCl₂ – Expanded Natural Graphite Composite for Thermal Energy Storage," *Thermal Science and Engineering Progress*, vol. 20, pp. 10075211, December 2020.
- **E. Anil Kumar**, Y. Madaria, K. Sarath Babu, S. Srinivasa Murthy, "Influence of Effective Thermal Conductivity on Hydrogen Sorption In Mg-Lani_{4.6}Al_{0.4} composite Hydride Beds For Thermal Energy Storage," *Thermal Science and Engineering Progress*, vol. 19, pp. 100653, October 2020.
- **G. K Rajan**, "Dissipation of Interfacial Marangoni Waves and their Resonance with Capillary-Gravity Waves," *International Journal of Engineering Science*, vol. 154, pp. 103340, August 2020.
- **G. K. Rajan**, "A Three-Fluid Model for the Dissipation of Interfacial Capillary-Gravity Waves," *Physics of Fluids*, vol. 32, no. 12, p. 122121, December 2020.
- J. B. Kedar, K. Sarath Babu, Rakesh Sharma, M. Siva Subrahmanyam, and **E. Anil Kumar**, "Comparison of Ammonia Sorption Properties and Thermodynamic Performance of Adsorption-Based Thermal Energy Storage System for MnCl₂, CaCl₂, and their Composites," *Energy Storage*, vol. 2, no. 4, e138, August 2020.
- M. Siva Subrahmanyam, A. Padmaja, **E. Anil Kumar**, and K. Naresh, "Techno-Economic Comparative Analysis between Grid- Connected and Stand-Along Integrated Energy Systems for an Educational Institute," *Evergreen*, vol. 7, no. 3, pp. 382-395, September 2020.
- R. Sharma, and **E. Anil Kumar**, "Assessment of Different Combinations of Ammoniated Halide Salt for Resorption Cooling System with And Without Heat-Recovery Using Sorption Thermodynamic Properties," *Thermal Science and Engineering Progress*, vol. 19, pp. 100652, October 2020.

Chemistry

- K. D. Reddy, and **R. Biswas**, "Theoretical Spectroscopy of Isotopically Dilute Water and Hydrophobicity," *Journal of Chemical Physics*, vol. 153, pp. 094501, September 2020.

Physics

- A. Ganesan, S. Banerjee, **P. C. Deshmukh**, and S. T. Manson, "Photoionization of Xe5s: Angular Distribution and Wigner Time Delay in the Vicinity of the Second Cooper Minimum," *Journal of Phys. B: Atomic, Molec. and Opt. Phys.*, vol. 53, no. 22, pp. 225206, October 2020.

- J. Jose, S. Baral, **P. C. Deshmukh**, and S. T. Manson, "Relativistic and Correlation Effects in the Photoionization Dynamics of Oganesson (Z = 118): Spin-Orbit-Interaction-Activated Interchannel," *Coupling Effects Phys. Rev. A*, pp. 102 022813, August, 2020.
- N. Shukla, **R. K. Gangwar**, and R. Srivastava, "Diagnostic of Ar-CO₂ Mixture Plasma Using a Fine-Structure Resolved Collisional Radiative Model," *Spectrochimica Acta Part B: Atomic Spectroscopy*, vol. 175, pp. 106019, Nov. 2020.
- **P. C. Deshmukh**, and S. Banerjee. "Time Delay in Atomic and Molecular Collisions and Photoionization/ Photodetachment," *International Reviews in Physical Chemistry*, vol. 40, no. 1, pp. 127–153, November 2020.

Mathematics and Statistics

- J. O. Tim, H. Jan, M. Michael, W. Phil, **Panchatcharam M.**, F. Ronan, P. Mika, P. Stephen, K. Marina, F. M. J. Sjoer, and J. Jurgen, "Validation of a Web-Based Planning Tool for Percutaneous Cryoablation of Renal Tumours," *CaridoVascular and Interventional Radiology*, vol. 43, pp. 1661-1670, September 2020.
- **S. A. Prasad**, "Riemann-Liouville Fractional Calculus of Blancmange Curve and Cantor Functions," *Journal of Applied Mathematics and Computation*, vol. 4 no. 4, pp. 123-129, October 2020.

Humanities and Social Sciences

- P. K. Viswanathan, K. Kavya, and **C.S. Bahinipati**, "Global Patterns of Climate Resilient Agriculture: A Review of Studies and Imperatives for Empirical Research Framework for India", *Review of Development and Change*, vol. 25, no. 2, pp. 169-192, December 2020.
- **C. S. Bahinipati**, and U. Patnaik, "Does Development Reduce Damage Risk from Climate Extremes? Empirical Evidence for Floods in India", *Water Policy*, vol. 22, no. 5, pp. 748-767, October 2020.
- P. Sampath, G.S. Jagadeesh, and **C. S. Bahinipati**, "Sustainable Intensification of Agriculture in the Context of COVID-19 Pandemic: Prospects for the Future", *Water*, vol. 12, no. 10, 2738, October 2020.
- V. K. Yadav, S. Dasgupta, and **Bharath Kumar**, "All Human Beings are of Equal Status Since Birth: Caste, Inequality and B.R. Ambedkar's Universal Claim for Human Equality," *Indian Journal of Human Development*, SAGE Publications, vol. 14, no.3, pp. 481–492, December 2020.
- **P. S. Dwivedi**, and Chesta Shrimali. "Exploring the Defining Influence of Pānjinian Grammatical Tradition over Modern Linguistics", *IUP Journal of English Studies*, 15(3), pp. 103–114, 2020.
- P. K. Verma, and **P. S. Dwivedi**. "Reconceiving the Ecological Wisdoms of Vedānta in Anthropocene: An Eco-aesthetical Perspective", *Rupkatha Journal on Interdisciplinary Studies in Humanities*, Vol. 12, No. 5, pp. 1-9, October 2020.

- **P. S. Dwivedi**, and Priyanka Tripathi. "Understanding the Gender Biases in Modern and Pre-modern Times through Mricchakatika and Utsav", *Rupkatha Journal on Interdisciplinary Studies in Humanities*, Vol. 12, No. 4, pp. 1-8, July-September 2020.

Patents

- **S. M. Maliyekkal**, U. Kannan, P.C. Sabumon, and G. Singhal. "A System for Sustained and Controlled Release of Silver Ions and Uses Thereof," Patent no: IN345400, Granted on August 28, 2020. (Applicant: IIT Tirupati)
- T. Pradeep, **S. M. Maliyekkal**, Anshup, M. Udhaya Sankar, and Amrita Chaudhary, "Organic-templated-boehmite-nanoarchitecture: An adsorbent composition to remove arsenic and fluoride from drinking water," Patent no.: IN346000, granted on September 03, 2020. (Applicant: IIT Madras)

Newspaper Articles

- **A. Raghuramaraju**, "And over Or: The Relationship between Science and Religion," *The Telegraph*, July 06, 2020.
- **A. Raghuramaraju**, "Fact and Fiction: The Truth about Liberalism," *The Telegraph*, August 03, 2020.
- **A. Raghuramaraju**, "Meaningful Reliance: The Philosophy of Atmanirbhar Bharath Merits Scrutiny," *The Telegraph*, September 14, 2020.
- **A. Raghuramaraju**, "Ancient Wisdom: Mythology can Provide Insights into Troubled Human Ties," *The Telegraph*, October 05, 2020.
- **A. Raghuramaraju**, "Courageous Thinking: The Relationship between Freedom and Development," *The Telegraph*, November 09, 2020.
- **A. Raghuramaraju**, "The Golden Years: The Experiences of the Elderly are an Asset and not a Burden," *The Telegraph*, December 07, 2020.

Conferences/proceedings

Civil Engineering

- A Singh, A Singh, **KP Biligiri**, BJ Ramaiah, "LCA Framework for Utilization of Excavated Granulates in Pavement Systems", 3rd *International Conference on Smart Villages and Rural Development*, Guwahati, India, December 7-8, 2020.
- Eddula SV, Peraka NSP, **Biligiri KP**, "A Smart Bi-Parametric Approach for Homogeneous Delineation of Rural Roads", 3rd *International Conference on Smart Villages and Rural Development, COSVARD 2020 International Conference*, Guwahati, India, December 07-08, 2020.
- Gaddam SJ, **Sampath PV**, "Quantifying the Water-Energy-Land-Food nexus: Data-intensive groundwater models and future scenarios", *AGU Fall Meeting 2020*, December 08, 2020.
- NSP Peraka, **KP Biligiri**, **KN Satyanarayana**, "Framework for Pothole Detection, Quantification, and Maintenance System (PDQMS) for Smart Cities, 9th *International Conference on Maintenance and Rehabilitation of Pavements (Mairepav9)*, Zurich, Switzerland, July 01-03, 2020.
- Patel R, Nanjegowda VH, Mahimaluru J, **Biligiri KP**, "Characterization of Aluminosilicate-based Warm Mix Asphalt Additive Using Experimental Techniques", *International Symposium on Bituminous Materials ISBM2020*, Lyon, France, December 14-16, 2020.

Computer Science & Engineering

- A. S. M Venigalla, **S Chimalakonda**, and D Vagavolu, "Mood of India During Covid-19 - An Interactive Web Portal Based on Emotion Analysis of Twitter Data", *Proc. Conference Companion Publication of the 2020 on Computer Supported Cooperative Work*

and Social Computing, Virtual (previously Minneapolis, Minnesota, USA), pp. 65-68, October 17-21, 2020.

- Chirayu Anant Haryan, **G. Ramakrishna**, Rupesh Nasre and Allam Dinesh Reddy, "A GPU Algorithm for Earliest Arrival Time Problem in Public Transport Networks", *IEEE 27th International Conference on High Performance Computing, Data, and Analytics (HiPC)*, pp: 171-180, December 2020.
- N S Mathews, **S Chimalakonda**, and A. S. M Venigalla, "YTCoder-Towards Turning YouTube into a Development Environment", *Proc. Conference Companion Publication of the 2020 on Computer Supported Cooperative Work and Social Computing*, Virtual (previously Minneapolis, Minnesota, USA), pp. 43-46, October 17-21, 2020.
- P Komuravelli, **Y Kalidas**, Jay Rathod, Bharat Kumar, Sai Prem Kumar Ayyagari, and Akash Deep, "An algorithm for semantic vectorization of videoscenes - Applications to Retrieval and Anomaly detection", *Computer Vision and Image Processing (CVIP) 2020*.
- **S Chimalakonda**, and A. S. M Venigalla, "Software Documentation and Augmented Reality: Love or Arranged Marriage?" *Proceedings of the 28th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering*, Virtual (previously Sacramento, California, United States), pp. 1529-1532, November 10-13, 2020.
- V Agrahari, and **S Chimalakonda**, "AST [AR]-Towards Using Augmented Reality and Abstract Syntax Trees for Teaching Data Structures To Novice Programmers", *Proceedings of the 2020 IEEE 20th International Conference on Advanced Learning Technologies (ICALT) IEEE*, Tartu, Estonia, pp. 311-315, July 06-09, 2020.

- V Agrahari, and **S Chimalakonda**, "L²-A Mini Game for Learning Indian Language Vocabulary", *Proceedings of the 2020 IEEE 20th International Conference on Advanced Learning Technologies (ICALT) IEEE*, Tartu, Estonia, pp. 233-235, July 06-09, 2020.
- V Agrahari, and **S Chimalakonda**, "Refactor4Green: A Game for Novice Programmers to Learn Code Smells", *Proceedings of the ACM/IEEE 42nd International Conference on Software Engineering: Companion Proceedings*, Seoul, South Korea, pp. 324-325, July 06-11, 2020.
- V Agrahari, and **S Chimalakonda**, "SupportArr: A Plugin to Comprehend Arrays for Novice Programmers", *Proceedings of the 2020 IEEE 20th International Conference on Advanced Learning Technologies (ICALT) IEEE*, Tartu, Estonia, pp. 206-207, July 06-09, 2020.

Electrical Engineering

- A. Chaitanya and **K. P. Naveen**, "Coexistence of LTE-Unlicensed and WiFi: Optimization and Game Theoretic Frameworks", *SPCOM '20, International Conference on Signal Processing and Communication*, IISc, Bangalore, July 21-24, 2020.
- Gowtham S, Nandakumar K, and **Rama Krishna Sai S Gorthi**, "Handwritten Hindi Word Generation to enable Few Instance Learning of Hindi Documents", *International Conference on Signal Processing and Communications (SPCOM)*, IISc, Bangalore, July 21-24, 2020.
- Hari Chandana, **Rama Krishna Sai S Gorthi**, "Visual Object Challenge Results 2020", *Proceedings: Computer Vision – European Conference on Computer Vision (ECCV) 2020*, August 23-28, 2020.
- Jay Prakash, Rajesh Pachigolla, Aman Goyal, **P Mahapatra**, and Tony Q.S Quek, "AnaMPhy: Anonymity Assisted Secret Refreshment at the Physical Layer", *13th ACM Conference on Security and Privacy in Wireless and Mobile Networks*, July 08-10, 2020.
- Krishna Sumanth V, **Rama Krishna Sai S Gorthi**, "A Deep Learning framework for 3D surface profiling of the objects using Digital Holographic Interferometry", *Proceedings: International Conference on Image Processing*, October 25-29, 2020.
- M. Sushma and **K. P. Naveen**, "Mobile Data Offloading with Flexible Pricing," the 15th Workshop on Resource Allocation, Cooperation and Competition in Wireless Networks (RAWNET '20), June 14-19, 2020.
- Murali M, **Rama Krishna Sai S Gorthi**, "IOU - SIAMTRACK: IOU Guided Saimese Network for Visual Object Tracking" *Proceedings: International Conference on Image Processing (ICIP)*, October 25-29, 2020.
- Murali M, **Rama Krishna Sai S Gorthi**, "Visual Object Challenge Results 2020", *Proceedings: Computer Vision – European Conference on Computer Vision (ECCV) 2020*, August 23-28, 2020.

Mechanical Engineering

- **M. S. Bhaskaran** and **G. K. Rajan**, "A note on the dissipation of interfacial waves," *Surface Ocean and Lower Atmospheric Study (SOLAS) Indian Ocean Meeting*, organized by Indian Institute of Tropical Meteorology, Pune, India, September 30, 2020.
- **M. S. Bhaskaran** and **G. K. Rajan**, "Details of a new model for the dissipation of ocean swell," *65th International Congress of ISTAM* organized by Gandhi Institute of Technology and Management (GITAM) Hyderabad, India, December 09-12, 2020.
- R.S. Prakash, B. Prasad, **A. Madan Mohan** and R.V.Ravikrishna "Corroboration of new breakup modes during Secondary breakup of water and surrogate fuels," *National Aerospace Propulsion Conference (NAPC-2020)*, December 17-19, 2020.

Physics

- Aude Maignan, Prabhat Reddy L., Sibibalan Jeevanandam, **P. C. Deshmukh**, Ken Roberts, Najeh Jisrawi, S. R. Valluri, "The electronic properties of Graphene Nanoribbons and the Offset Logarithm function", *Proceedings of the International Conference on Nanosciences & Nanotechnologies*, Thessaloniki, Greece, July 07-10, 2020.
- **P. C. Deshmukh**, "Scattering Time Delay in Quantum Information Processing", *International Conference on Fundamental Science & Quantum Technologies Using Atomic Systems*, Physical Research Laboratory, Ahmedabad, September 28 – October 01, 2020,.

Mathematics

- **Panchatcharam M.**, and Ronan F. "GPU Accelerated Radiofrequency and Microwave Ablation for Image-Guided Interventions on a Web-Framework." *CARS2020, Computer Assisted Radiology and Surgery*, vol. 15, no. 1, June 2020.

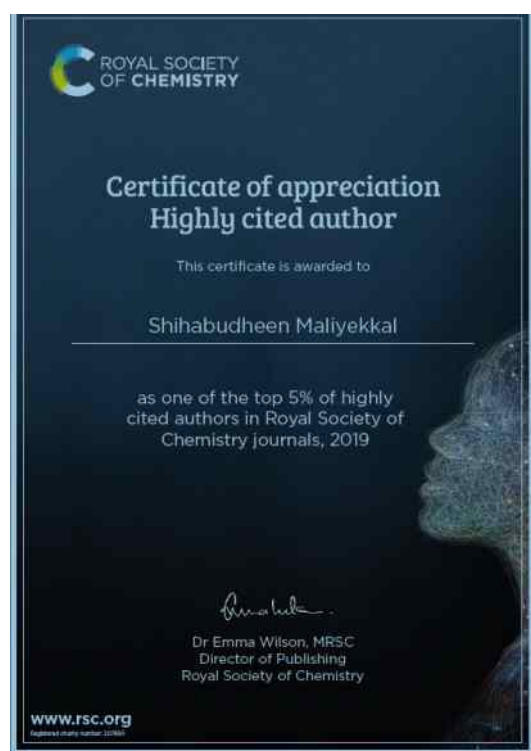
Humanities and Social Sciences

- **A. Raghuramaraju**, "Gandhi, Ambedkar and Gramsci," *Online workshop on Gandhi, Ambedkar and Gramsci*, organized by School of Social Sciences and Centre for Ambedkar Studies, University of Hyderabad, Hyderabad on July 27, 2020.
- **A. Raghuramaraju**, "Mahatma Gandhi on Compassion," *Discussion on Gandhian Perspective and the Five Facets of Indian Culture*, organised by Swami Vivekananda Cultural Centre and The Consulate General of India, Durban, South Africa, October 17, 2020.
- **A. Raghuramaraju**, "Mahatma Gandhi on the Idea of the Normal," *International (online) Symposium on Mahatma Gandhi's Principles: In the Perspective of Alcoholism and the Road Crashes*, jointly organized by IIT Kanpur and La Trobe University Australia, August 29, 2020.

- **A. Raghuramaraju**, "The Student and Teacher Relationship between Mahatma Gandhi and Gurudev Rabindranath Tagore," *Webinar on Gandhi and his contemporaries*, December 23-24, 2020.
- **C. S. Bahinipati**, and U. Patnaik, "What Motivates Farmers' Adaptation Behaviour to Climate Change in India? A Systematic Review of Literature", Writeshop on *Climate Change and Communities Resilience: Insights from South Asia*, Kathmandu, Nepal, October 08-11, 2020.
- **C. S. Bahinipati**, and U. Patnaik, "What Motivates Farmers' for Farm-Level Adaptation Options In India? A Systematic Review of Literature", International Workshop Cum Training on 'Green Growth Strategies for Climate Resilience And DRR: Policies, Pathways and Tools,' Institute for Social and Economic Change (ISEC), Bengaluru, India, November 26, 2020.
- D. Biswal, M. Singh, and **C. S. Bahinipati**, "The Rising Trends Of COVID-19 In India: Reflections from Behavioural Economics," *Doctoral colloquium in Management and Development (DOCMAD, 2020)*, Institute of Rural Management Anand, Anand, India, November 07, 2020.
- **P. S. Dwivedi**, "Coeval Concerns of the Primeval Texts: Understanding the Personae of Sita from an Ecosophical Perspective", *1st Rupkatha International Open Conference (Virtual)*, August 22, 2020.

Awards and Achievements

- **Dr. K. P. Biligiri**, Dept. of Civil and Environmental Engineering, received **Research Achiever Award** for organizing a session on "Sustainability & Resilience Aspects of Roadway Infrastructure", in Vaishwik Bharatiya Vaigyanik (Vaibhav) summit (virtual), sponsored by the Government of India, in October 2020.
- **Dr. Shihabudheen M. Maliyekkal**, Dept. of Civil and Environmental Engineering, received **Certificate of Appreciation** from the Royal Society of Chemistry (RSC) as one of the top 5% of highly cited authors in RSC Journals, 2019.
- K. Prashanth, Y. Kalidas, Jay Rathod Bharat Kumar, Sai Prem Kumar Ayyagari, and Akash Deep, won **Best Paper Award** for their work titled "An Algorithm for Semantic Vectorization of Videoscenes - Applications to Retrieval and Anomaly Detection," at the *5th IAPR International Conference on Computer Vision and Image Processing (CVIP 2020)*, IIT Allahabad, December 4-6, 2020. Faculty coordinator Dr. Kalidas is from the Dept. of Computer Science and Engineering.
- **Mr. Aakash Yadav (IIT Tirupati)**, won the INAE 'Innovative Student Projects Award (undergraduate) 2020.' Aakash worked under the guidance of Prof. **P. C. Deshmukh**. His project was a part of an international collaboration between Prof. Deshmukh (IIT Tirupati), Prof. S. Basu (University of Western Ontario, Canada) and Prof. S. R. Valluri (University of Western Ontario, Canada). Aakash's work involved calculation of Fermi-Dirac integrals which enabled generalization of Wiedemann-Franz law to augment thermoelectric figure



of merit. Generalized Lambert W functions (offset log) were used to optimize thermal and electric conductivity of thermoelectric materials.

- S. Vighnesh Eddula, N. S. Pavani Peraka, and K. P. Biligiri, received the **second-best paper award** for their work titled "A Smart Bi-Parametric Approach for Homogeneous Delineation of Rural Roads," in the *3rd International Conference on Smart Villages and Rural Development (COSVARD 2020)*, Guwahati, December 7-8, 2020. Faculty coordinator Dr. K. P. Biligiri, is from the Dept. of Civil and Environmental Engineering.

Events and Activities

Cultural Activities by SPIC MACAY

SPIC MACAY Heritage club @ IIT Tirupati makes a sincere effort to keep alive Indian Culture and Heritage. To keep up with the tradition during the difficult covid times, the club organized an online Flute concert on November 07, 2020 by Shri Shashank Subramanyam accompanied by Shertalai. R. Ananthkrishnan on Mridangam and Shri H.N. Bhaskar on Violin. It was a fantastic experience. SPIC MACAY Heritage club @ IIT Tirupati also organized another program - Qawwali by Warsi Brothers on December 26, 2020. The music was magical and the program was excellent.

Online Webinar on Women Empowerment

"Medha" – Women's Forum & Internal Complaints Committee (ICC) arranged an interesting online webinar by Prof. Sita Kumari on the topic of "Women and Constitution" on December 01, 2020.

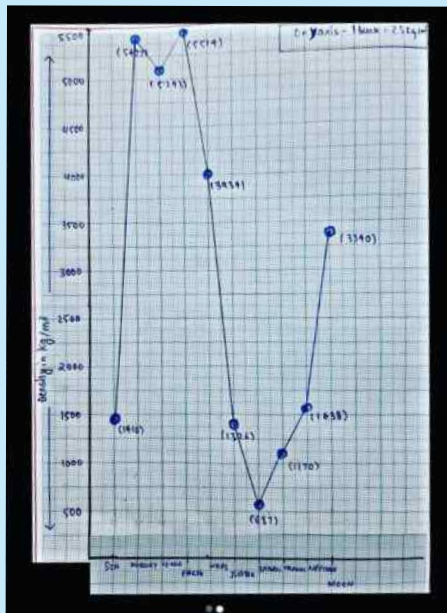
Digital Wizards Club

IIT Tirupati's Digital Wizards Club greeted the first-year batch

with a club orientation session and conducted a series of coding competitions that were oriented towards placements and internships. The main motive was to make the students comfortable with the concepts of coding, editors, data structures, algorithms, time complexity, under pressure scenarios, and so on. The platform for these contests was Hackerrank. The club also conducted various workshops targeting the first year students so as to give them introduction to C/C++ and various coding constructs.

Astronomy Club

Two webinars were organised by the Astronomy Club on the topics of "Stellar Evolution" and "Basic Cosmology" by Manish Tiwari and Akash Singh, respectively. Both webinars got very nice feedback from students, and the club plans to organise more such events in the future. The club has also been organising regular discussion sessions for its Aurora members. The special astronomy phenomenon of great conjunction of Saturn and Jupiter was captured by Bhasker Sri Harsha using his Telescope.



Editor

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