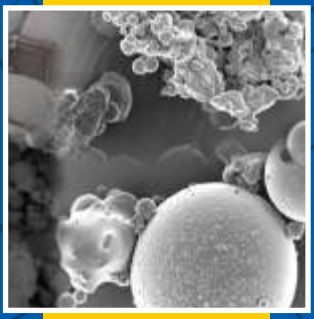
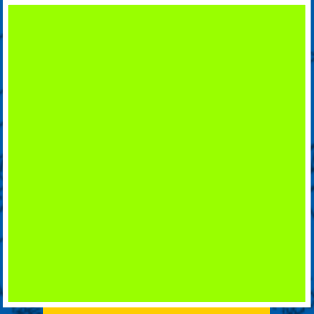
CIVIL ENGINEERING

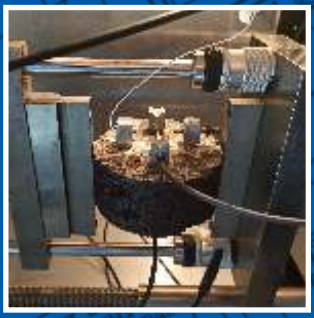
IIT MADRAS









Mechanical Performance of Civil Engineering Materials (MPCEM) Laboratory

LafargeHolcim - IITM Laboratory for Durability and Long Term Performance of Concrete

FROM THE HOD'S DESK

VISION

To be a global leader in education, research, and innovation in Civil Engineering

Greetings and welcome to the Department of Civil Engineering.

Established in 1959 with the inception of the institute, Civil Engineering is one of the oldest and largest departments in IIT Madras. With more than 60 faculty members spread across five administrative divisions, our department hosts more than 1000 undergraduate and postgraduate students, including more than 300 PhD scholars. Superb staff support and world class laboratories have made our department a preferred destination for civil engineering education and research in the country. The faculty members in Civil Engineering work on several global challenges through their research and consulting initiatives. Several of the projects undertaken by the faculty are addressing the current and future needs of the country's infrastructure and the development of guidelines and standards, besides resulting in high quality publications in noteworthy journals.

This brochure highlights the expertise and achievements of the faculty members of the Department of Civil Engineering, IIT Madras. We welcome you to explore your interests to learn or to seek solutions to challenging civil engineering problems.

Prof. Benny Raphael

ACADEMIC PROGRAMMES

B. Tech.

The admission to the B Tech programme is through the highly competitive Joint Entrance Examination (Advanced). B Tech students spend 8 semesters with a blend of humanities, sciences, civil engineering and other allied engineering courses in their curriculum. The present set up allows a large portion of the courses to be taken as electives, and provides students a great deal of flexibility. After their 6th semester, based on their academic performance, the B Tech students have an option to convert to a Dual Degree programme, by choosing one of the available M Tech streams. These students pass out with two degrees (B Tech and M Tech) at the end of 10 semesters.

M. Tech.

The M Tech programme is a 4 semester post-graduate programme with a blend of coursework and project. It is offered in six different streams of specialization, namely:

- Building Technology and Construction Management
- Environmental Engineering
- Geotechnical Engineering
- Hydraulic and Water Resources Engineering
- Structural Engineering
- Transportation Engineering

User Oriented M Tech Programme (UOP)

The department offers a highly successful user oriented programme to train project managers. This programme is offered in Construction Technology and Management, and is sponsored by L&T. Candidates for the programme are selected through the Build India Scholarship test conducted by L&T.

PG Diploma

The department offers two PG Diploma programmes:

- Metro Rail Technology and Management' sponsored by Chennai Metro Rail Limited (CMRL).
- Post-Graduate Diploma Program in Bridge Engineering' sponsored by L&T.

M.S.

The MS (Master of Science) programme is a research based post graduate programme, which consists of five courses and a project leading to a dissertation.

Ph. D.

The PhD programme entails coursework as prescribed by the Doctoral Committee of the candidate, and a major project leading to a doctoral dissertation. The average duration of completion of the PhD is 4 years. There is also an option to enrol in the Direct MS + PhD right after the Bachelor's degree.

The details of the academic programmes are available on the IIT Madras website: https://www.iitm.ac.in.

BUILDING TECHNOLOGY AND CONSTRUCTION MANAGEMENT (BTCM)

BTCM is a unique division in the department of civil engineering which offers courses covering a range of subjects in Building Sciences, Construction Materials, and Construction Engineering and Management areas, which include:

Building Science: Functional design of buildings, Building's acoustics & noise control, Building services, and Energy management in buildings.

Construction Materials: Modern construction materials, Characterization of Construction Materials, Advanced concrete technology, Maintenance & rehabilitation of constructed facilities, and Structural systems & design.

Construction Engineering and Management: Construction methods and equipment, Sustainable Construction, Construction planning and control, Construction project management, Construction economics and finance, Quality and safety management, Lean construction, Construction contracts & specifications, and Computer applications in construction.

Faculty:

Dr.Ashwin Mahalingam
Dr.Aslam Kunhi Mohamed
Dr.Benny Raphael
Dr.Keerthana Kirupakaran
Dr.Koshy Varghese
Dr.Manu Santhanam
Dr.Murali Jagannathan
Dr.Nikhil Bugalia
Dr.Piyush Chaunsali
Dr.Radhakrishna G. Pillai
Dr.Raghavan N
Dr.Ramamurthy K.
Dr.Ravindra Gettu
Dr.Sivakumar Palaniappan
Dr.Surendra P. Shah

ENVIRONMENTAL AND WATER RESOURCES ENGINEERING (EWRE)

Faculty:

Dr.Chandan Sarangi
Dr. Indumathi M Nambi
Dr. Ligy Philip
Dr. Mathavakumar S
Dr. Mohan S
Dr. Mohanakrishnan Logan
Dr. Sachin s Gunthe
Dr. Shiva Nagendra S M

EWRE division offers two major programmes in civil engineering, 1. Environmental Engineering (EE) and 2. Hydraulic and Water Resources Engineering (HWRE).

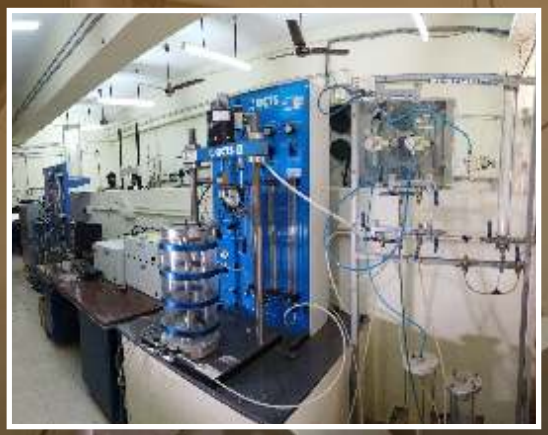
1. EE is an interdisciplinary programme designed to meet the needs of government departments/ public sector and industry, with emphasis on various aspects like protected water supply and sanitation for public health, pollution control, sustainable development, and fundamental science of various climate interaction and processes. The topics include protected water supply, waste water management, air pollution control, solid waste management, ground water pollution-fate, transport and remediation, environmental planning and impact assessment, modelling of air and water quality environmental chemistry, environmental microbiology biotechnology and environmental systems analysis, fundamentals of atmospheric and climate sciences.

The laboratory is equipped with sophisticated instrumentation facility with Gas chromatographs, High pressure Liquid Chromatograph, Ion chromatograph, Elemental analyzer, Total organic compound analyzer, FTIR and UV Spectrophotometers is one of the best facilities in the Country for environmental sample analyses. State-of-the-art and high end instruments for air pollution and climate research including aerosol research.

2. The major emphasis in HWRE is to provide specialized and practical knowledge in: soft computing in water resources, hydrologic modeling, stochastic and spatial hydrology, computational hydraulics, river flow, flood, dam-break flow, tsunami and storm surge propagation, coastal and estuarine flow, conjunctive use of surface and ground water, aquifer modeling and management, pollutant and sediment transport in rivers, water resources planning and management, irrigation water management, climate change, urban water supply and GIS/remote sensing applications.

The laboratory has several flumes for conducting various open-channel flow experiments. In addition, the laboratory is equipped with several table top models (hydraulic benches) to demonstrate basic hydraulic and hydrologic phenomenon. In addition, a number of high end PC's are available to meet the requirements of the graduate students.

GEOTECHNICAL ENGINEERING (GT)



GT division provides specialized knowledge in various geotechnical and geomechanics topics such as foundation engineering, ground improvement techniques, design of retaining walls, underground excavations, subsurface geomechanics etc. A wide range of subjects such as advanced soil mechanics, rock mechanics, soil exploration and testing, applied soil mechanics, advanced foundation engineering, soil dynamics and machine foundations, critical state geomechanics, computational geomechanics, earthquake geotechnical engineering, geoenvironmental engineering, geosynthetics and reinforced soil structures, ground improvement, finite element analysis and constitutive modelling of soils, geotechnics for infrastructures, and seismic site characterization are included in the curriculum.

Faculty members of GT division carry out both fundamental and industry-oriented research to tackle complex problems in the area of geotechnical engineering. The division holds a state-of-art laboratory facility ranging from physical model set-up, elemental testing facilities (Static and cyclic triaxial apparatus, direct shear and simple shear apparatus, resonant column and bender element apparatus, consolidation and unsaturated soil testing apparatus), Multichannel Analysis Surface Wave (MASW), analytical testing facilities etc. In addition to various experimental facilities, the division also has advanced computational tools for teaching and research.

Faculty:

Dr.Chandrasekhar Annavarapu
Dr.Dali Naidu Arnepalli
Dr.Dodagoudar G. R.
Dr.Ramesh Kannan K.
Dr.Robinson R. G.
Dr.Subhadeep Banerjee
Dr.Tarun Naskar
Dr.Thyagaraj T.
Dr.Vidya Bhushan Maji

Hydraulics and Water Resources Engineering (HWRE)

Faculty:
Dr. Balaji Narasimhan
Dr. Murty B. S.
Dr. Soumendra Nath Kuiry
Dr. Subbarao Pichuka
Dr. Sudheer K. P.
Dr. Venkatraman Srinivasan
Dr. Venu Chandra

The Hydraulics and Water Resources Engineering (HWRE) division consists of a diverse group of faculty engaged in multi-disciplinary research in hydraulics, surface and groundwater hydrology, water resources, and Eco hydrology. The ever-growing HWRE lab is equipped with state-of-the-art experimental and computational facilities that are some of the best in the country and worldwide. The HWRE division's current research range from sediment transport in rivers and confluences, experimental hydraulics, coastal and estuarine flow, tsunami and storm surge propagation, urban flood risk mitigation, rapid groundwater recharge, water resources optimization, and climate change impact on food and water resources, soft computing in water resources, hydrologic modelling, stochastic and spatial hydrology, conjunctive use of surface and groundwater, aquifer modelling and management, water resources planning and management, irrigation water management, climate change, urban water supply and GIS/remote sensing applications. The laboratory has several flumes and physical models for conducting various open-channel flow experiments. In addition, the laboratory is equipped with several tabletop models (hydraulic benches) to demonstrate basic hydraulic and hydrologic phenomena such as laminar and turbulent flow, impact of jet, flow over weirs and notches, pumps, water distribution networks and basic rainfall-runoff processes. In addition, several high-end PCs, Workstations and centralized supercomputing facilities are available to meet the requirements of graduate students. Advanced technical, computational and mathematical software tools required for design and simulation of water and environmental systems (e.g., MIKE+, Flow-3D, SMS, Fluent, ARC GIS) are available for class projects and research use. The faculty members of the division are primarily committed to teaching and research and preparing students for an excellent professional career. The division handles many large value research projects. The graduate students are involved in these projects, and this helps them to get good exposure and training in dealing with complex and challenging practical issues and problems. Our students get successfully employed in government agencies such as WAPCOS, CWPRS, NRSC, etc. and private consulting firms such as L&T, CES, TCE, Mott Macdonald, Atkins, etc. Many of our students continue to pursue higher education and research at renowned institutes across the globe. Several of our students have also become faculties of international repute and work at several IITs, NITs and reputed academic institutes, and research organizations abroad.

STRUCTURAL ENGINEERING (ST)

Faculty:

Dr. Alagappan Ponnalagu
Dr. Alagusundaramoorthy P.
Dr. Amlan Kumar Sengupta
Dr. Appa Rao G.
Dr. Arul Jayachandran S.
Dr. Arun Menon
Dr. Devdas Menon
Dr. Lakshmi Priya
Dr. Meher Prasad A.
Dr. Murty C. V. R.
Dr. Nageswara Rao B.
Dr. Phanisri Pradeep Pratapa
Dr. Raghukanth S. T. G.
Dr. Rupen Goswami
Dr. Saravanan U.
Dr. Satishkumar S. R.

ST division deals with the following major areas: Reinforced & Prestressed Concrete, Masonry, and Precast & Prefabricated Structures, Structural Steel, Glass and Composite Materials, Structural Dynamics, Structural Stability, Structural Reliability, Structural Mechanics, Fracture Mechanics, and Finite Element Analysis, Earthquake Disaster Mitigation, and Design for Effects of Wind and Fire, Plates & Shells, Bridges, Tall Buildings, Towers, and Power Plant Structures.

Structural Engineering division has faculty members, who are extensively engaged in analytical and experimental research to address real-life problems. The ST Laboratory possesses the best experimental facilities in the country, with capabilities to study large-scale structural systems, including prefabricated elements and structures. Also, it has the following major facilities:

(a) A strong floor with 2,000 kN capacity loading frame, compression testing machine with 6,000 kN capacity, and high- and low-frequency pulsators for fatigue test machines;

(b) A reaction wall and floor system with 1,000 kN servo-controlled actuators for pseudo-dynamic tests; and

(c) A shake table facility to study earthquake response of small structures.

(d) A 1000 kN servo control MTS is also available as the department common facility.

(e) Relaxation and smart materials testing facilities with sophisticated measuring devices.

The faculty members of structural engineering participate in social and industrial development of the country, by engaging in various challenging sponsored research and industrial consultancy projects to solve real-life problems including repair and retrofitting of buildings, bridges and industrial structures. Further, along with teaching, research and consultancy, they also actively participate in preparation of design provisions for various national standards.

TRANSPORTATION ENGINEERING (TE)

TE division covers wide range of topics which includes characterization of pavement materials, design, construction, maintenance and management; traffic engineering including Intelligent Transportation System, transportation planning, modeling and management. The programme shapes up the students with the needed expertise and proficiency for a professional career in the field of transportation engineering. The students are imparted hands on training on pavement material characterization using state-of-art equipment; pavement evaluation studies; traffic engineering studies and analysis; development of models through latest software in design studio and by associating the students in several industry sponsored research projects. The students specialized in the area of Transportation engineering are very well placed in leading consultancy and research organizations/ institutions in India and abroad.

Faculty:

Dr. Atul Narayan
Dr. Bhargava Rama Chilukuri
Dr. Gitakrishnan Ramadurai
Dr. Karthik K. S.
Dr. Lelitha Devi Vanajakshi
Dr. Murali Krishnan J.
Dr. R. Sivanandan
Dr. Surender Singh
Dr. Veeraragavan A.

ALAGAPPAN PONNALAGU | ASSISTANT PROFESSOR

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EDUCATION

- Ph. D., Texas A&M University, USA, 2015
- M. Tech., IIT Madras, 2010
- B. E., A.C. College of Engineering and Technology, Karaikudi, 2008

EXPERIENCE

- Asst. Professor, IIT Madras, 2018–present
- Visiting Assistant Professor, Texas A&M University, 2016–2017
- Post Doctoral Research Associate, Texas A&M University, 2015

RESEARCH INTERESTS

- Blast and ballistic loading on structures
- Damage mechanics
- Study of high strain rate effects

RECOGNITIONS

- Teaching Fellowship, Dept. of Mech. Engg., Texas A&M University, 2015
- Graduate Research Assistantship, Dept. of Mech. Engg., Texas A&M University, 2011–2014
- Valli Anantharamakrishnan Merit Prize, Dept. of Civil Engg., IIT Madras, 2010
- K. Devarajan Memorial Prize, Transportation (Civil) Engineering, IIT Madras, 2010
- Institute Merit Prize, Dept. of Civil Engg., IIT Madras, 2010

RECENT PUBLICATIONS

Alagappan P., A. Muliana, K. R. Rajagopal, "A study of the dissipation of energy in the helmet due to a blast on a helmet-skull-brain assembly", *Composite Structures, (2020), 113124.*

Murru, Pavitra T., Christa Torrence, Zachary Grasley, K. R. Rajagopal, P. Alagappan, Edward Garboczi, "Density-driven damage mechanics (D3-M) model for concrete I:mechanical damage", *International Journal of Pavement Engineering, (2020), 1–14.*

Alagappan P., K. R. Rajagopal, K. Kannan, "A damage initiation criterion for a class of viscoelastic solids", *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 474(2214), (2018), 20180064.*

Alagappan P., K. R. Rajagopal, K. Kannan, "Initiation of damage in a class of polymeric materials embedded with multiple localized regions of lower density", *Mathematics and Mechanics of Solids, 23(6), (2018), 865–878.*

Alagappan P., K. R. Rajagopal, A. R. Srinivasa, "A three dimensional finite deformation viscoelastic model for a layered polymeric material subject to blast", *Composite Structures, 159, (2017), 382–389.*

Alagappan P., K. R. Rajagopal, K. Kannan, "Deformations of infinite slabs of non-linear viscoelastic solids containing an elliptic hole", *Meccanica, 51(12), (2016), 3067–3080.*

Alagappan P., K. Kannan, K. R. Rajagopal, "On a possible methodology for identifying the initiation of damage of a class of polymeric materials", *Proceedings of the RoyalSociety A: Mathematical, Physical and Engineering Sciences, 472(2192), (2016), 2016023.*

Our group also focusses on the design and development of personal protective equipment.

ALAGUSUNDARAMOORTHY P. | PROFESSOR

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EDUCATION

- Ph. D., IIT Madras, 1994
- M. E., Thiagarajar College of Engineering, 1984
- B. E., Thiagarajar College of Engineering, 1983

EXPERIENCE

- Professor, IIT Madras, 2010–present
- Visiting Research Professor, University of Kentucky, USA, 2007–2008
- Asso. Professor, IIT Madras, 2006–2010
- Asst. Professor, IIT Madras, 2000–2006
- Visiting Research Professor, University of Kentucky, USA, 1998–2000

RESEARCH INTERESTS

- Advanced Composite Structures
- Design of Steel Structures
- Condition Assessment
- Rehabilitation and Retrofitting of Structures

RECOGNITIONS

- Gold Medal of Madurai Kamaraj University, India for ranking first in Master of Engineering in Structural Engineering, 1983–1984
- ING-IABSE Medal from Indian National Group (ING) of Indian Association of Bridge and Structural Engineers (IABSE) in recognition of the paper “Pultruded FRP Composite Deck panels for Highway Bridges”, 2005

Truth will Triumph.

RECENT PUBLICATIONS

Sreelatha Vuggumudi, P. Alagusundaramoorthy, "FRP strengthened RC Rectangular Columns under Combined Axial and Lateral Loading: Experimental Study", *Institute of Civil Engineers (ICE)-Construction Materials, 173(4), (2020), 170–180.*

J. Daniel Ronald Joseph, J. Prabakar, P. Alagusundaramoorthy, “Insulated Precast Concrete Sandwich Panels under Punching and Bending”, *PCI Journal, 64(2), (2019), 68–79.*

J. Daniel Ronald Joseph, J. Prabakar, P. Alagusundaramoorthy, “Experimental Studies on Through-thickness Shear Behavior of EPS Based Precast Concrete Sandwich Panels with Truss Shear Connectors”, *Composites Part B: Engineering, 166, (2019), 446–457.*

J. Daniel Ronald Joseph, J. Prabakar, P. Alagusundaramoorthy, “Flexural Behavior of Precast Concrete Sandwich Panels under Different Loading Conditions such as Punching and Bending”, *Alexandria Engineering Journal, 57(1), (2018), 309–320.*

Sreelatha Vuggumudi, P. Alagusundaramoorthy, "Interaction diagrams for FRP Strengthened RC Rectangular Columns with Large Aspect Ratio", *Construction and Building Materials, Elsevier, 171, (2018), 187–196.*

Sreelatha Vuggumudi, P. Alagusundaramoorthy, "FRP strengthened RC Rectangular Columns under Combined Axial and Lateral Loading: Analytical Study", *Structures, Elsevier, 14, (2018), 88–94.*

J. Daniel Ronald Joseph, J. Prabakar, P. Alagusundaramoorthy, “Precast Concrete Sandwich One-way Slabs under Flexural Loading”, *Engineering Structures, 138, (2017), 447–457.*

AMLAN K. SENGUPTA | PROFESSOR

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EDUCATION

- Ph. D., Univ. of Missouri–Rolla, USA, 1998
- M. S., Rice University, USA, 1994
- B. Tech., IIT Kharagpur, 1990

EXPERIENCE

- Professor, IIT Madras, Jul 2014–present
- Asso. Professor, IIT Madras, 2009–2014
- Asst. Professor, IIT Madras, 2003– 2009

RESEARCH INTERESTS

- Behaviour of reinforced concrete (RC) and prestressed concrete members
- Experimental investigation of cast-in-place and precast RC walls
- Analysis, design and seismic retrofit of RC buildings
- Earthquake engineering as applicable to building design
- Assessment of concrete bridge decks for deterioration

RECOGNITIONS

- Best paper published in the ICI Journal in the year 2013- 2014, Indian Concrete Institute, 2014
- Suchit K. Ghosh Memorial Prize for the best paper published in the Series 'A' Journal of The Institution of Engineers (India) in the year 2012- 2013
- Best paper published in the ICI Journal in the year 2006- 2007, Indian Concrete Institute, 2007

RECENT PUBLICATIONS

Mohandoss P., Pillai R. G., Sengupta A. K., "Effect of Compressive Strength of Concrete on Transmission Length of Pre-tensioned Concrete Systems", *Structures, 23, (2020), 304–313.*

Murugan K, Sengupta A. K., "Seismic Performance of Strengthened Reinforced Concrete Columns", *Structures, 27, (2020), 487 – 505.*

Mohandoss P., Pillai R. G., Sengupta A. K., "Transmission Length of Pre-tensioned Concrete Systems Comparison of Codes and Test data", *Magazine of Concrete Research, 71(17), (2019), 881–893.*

Biswal A., Prasad A. M., Sengupta A. K., "Study of Shear Behaviour of Grouted Vertical Joints between Precast Concrete Wall Panels under Direct Shear Loading", *Structural Concrete, 20, (2019), 564–582.*

Aranha C.A., Menon A., Sengupta A. K., "Determination of the Causative Mechanism of Structural Distress in the Presidential Palace of India", *Engineering Failure Analysis, 95, (2019), 312–331.*

Firodiya P. K., Sengupta A. K., Pillai R. G., "Evaluation of Corrosion Rates of Reinforcing Bars for Probabilistic Assessment of Existing Road Bridge Girders", *Journal of Performance of Constructed Facilities, 29(3), (2015), 1–9.*

To understand the behaviour of reinforced concrete members for enhancing their analysis and design under earthquake loading.

APPA RAO G. | PROFESSOR

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grao@civil.iitm.ac.in

EDUCATION

- Ph. D., IISc., Bangalore, 2001
- M.E., IISc., Bangalore, 1991
- B. E., Andhra University, Visakhapatnam, 1989

EXPERIENCE

- Professor, IIT Madras, 2014–present
- Asso. Professor, IIT Madras, 2009–2014
- Asst. Professor, IIT Madras, 2003–2009
- Asso. Professor, Sri Venkateswara University, Tirupati, 2001–2003

RESEARCH INTERESTS

- Fracture Mechanics of Concrete (Applns)
- Reinforced and Prestressed Concrete
- FE Modeling and Strengthening of RC Joints / Connections
- Structural Materials

RECOGNITIONS

- Alexander von Humboldt Fellowship, 2006.
- INSA-DFG Fellowship, 2005
- Young Scientist Award, by DST, 2002
- EDF-FraMCOS - Stipend of Excellence 2001
- Ultra Tech Outstanding Super Structure Award by ICI Pondicherry, 2015
- DAE-SRC Outstanding Investigator Award, 2015
- Best Paper Award in FraMCOS 9, 2016

RECENT PUBLICATIONS

Kondalraj R., Appa Rao G., "Strut Efficiency in RC Deep Beams Without Shear Reinforcement: An Experimental Verification", ACI Structural Journal, 118(1), (2020), 139-152.

Sivaguru V., Appa Rao G., "Prediction of Shear Strength of Reinforced Concrete Squat Shear Walls-Comparable Studies", Journal of Structural Engineering, SERC, India, 47(4), (2020), 319-343.

Appa Rao G., Poluraju P., "Cyclic behaviour of Precast Reinforced Concrete Sandwich Slender Walls", JI of Structures, 28, (2020), 80-92.

Nagender T., Parulekar Y.M., Appa Rao G., "Performance Evaluation and Hysteretic Modeling of Low Rise Reinforced Concrete Shear Walls", Journal of Earthquakes and Structures, 16(1), (2019), 41-54.

Nagesh H.E., Appa Rao G., "Evaluation of Minimum Flexural Reinforcement in Design of Reinforced Concrete Beams", Springer, Singapore, (2019), 145-155.

Leon Raj J., Appa Rao G., "Issues on Design Shear Strength of RC Deep Beams", Springer, Singapore, (2019), 107-117.

Poluraju P., Appa Rao G., "Performance of squat 3D sandwich wall with long rein. and boundary elements under lateral cyclic loading", JI of Sandwich Strs and Mals, 20(8), (2018), 946-973.

ARUL JAYACHANDRAN S. | PROFESSOR

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EDUCATION

- Ph. D., IIT Madras, 2003
- M. S., IIT Madras, 1991
- B. E., M. K. University, Madurai, 1984

EXPERIENCE

- Professor, IIT Madras, 2019–present
- Asso. Professor, IIT Madras, 2010–2019
- Deputy Director & Head, Steel Structures Laboratory, Structural Engineering Research Centre, Chennai, 2005–2010
- Visiting Associate Professor, Georgia Tech, USA 2005

RESEARCH INTERESTS

- Advanced analysis and design of steel structures
- Computational Structural Stability
- Glass Structural Engineering/Facades
- Teaching Learning Methods in Engineering

RECOGNITIONS

- National Highways Excellence Awards, "Outstanding Work In Challenging Condition" category as a part of the design team for the design of Marthandam all steel flyover, 2021
- Designer of the Phoenix bird long span shell structure in memory of Ms. Jayalalitha, 2021
- Editorial Board Member, International Journal of Advanced Steel Construction from 2006
- Life Educator member of American Institute of Steel Construction, Chicago, USA, from 2005

RECENT PUBLICATIONS

Suman Kumar Mushahary, Konjengbam Darunkumar Singh, Arul Jayachandran S., "Mechanical properties of E350 steel during heating and cooling", *Thinwalled structures, 160, (2021), 107351.*

Akshay Mangal Mahar S. Arul Jayachandran, "A Computational Study on Buckling Behaviour of Cold-Formed Steel Built-up Columns using Compound Spline Finite Strip Method", *International Journal of Structural Stability and Dynamics, (2021), Paper ID: 2150064.*

Jammi Ashok, S. Arul Jayachandran, "Experimental Studies on Screw Connections between cold-formed steel framing and sandwich sheathing", *Structures, (Elsevier), (2021), Under print.*

Ajeesh S. S., Arul Jayachandran S., "Spline finite strip analysis of thin-walled flexural members subjected to general loading with intermediate restraints", *Thinwalled structures, 158, (2021), Paper ID 107171.*

Mashudha Sulthana, Arul Jayachandran S., "Experimental studies on the global stability of concrete sandwiched double steel tubular columns", *International Journal of Advanced steel construction, 16(2), (2020), 99-111.*

Mashudha Sulthana, Arul Jayachandran S., "Concrete confinement effect in circular sandwiched double steel tubular stub-columns", *International Journal of Steel Structuers, 20(4), (2020), 1364-1377.*

Omkar Powar, Arul Jayachandran, "Learning from Façade Failures over Urban Landscape: Aftermath of Cyclone Vardah Natural Hazards Review", *ASCE, 22(1), (2020), 04020049-1 to 04020049-15.*

Rajkannu J. S., Arul Jayachandran S., "Flexural-torsional buckling strength of thin-walled channel sections with warping restraint", *Journal of Constructional Steel Research, 169, (2020), 106041.*

Ajeesh S. S., Arul Jayachandran S., "Direct Strength Design of Cold-Formed Steel Members Using Constrained Spline Finite Strip Method", *International Journal of Steel Structures, 19, (2020), 1801-1813.*

An IITM team that is passionate in research in Steel Structures and Stability of Structures.

ARUN MENON | ASSOCIATE PROFESSOR

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EDUCATION

- Ph. D., University of Pavia, Italy, 2007
- M. S., University of Pavia, Italy, 2003
- M. Tech., IIT Madras, 2001
- B. Arch., National Institute of Technology Tiruchirappalli, 2000

EXPERIENCE

- Asso. Professor, IIT Madras, 2017–present
- Asst. Professor, IIT Madras, 2010–2017
- Visiting Asst. Professor, IIT Madras, 2010–2010

RESEARCH INTERESTS

- Structural Conservation of Historical Monuments
- Seismic Analysis, Design, Assessment and Retrofit of Masonry Structures
- Seismic Risk Assessment of Structures at Urban Scale
- Traditional Knowledge Systems

RECOGNITIONS

- Coordinator, National Centre for Safety of Heritage Structures (NCSHS)
- Young Faculty Recognition Award (YFRA), IIT Madras, 2016

RECENT PUBLICATIONS

Kumar P., Hariprasad M.P., Menon A., Ramesh K., "Experimental study of dry-stone masonry walls using digital reflection photoelasticity", *Strain, (2020), e12372, https://doi.org/10.1111/str.12372.*

Naik M. Pratyusha, Bhowmik T., Menon A., "Estimating joint stiffness and friction parameters for dry stone masonry constructions", *International Journal of Masonry Research and Innovation (IJMRI), (2020), DOI: 10.1504/IJMRI.2020.10033088.*

Manohar S., Shukla S., Menon A. and Santhanam M., "Characterisation of the Historic Bricks and Binder at Vat Phou World Heritage Site in Laos PDR and Selection of Compatible Replacement Units for Restoration", *Current Science, Indian Academy of Sciences, 119(08), (2020),1300–1307.*

Bhasker R., Menon A., "Characterization of Ground Motion Intensity for the Seismic Fragility Assessment of Plan-Irregular RC Buildings", *Structures, Institute of StructuralEngineers (IStructE), 27, (2020),1763–1776.*

Bhasker R., Menon A., "Torsional Irregularity Indices for the Seismic Demand Assessment of RC Moment Resisting Frame Buildings", *Structures, Institute of Structural Engineers (IStructE), 26, (2020), 888–900.*

NCSHS is a one of a kind R&D facility that focuses on fundamental research on structural safety of built heritage, and caters for technology support and capacity building to implementing agencies working in built heritage conservation in India and South East Asia.

ASHWIN MAHALINGAM | PROFESSOR

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EDUCATION

- Ph. D., Stanford University, USA, 2006
- M. S., Stanford University, USA, 2000
- B. Tech., IIT Madras, 1998

EXPERIENCE

- Professor, IIT Madras, 2020–present
- Asso. Professor, IIT Madras, 2015–2020
- Asst. Professor, IIT Madras, 2007–2015
- Product Development Lead, Globeranger Corporation, 2000–2001

RESEARCH INTERESTS

- Infrastructure and Construction Management
- Public-Private Partnerships (PPP)
- Urbanization and Sustainable Development
- Building Information Modelling and Integrated Project Delivery
- Management and Governance of Mega projects

RECOGNITIONS

- Key Technology Partner Visiting Fellow, University of Technology, Sydney, 2016
- Distinguished Service Award, Engineering Project Organization Society, 2013
- Young Faculty Recognition Award, IIT Madras, 2012
- Best Paper Award, Engineering Project Organizational Journal, 2012

RECENT PUBLICATIONS

Delhi V. S. K., Mahalingam A., "Relating Institutions and Governance Strategies to Project Outcomes: Study on Public-Private Partnerships in Infrastructure Projects in India", *Journal of Management in Engineering. (2020).*

Ninan J., Mahalingam A., Clegg S., Sankaran S., "ICT for external stakeholder management: sociomateriality from a power perspective", *Construction Management and Economics, (2020).*

Javernick-Will A., Mahalingam A., Taylor J. E., "Ray Levitt: professor, practitioner and pathfinder", *Construction Management and Economics, (2020).*

Balasubramani M., Mahalingam A, Scott WR., "Imitation and Adaptation: lessons from a case study of a metro rail project in India", *Construction Management and Economics, 38(4), (2020), 364–382.*

Ninan J., Clegg S. C., Mahalingam A., "External Stakeholder Management Strategies and Resources in Megaprojects: An Organizational Power Perspective", *Project Management Journal, 50(6),(2019), 625–640.*

Ninan J., Clegg S. C., Mahalingam A., "Branding and governmentality for infrastructure megaprojects: The role of social media", *International Journal of Project Management, 37, (2019), 59–72.*

Ramalingam S., Mahalingam A., "Knowledge Coordination in transnational engineering projects: a practice-based study", *Construction Management and Economics, 36(12), (2018), 700–715.*

"Good infrastructure can lead to economic growth, social welfare and environmental preservation. The solution to most challenges that we face in developing infrastructure are paradoxically not rooted in the physical or natural sciences, but in the social sciences!"

ASLAM KUNHI MOHAMMED | ASSISTANT PROFESSOR

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EDUCATION

- **Ph.D, 2018, EPFL, Lausanne, Switzerland**
- **MSc, 2013, EPFL, Lausanne, Switzerland**
- **B.Tech in MME, 2011, IIT Madras**

EXPERIENCE

- **Postdoctoral researcher**
  ETH Zurich, Switzerland, 2019-2023

RESEARCH INTERESTS

- **Molecular modelling of Construction materials**
- **Cement hydration at the atomic scale**
- **Molecular dynamics, Density functional theory simulations**

RECOGNITIONS

RECENT PUBLICATIONS

A Morales-Melgares, Z Casar, P Moutzouri, A Venkatesh, M Cordova, Aslam Kunhi Mohamed, K Scrivener, P Bowen, and L Emsley (2022). "Atomic-Level Structure of Zinc-Modified Cementitious Calcium Silicate Hydrate." Journal of the American Chemical Society, Volume 144 Issue 50 Pages 22915-22924

Aslam Kunhi Mohamed, Stefanie Anne Weckwerth, Ratan K Mishra, Hendrik Heinz, and Robert J Flatt (2022). "Molecular modeling of chemical admixtures; opportunities and challenges." Cement and Concrete Research, Volume 156 Pages 106783

M Palacios, D Sanz-Pont, Aslam Kunhi Mohamed, F Boscaro, L Reiter, D Marchon, S Mantellato, and Rober Flatt(2022). "Heating cement to slow down its hydration: the unexpected role of PCE interpolymer bridge formation." Cement and Concrete Research, Volume 156 Pages 106765

Masood Valavi, Ziga Casar, Aslam Kunhi Mohamed, Paul Bowen, and Sandra Galmarini (2022). "Molecular dynamic simulations of cementitious systems using a newly developed force field suite ERICA FF." Cement and Concrete Research , Volume 154 Pages 106712

Aslam Kunhi Mohamed, Pinelopi Moutzouri, Pierrick Berruyer, Brennan J Walder, Jirawan Siramanont, Maya Harris, Mattia Negroni, Sandra Galmarini, Stephen C Parker, Karen Scrivener, Lyndon Emsley, and Paul Bowen (2020). "The atomic-level structure of cementitious calcium aluminate silicate hydrate " .Journal of the American Chemical Society , Volume 142 Issue 25 Pages 11060-11071

Karen Scrivener, Alexandre Ouzia, Patrick Juilland, and Aslam Kunhi Mohamed (2019). "Advances in understanding cement hydration mechanisms." Cement and Concrete Research , Volume 124 Pages 105823

Aslam Kunhi Mohamed, Stephen C Parker, Paul Bowen, and Sandra Galmarini (2018). "An atomistic building block description of CSH-Towards a realistic CSH model." Cement and Concrete Research, Volume 107 Pages 221-235

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EDUCATION

- Ph. D., Texas A&M University, USA, 2013
- B. Tech., IIT Madras, 2007

EXPERIENCE

- Asst. Professor, IIT Madras, 2014–present
- Visiting Asst. Professor, IIT Madras, 2013–2014

RESEARCH INTERESTS

- Constitutive modeling
- Bituminous materials
- Viscoelasticity
- Inelastic fluids
- Experimental mechanics
- Performance evaluation of asphalt binders

RECOGNITIONS

- Editorial board member for the "International Journal of Pavement Engineering

RECENT PUBLICATIONS

B.S. Abhijith, S.P. Atul Narayan, "Evolution of the modulus of asphalt concrete in four-point beam fatigue tests", *Journal of Materials in Civil Engineering, 32(10), (2020), 04020310.*

P.K. Athira, S.P. Atul Narayan, J. Murali Krishnan, P. K. Jain, "Comparison of binder and mixture tests to characterize permanent deformation of elastomer and terpolymer modified binders", *Construction and Building Materials, 264 (2020), 120138.*

S.P. Atul Narayan, L.I. Palade, "Comparison of a natural configuration approach and a structural parameter approach to model the Payne effect", *Acta Mechanica, (2020), 1–22.*

S.P. Atul Narayan, L.I. Palade, "Modelling Payne effect with a framework of multiple natural configurations", *International Journal of Engineering Science, 157, (2020), 103396.*

S.P. Atul Narayan, K. R. Rajagopal, "Some remarks on the equilibrium of granular materials described by constitutive relations that depend on the gradients of the density or volume fraction", *Journal of Engineering Materials and Technology, 142(4), (2020).*

A. Perilakalathil, S. P. Atul Narayan, "Relationship between nonlinear viscoelastic behaviour of asphalt binders and deformation of mixtures", *International Journal of Pavement Engineering, (2020), 1–11.*

A. V. Rahul, S. P. Atul Narayan, N. Neithalath, M. Santhanam, "A thermodynamic framework for modelling thixotropic yield stress fluids: Application to cement pastes", *Journal of Non-Newtonian Fluid Mechanics, (2020), 104318.*

Gupta R., Atul Narayan S. P., "Tensile creep of asphalt concrete in repeated loading tests and its effect on energy dissipation", *International Journal of Pavement Engineering, 1-13, (2019).*

Narayan S. A., Little, D. N., Rajagopal K. R., "Incorporating disparity in temperature sensitivity of asphalt binders into high-temperature specifications", *Journal of Materials in Civil Engineering, 31(1), (2019), 04018343.*

BALAJI NARASIMHAN | PROFESSOR

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EDUCATION

- Ph. D., Texas A&M University, USA, 2004
- M. S., University of Manitoba, Canada, 1999
- B.E., Tamil Nadu Agricultural University, 1997

EXPERIENCE

- Professor, IIT Madras, 2019–present
- Asso. Professor, IIT Madras, 2014–2019
- Asst. Professor, IIT Madras, 2007–2014

RESEARCH INTERESTS

- Modelling the impact of landuse and climate change on hydrology
- Development of a flood, drought assessment and forecast system using GIS, remote sensing and hydrologic / hydraulic / crop growth models
- Energy fluxes/Evapotranspiration/Soil moisture from thermal remote sensing data for irrigation water management and drought assessment
- Spatially distributed radar/satellite rainfall data for hydrologic / hydraulic modelling

RECOGNITIONS

- Young scientist award, International SWAT conference at Toulouse, France, 2013
- Distinguished achievement award, Developers of the SWAT model (USDA-ARS and Texas A&M University), 2012

RECENT PUBLICATIONS

Palanisamy B., Shaurabh S., Narasimhan B., "Analysis of Challenges and Opportunities for Low-Impact Development Techniques in Urbanizing Catchments of the Coastal City of Chennai, India: Case Study", *Journal of Hydrologic Engineering, 25(10), (2020).*

Mohanasundaram S., Udmale P., Shrestha S., Baghel T., Doshi S. C., Narasimhan B., Suresh Kumar G., "A new trend function-based regression kriging for spatial modeling of groundwater hydraulic heads under the sparse distribution of measurement sites", *Acta Geophysica, 68(3), (2020), 751–772.*

Shanmugam M., Suresh Kumar G., Narasimhan B., Shrestha S., "Effective saturation-based weighting for interblock hydraulic conductivity in unsaturated zone soil water flow modelling using one-dimensional vertical ?nite-difference model", Journal of *Hydroinformatics, 22(2), (2020), 423–439.*

Wagner P.D., Bhallamudi S.M., Narasimhan B., Kumar S., Fohrer N., Fiener P., "Comparing the effects of dynamic versus static representations of land use change in hydrologic impact assessments", *Environmental Modelling and Software, 122, (2019).*

Ghosh S., Karmakar S., Saha A., Mohanty M.P., Ali S., Raju S.K., Krishnakumar V., Sebastian M., Behera M.R., Ashrit R., Murty P.L.N., Srinivas K., Narasimhan B., Usha T., Ramana Murthy M.V., Thiruvengadam P., Indu J., Thirumalaivasan D., George J.P., Gedam S., Inamdar A.B., Murty B.S., Mujumdar P.P., Mohapatra M., Bhardwaj A., Basu S., Nayak S,; "Development of India's first integrated expert urban flood forecasting system for Chennai", *Current Science, 117(5), (2019), 741–745.*

Sustainable management of earth resources without a perspective from space is impossible.

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EDUCATION

- Ph. D., University of Strathclyde, UK, 1995
- M. S., IIT Madras, 1992
- B. Tech., IIT Madras, 1990

EXPERIENCE

- Professor, IIT Madras, 2018–present
- Asso. Professor, IIT Madras, 2013–2018
- Asst. Professor, NUS, 2006–2013
- Visiting Asso. Professor, IIT Madras, 2005–2006

RESEARCH INTERESTS

- Optimisation
- Machine learning
- Computer aided engineering
- BIM
- Building automation and control
- Sustainable and Green Buildings

RECOGNITIONS

- Vice President, International Association for Automation and Robotics in Construction (IAARC), 2018–present
- Best Paper Award: International Conference on Civil and Building Engineering Informatics, Japan, 2013
- Distinguished R&D award from the Minister for National Development (Government of Singapore) for innovation in developing the Zero Energy Building, 2011

RECENT PUBLICATIONS

Aparna Harichandran, Benny Raphael, Abhijit Mukherjee, "Development of Automated Top-Down Construction System for Low-rise Building Structures", *International Journal of Industrialized Construction, 1(1), (2020).*

Benny Raphael, Aparna Harichandran., "Sensor Data Interpretation in Bridge Monitoring-A Case Study", *Frontiers in Built Environment, 5, (2020), 148.*

Marimuthu Kannimuthu, Benny Raphael, Ekambaram Palaneeswaran, Ananthanarayanan Kuppuswamy, “Comparing optimization modeling approaches for the multi-mode resource-constrained multi-project scheduling problem”, *Engineering, Construction and Architectural Management, (2019).*

Marimuthu Kannimuthu, Benny Raphael, Ekambaram Palaneeswaran, Ananthanarayanan Kuppuswamy, "Optimizing time, cost and quality in multi-mode resource-constrained project scheduling", *Built Environment Project and Asset Management, 9(1), (2019), 44–63.*

Stefie J. Stephen, Benny Raphael, Ravindra Gettu, Sujatha Jose, “Determination of the tensile constitutive relations of fiber reinforced concrete using inverse analysis”, *Construction & Building Materials, 195, (2019), 405–414.*

Marimuthu Kannimuthu, Palaneeswaran Ekambaram, Benny Raphael, Ananthanarayanan Kuppuswamy, "Resource Unconstrained and Constrained Project Scheduling Problems and Practices in a Multiproject Environment", *Advances in Civil Engineering, (2018),13 pages.*

Current research focus is on the application of advanced computing and automation techniques for improving the efficiency of construction.

BHARGAVA RAMA CHILUKURI | ASSISTANT PROFESSOR

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EDUCATION

- Ph. D., Georgia Institute of Technology, USA, 2015
- M. S., University of Utah, UT, 2004
- B. Tech., IIT Kharagpur, 2000

EXPERIENCE

- Asst. Professor, IIT Madras, 2016–present
- Post Doctoral Fellow, Georgia Institute of Technology, USA, 2015–2016

RESEARCH INTERESTS

- Traffic Flow Theory of Homogenous and Heterogeneous Traffic
- Control of Traffic Systems and Networks
- Intelligent Transportation Systems

RECOGNITIONS

- Best Paper, International Conference on COMmunication Systems & NETworks, 2019
- Best Paper, Conference of the Transportation Research Group of India (CTRG), 2018
- ITS Georgia Wayne Shackelford Engineering Scholarship, 2010
- Georgia ITE Student Scholarship, USA, 2009
- Star Performer, Klotz Associates, Texas, USA, 2007
- Jack Alder Scholarship, University of Utah, 2002

RECENT PUBLICATIONS

Thodi B. T., Chilukuri B. R., Vanajakshi L., "An analytical approach to real-time bus signal priority system for isolated intersections", *Journal of Intelligent Transportation Systems, 1-23, (2021).*

Kashyap NR M., Chilukuri B. R., Srinivasan K. K., Asaithambi G., "Analysis of vehicle-following behavior in mixed traffic conditions using vehicle trajectory data", *Transportation research record, 2674(11), (2020), 842-855.*

Das A. K., Rama Chilukuri B., "Link Cost Function and Link Capacity for Mixed Traffic Networks", *Transportation Research Record, 2674(9), (2020), 38-50.*

Das A. K., Chilukuri B. R., "An Integer Programming Formulation for Optimal Mode-Specific Route Assignment", *Recent Advances in Traffic Engineering, (2020), 531-539, Springer, Singapore.*

Woong Cho H., Chilukuri B. R., Laval J. A., Guin A., Suh W., Ko J., "Genetic algorithm-based simulation optimization of the ALINEA ramp metering system: a case study in Atlanta", *Transportation Planning and Technology, 43(5), (2020), 475-487.*

Hunter M., Biswas A., Chilukuri B., Guin A., Fujimoto R., Guensler R., Rodgers M., "Energy-aware dynamic data-driven distributed traffic simulation for energy and emissions reduction", *Handbook of Dynamic Data Driven Applications Systems, (2018) 467-487, Springer, Cham.*

Laval J. A., Chilukuri B. R., "Symmetries in the kinematic wave model and a parameter-free representation of traffic flow", *Transportation Research Part B: Methodological, 89, (2016), 168-177.*

The goal of our research group is to utilize emerging technologies to better understand the macroscopic and microscopic traffic flow phenomena and develop suitable models and strategies for optimal management of homogeneous and heterogeneous transportation systems and networks.

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EDUCATION

- Int. Ph. D., IIT Kanpur, 2017
- B. Tech., NIT Warangal, 2008

EXPERIENCE

- Asst. Professor, IIT Madras, 2020–present
- Post Doc. Research Asso., Pacific Northwest National Lab., USA, 2017–2020
- Graduate Fellow, National Centre for Atmospheric Research, USA, 2013

RESEARCH INTERESTS

- Aerosol-cloud-climate interactions
- Impact of climate change on Cloud and Rainfall systems
- Impact of aerosols on Evapotranspiration
- Effect of dust deposition on snow darkening and Himalayan glaciers
- Urban heat island effect and air quality over megacities
- Extreme rainfall and coupling with aerosols, urbanization, land-atmosphere interactions
- Cloud seeding research

RECOGNITIONS

- Editor's Award for outstanding reviewers, “Advances in Atmospheric Sciences”, 2018
- Best Oral presentation award, Intl. conf., Aerosol Climate Change Connection, 2017
- Graduate Visitor Program fellowship to pursue doc. research at NCAR, USA, 2013

RECENT PUBLICATIONS

Sarangi C., Qian Y., Rittger K. et al., "Dust dominates high-altitude snow darkening and melt over high-mountain Asia", *Nat. Clim. Chang. 10, (2020), 1045–1051.*

Sarangi C., Qian Y., Rittger K., Bormann K. J., Liu Y., Wang H., Wan H., Lin G., Painter T. H., "Impact of light-absorbing particles on snow albedo darkening and associated radiative forcing over high-mountain Asia: high-resolution WRF-Chem modeling and new satellite observations", *Atmos. Chem. Phys., 19, (2019), 7105–7128.*

Thomas A., Sarangi C., Kanawade V.P., "Recent Increase in Winter Hazy Days over Central India and the Arabian Sea", *Nature Scientific Reports, 9, (2019), 17406.*

Sarangi C., Kanawade V. P., Tripathi S. N., Thomas A., D. Ganguly, "Aerosol-induced intensification of cooling effect of clouds during Indian summer Monsoon", *Nature Communications, (2018).*

Sarangi C., Tripathi S. N., Qian Y., Kumar S., Ruby Leung L., "Aerosol and urban land use effect on rainfall around cities in Indo-Gangetic Basin from observations and cloud resolving model simulations", *Journal of Geophysical Research: Atmospheres, 123, (2018), 3645– 3667.*

Sarangi C., Tripathi S. N., Kanawade V. P., Koren I., D. S. Pai, "Investigation of aerosol-cloud-rainfall association over Indian Summer Monsoon region", *Atmospheric Chemistry and Physics, 17, (2017), 5185–5204.*

Future never manifests as we plan, but almost always it bestows more than our efforts.

ANNAVARAPU CHANDRASEKHAR | ASSISTANT PROFESSOR

+91-44-2257 4325
annavarapuc@iitm.ac.in

EDUCATION

- Ph. D., Duke University, USA, 2013
- B. Tech., IIT Madras, 2007

EXPERIENCE

- Asst. Professor, IIT Madras, 2019–present
- Computational Scientist, ExxonMobil Upstream Research Company, USA, 2018–2019
- Research Scientist, Lawrence Livermore National Laboratory, USA, 2013–2018

RESEARCH INTERESTS

- Computational Mechanics
- Scientific Computing
- Geomechanics
- Fracture Mechanics
- Finite Element Method

RECOGNITIONS

- Senol Utku Award (highest distinction), Duke University, 2013
- CIMNE Award, Universitat Politecnica de Catalunya, 2012
- Mahato Fellowship, Duke University, 2012
- USACM Travel Fellowship, 2012 & 2013

RECENT PUBLICATIONS

Ghosh G., Duddu R., Annavarapu C., “A stabilized finite element method for enforcing stiff anisotropic cohesive laws using interface elements”, *Computer Methods in Applied Mechanics and Engineering, 348, (2019), 1013–1038.*

Vogler D., Settgast R. R., Annavarapu C., et al., “Experiments and simulations of fully hydro-mechanically coupled response of rough fractures exposed to high-pressure fluid injection”, Journal of Geophysical Research: *Solid Earth, 123(2), (2018), 1186–1200.*

Settgast R. R., Fu P., Walsh S. D. C., White J. A., Annavarapu C., et al., “A fully coupled method for massively parallel simulation of hydraulically driven fractures in 3-dimensions”, *International Journal for Numerical and Analytical Methods in Geomechanics, 41(5), (2017), 627–653.*

Annavarapu C., et al., “A local crack-tracking strategy to model three-dimensional crack propagation with embedded methods”, *Computer Methods in Applied Mechanics and Engineering, 311, (2016), 815–837.*

Jiang W., Annavarapu C., et al., “A robust Nitsche's formulation for interface problems with spline-based finite elements”, *International Journal for Numerical Methods in Engineering, 104(7), (2015), 676–696.*

Annavarapu C., et al., “A weighted Nitsche stabilized method for small-sliding contact on frictional surfaces”, *Computer Methods in Applied Mechanics and Engineering, 283, (2015), 763–781.*

Annavarapu C., et al., “A Nitsche stabilized finite element method for frictional sliding on embedded interfaces. Part I: single interface”, *Computer Methods in Applied Mechanics and Engineering, 268, (2014), 417–436.*

“Research at our lab is very interdisciplinary and involves a good mixture of engineering, mathematics, and computing. Most projects involve a healthy combination of developing new numerical algorithms, and their application to problems in geosciences, defense, mechanical, and civil engineering.”

D. N. ARNEPALLI | ASSOCIATE PROFESSOR

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EDUCATION

- Ph. D., IIT Bombay, 2006
- M. Tech., IIT Bombay, 2002
- B. Tech., Jawaharlal Nehru Technological University, Kakinada, 1998

EXPERIENCE

- Asso. Professor, IIT Madras, 2016–Present
- Asst. Professor, IIT Madras, 2008–2016
- Asso. Research Director, Queen's University, Canada, 2007–2008

RESEARCH INTERESTS

- Biogeotechnics for cleanup of the environment
- Geomaterials stabilization using chemical, biopolymer, electrokinetic and biological processes
- Geological sequestration of greenhouse gases
- Design of barrier and buffer systems for hazardous waste disposal

RECOGNITIONS

- EBM, Environmental Geotechnics Journal, 2013–2016
- Best Paper Award, 4th World Congress of Civil, Structural and Environment Engineering (CSEE'19), 2019
- Best Paper Award, National Conference on Geoenvironmental Issues and Sustainable Urban Development (GEN-2014)

RECENT PUBLICATIONS

Surabhi J. and Arnepalli D. N., "Adhesion and De-adhesion of Ureolytic Bacteria on Sand under variable Pore Fluid Chemistry", *Journal of Environmental Engineering, (2019).*

Kollannur N. J. and Arnepalli D. N., "Methodology for Determining Point of Zero Salt Effect of Clays in terms of Surface Charge Properties", *Journal of Materials in Civil Engineering, ASCE, (2019),*

Surya S. S. and Arnepalli D. N., "A Prediction Model for the Gas Permeability of Geomaterials, *Environmental Geotechnics, (2019).*

Kollannur N. J. and Arnepalli D. N., "Electrochemical Treatment and Associated Chemical Modifications of Clayey Soils: A Review", *International Journal of Geotechnical Engineering, (2019),*

Surabhi, J. and Arnepalli, D. N., "A Biochemically Induced Carbonate Precipitation in Aerobic and Anaerobic Environments by Sporosarcina pasteurii", *Geomicrobiology Journal, 36(5), (2019), 443–451.*

Cherian C., Kollannur N. J., Bandipally S. and Arnepalli D. N., "Calcium Adsorption on Soils: Effects of Mineralogy, Pore Fluid Chemistry and Temperature", *Applied Clay Science, 160, (2018), 282–289.*

Saranya N. and Arnepalli D. N., "Effect of Drying Technique on Pore Structure Characteristics of Fine-Grained Geomaterials", *International Journal of Geotechnical Engineering, 12(6), (2018), 578–591.*

A state-of-the-art Geoenvironmental Engineering Research Laboratory has been developed by my research group from the conceptual stage in the Dept. of Civil Engg, IITM. This modern laboratory houses many analytical facilities, which enable us to conduct fundamental research in geoenvironmental engineering.

DEVDAS MENON | PROFESSOR

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EDUCATION

- Ph. D., IIT Madras, 1994
- M. S., University of Calicut, 1989
- B. Tech., IIT Madras, 1980

EXPERIENCE

- Professor, IIT Madras, 2004–present
- Asso. Professor, IIT Madras, 2000–2004
- Asst. Professor, IIT Madras, 1998–2000
- Faculty, REC Calicut, 1985–1998
- Structural Design Engineer, 1980–1985

RESEARCH INTERESTS

- Reinforced and Prestressed Concrete Design
- Analysis and Design of Special Structures
- Cost-effective and Sustainable Building Systems

RECOGNITIONS

- PC Varghese Institute Chair, IIT Madras, 2021
- Institute Chair Professor, IIT Madras, 2019
- Guru Shreshta Award, Rotary Club, 2015
- Ultra-Tech Award for the Outstanding Concrete Engineer, Indian Concrete Institute, 2014
- Srimathi Marti Annapurna Award for Excellence in Teaching, IIT Madras, 2014
- Distinguished Service to the Institute, Award by the IIT Madras Alumni Association, 2013
- Chairman of CED38 "Special Structures" Committee of Bureau of Indian Standards, since 2006

RECENT PUBLICATIONS

M. Najeeb Shariff, Devdas Menon, "Experimental studies on creep and shrinkage behavior of reinforced concrete walls", *ACI Structural Journal, American Concrete Institute, 117(S66), (2020), 249–260.*

M. Najeeb Shariff, U. Saravanan, Devdas Menon, "Time-dependent strains in axially loaded reinforced concrete columns", *Journal of Engineering Mechanics, ASCE, 146(8), (2020), 1–11.*

Indu Geevar, Devdas Menon, Meher Prasad A., "Strut-and-tie based design and testing of Reinforced Concrete Pier Caps", *ACI Structural Journal, American Concrete Institute, 117(2), (2020), 211–223.*

S. Chitra Ganapathy, P. Harikrishna, Devdas Menon, "Wind induced interference factor of multirow cooling towers – a glimpse", *Engineering Structures, 200(1), (2019), 1-13.*

Bijily Balakrishnan, Devdas Menon, "Yield line analysis and testing of rectangular slabs with primary and secondary beams", *ACI Structural Journal, American Concrete Institute, 116, (2019), 187–200.*

Indu Geevar, Devdas Menon, "Strength of reinforced concrete pier caps – experimental validation of strut-and-tie method", *ACI Structural Journal, American Concrete Institute, 116, (2019), 261–273.*

Author of books titled 'Reinforced Concrete Design', 'Structural Analysis', 'Advanced Structural Analysis', 'Stop sleepwalking through life!' and 'Spirituality at work'.

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EDUCATION

- Ph. D., IIT Bombay, 2001
- M. Tech., IIT Bombay, 1995

EXPERIENCE

- Professor, IIT Madras, 2014–present

RESEARCH INTERESTS

- Seismic hazard and risk assessment
- Reliability analysis of geotechnical systems
- Soil dynamics and earthquake engineering
- Performanced-based earthquake geomechanics
- CFD applications in environmental geotechnics
- Inelastic analysis in geomechanics

RECENT PUBLICATIONS

Aarthi N., Dodagoudar G. R., "Three-Dimensional Finite-Element Analysis of Pressure–Settlement Response of Sand Compaction Pile-Treated Cohesionless Deposits", *International Journal of Geomechanics, 21(4), (2021), 04021019.*

Sundaravel V., Dodagoudar G. R., Deformation and Stability Analyses of Hybrid Earth Retaining Structures", *International Journal of Geosynthetics and Ground Engineering, 6(3), (2020), 1–25.*

Chavda J. T., Mishra S., Dodagoudar G. R., "Experimental evaluation of ultimate bearing capacity of the cutting edge of an open caisson", *International Journal of Physical Modelling in Geotechnics, 20(5), (2020), 281–294.*

Deviprasad B. S., Dodagoudar G. R., "Seismic response of bridge pier supported on rocking shallow foundation", *Geomechanics and Engineering, 21(1), (2020), 73–84.*

Saseendran R., Dodagoudar G. R., "Reliability analysis of slopes stabilised with piles using response surface method", *Geomechanics and Engineering, 21(6), (2020), 513–525.*

Balasubramani D. P., Dodagoudar G. R., "Modelling the spatial variability of Standard Penetration Test data for Chennai City using kriging and product-sum model", *Geomechanics and Geoengineering, (2020), 1–14.*

Priya B. D., Dodagoudar G. R., "Spatial Variability of Depth to Weathered Rock for Chennai Using Geostatistical Kriging", *In Applications of Geomatics in Civil Engineering, Springer, Singapore, (2020), 95–105.*

Chavda J. T., Dodagoudar G. R., "On vertical bearing capacity of ring footings: finite element analysis, observations and recommendations", *International Journal of Geotechnical Engineering, (2019), 1-13.*

Ramalakshmi M., Dodagoudar G. R., "Passive Force–Displacement Behaviour of GRS Bridge Abutments", *International Journal of Geosynthetics and Ground Engineering, 4(4), (2018), 1-11.*

GITAKRISHNAN RAMADURAI | ASSOCIATE PROFESSOR

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EDUCATION

- Ph.D., Rensselaer Polytechnic Inst., 2009
- M. S., University of Texas, USA, 2003
- B. Tech., IIT Roorkee, 2002

EXPERIENCE

- Asso. Professor, IIT Madras, 2017–present
- Asst. Professor, IIT Madras, 2010–2017
- Visiting Asst. Professor, IITM, 2009–2010

RESEARCH INTERESTS

- Sustainable & safe transportation systems
- Data-driven modelling and optimization of transportation systems
- Public transit networks
- Urban freight
- Vehicular emissions
- Dynamic traffic simulation and assignment

RECOGNITIONS

- Young Faculty Recognition Award, IIT Madras, 2020
- Best Paper Award on Urban Traffic Management, 18th Euro Working Group on Transportation, TU Delft, Netherlands, 2015
- Awarded First Place in Dissertation Prize, Transportation Science and Logistics Society, Institute for Operations Research and Management Science, 2009 for Innovative Instrument Design, 2013–2014

RECENT PUBLICATIONS

Kancharla S. R., Ramadurai G., "Electric vehicle routing problem with non-linear charging and load-dependent discharging", *Expert Systems with Applications, 160, (2020), 113714.*

Manjalavil M. M., Ramadurai G., "Topological properties of bus transit networks considering demand and service utilization weight measures", *Physica A: Statistical Mechanics and its Applications, 555, (2020), 124683.*

Mohan R., Ramadurai G., "Field data application of a non-lane-based multi-class traffic flow model", *IET Intelligent Transport Systems, 14(7), (2020), 657–667.*

Kancharla S. R., Ramadurai G., "Simulated annealing algorithm for multi depot two-echelon capacitated vehicle routing problem", *European Transport - Trasporti Europei, 78, (2020), A8.*

Panicker A.K., Ramadurai G., "Injury severity prediction model for two-wheeler crashes at mid-block road sections", *International Journal of Crashworthiness, (2020).*

Middela M.S., Ramadurai G., "Incorporating spatial interactions in zero-inflated negative binomial models for freight trip generation", *Transportation, (2020).*

Mahesh S., Ramadurai G., "Real-world emissions from diesel passenger cars during peak and off-peak periods", *Lecture Notes in Civil Engineering, 45, (2020), 77–84.*

As an academic, I derive satisfaction from the personal connect I develop with research scholars and students. I strive to ensure every student walking out of my room has more clarity and purpose after a discussion.

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EDUCATION

- Ph. D., Clarkson University, USA, 1999
- M.E., Anna University, Chennai, 1993
- B. E., Anna University, Chennai, 1991

EXPERIENCE

- Professor, IIT Madras, 2015–present
- Asso. Professor, IIT Madras, 2012–2015
- Asst. Professor, IIT Madras, 2005–2012
- Post Doctoral Researcher, University of Illinois at Urbana Champaign, 2000–2003
- Consultant, MS Swaminathan Research Foundation, 2003–2005

RESEARCH INTERESTS

- Ground water-Contaminant fate and transport
- Remediation of contaminated soil and groundwater
- Hazardous chemicals risk assessment and management
- Water Treatment
- Wastewater reuse
- Solid waste management

RECOGNITIONS

- Gandhian Young Technology Innovator Award, Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI), New Delhi, 2015
- Member (Two terms 2014-2019), State Expert Appraisal Committee for EIA Ministry of Environment and Forests, GoI

RECENT PUBLICATIONS

Beegum S., Šimunek J., Szymkiewicz A., Sudheer K. P., Nambi I. M., "Implementation of Solute Transport in the Vadose Zone into the "HYDRUS Package for MODFLOW", *Groundwater, 57(3), (2019), 392–408.*

Srinivasan R., Nambi I. M., Senthilnathan J., "Liquid crystal display electrode assisted bio-reactor for highly stable and enhanced biofilm attachment for wastewater treatment – A sustainable approach for e-waste management", *Chemical Engineering Journal, 358, (2019), 1012–1021.*

Divyapriya G., Nambi I., Senthilnathan J., "Ferrocene functionalized graphene based electrode for the electro- Fenton oxidation of ciprofloxacin", *Chemosphere, 209, (2018), 113–123.*

Han Y., Nambi I. M., Prabhakar Clement T., "Environmental impacts of the Chennai oil spill accident – A case study", *Science of the Total Environment, 626, (2018), 795–806.*

Rajasekhar B., Nambi I. M., Govindarajan S. K., "Human health risk assessment of ground water contaminated with petroleum PAHs using Monte Carlo simulations: A case study of an Indian metropolitan city", *Journal of Environmental Management, 205, (2018), 183–191.*

Peter J. Vikesland, Amy Pruden, Pedro J. .J. Alvarez, Diana Aga, Helmut Bürgmann, Xiang-dong Li, Celia Manaia ,Indumathi Nambi, Krista Wigginton, Tong Zhang,Yong-Guan Zhu, "Towards a Comprehensive Strategy to Mitigate Dissemination of Environmental Sources of Antibiotic Resistance - What does the Presence of a Gene Tell Us?", *Environment Science and Technology, 51(22), 2017.*

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EDUCATION

- Ph. D., University of Texas, USA,2003
- M. S., University of California, USA, 2000
- B. Tech., IIT Madras, 1992

EXPERIENCE

- Professor, IIT Madras, 2014–present
- Asso. Professor, IIT Madras, 2009-2014
- Asst. Professor, IIT Madras, 2003-2009

RESEARCH INTERESTS

- Travel Demand and Traveller Behaviour
- Intelligent Transportation Systems
- Transportation Network Optimization
- Connected and Emerging Technologies for Sustainable Mobility

RECOGNITIONS

- PAC committee DST – 2019-present
- TIDE Editorial Board Member, Journal of Transportation in Developing Economies (TIDE)–2014-present
- Member Travel Demand Forecasting committee, Transportation Research Board, affiliated to National Academy of Science, 2002-2005
- Co-chairman, Emerging Methods Sub-committee of the Travel Demand Forecasting Committee of Transportation Research Board, 2003-2005

RECENT PUBLICATIONS

Ambi Ramakrishnan G., Srinivasan K.K, Mondal A., Bhat C. R., "A Joint Model of Sustainable Mode Choice for Commute, Shift Potential and Alternative Mode Chosen", *Journal of Transportation Research Board, (2021) Forthcoming.*

Dias F. F., Lavieri P. S., Sharda S., Khoeini S., Bhat C. R., Pendyala R. M., Pinjari A. R., Ramadurai G., Srinivasan K. K., "A comparison of online and in-person activity engagement: The case of shopping and eating meals", Transportation Research Part C, Emerging Technologies, 114, (2020), 643-656.

Dias F. F., Kim T., Pendyala R. M., Lam W. H. K., Pinjari A. R., Srinivasan K. K., Ramadurai G., "Modeling the Evolution of Ride-Hailing Adoption and Usage: A Case Study of the Puget Sound Region", *Transportation Research Record: Journal of the Transportation Research Board, (2020).*

Kashyap M. R. N., Chilukuri B. R. C., Srinivasan K. K., Gowri A., "Analysis of Vehicle-Following Behavior in Mixed Traffic Conditions using Vehicle Trajectory Data", Transportation Research Record: *Journal of the Transportation Research Board, (2020).*

Devaraj A., Srinivasan K. K. Basheer S., "Awareness, Consideration and Usage Frequency of On-demand Transport Services in the Indian Context", *Transp. in Dev. Econ. 6, 14 (2020).*

Ambi Ramakrishnan G., Srinivasan K. K., Pynda, S. P., "Joint Models for Consideration of Public Transit and Mode Choice for Work Commute", *Transp. in Dev. Econ. 6, 12 (2020).*

Ramakrishnan G. A., Devaraj A., Nair G. S., Srinivasan K. K., Bhat C. R., Pinjari A. R., Ramadurai G., Pendyala R. M., " Joint Model of App-Based Ride Hailing Adoption, Intensity of Use and Intermediate Public Transport (IPT) Consideration among Workers in Chennai City", *Transportation Research Record: Journal of the Transportation Research Board (2020).*

Kunhikrishnan P., Srinivasan K. K., "Choice set variability and contextual heterogeneity in work trip mode choice in Chennai city", *Transportation letters 11(4), (2019), 174-189.*

How people travel in the near future will be shaped by autonomous and connected technologies, data science, electric vehicles and on-demand mobility services. There are tremendous new opportunities for personalized, safe and sustainable transportation solutions.

KEERTHANA KIRUPAKARAN | ASSISTANT PROFESSOR

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EDUCATION

- Ph.D., 2020, IISc Bangalore
- MSc in ST, 2020, IISc Bangalore
- B. Tech, 2012, NIT Tiruchirappalli

EXPERIENCE

- Asst. Professor, IIT Madras, 2022–present
- Assistant Professor, NIT Puducherry 2021–2022
- Institute Research Associate, IISc Bangalore,2019 - 2020

RESEARCH INTERESTS

- Fracture Characterization
- Fatigue life predictive models
- Fiber and Textile Reinforced Concrete

RECOGNITIONS

- Institute research associate fellowship IISc, Bangalore, 2019.
- GARP travel grant, FraMCoS-10 conference, Bayonne, France, 2019 ,
- GARP travel grant, FraMCoS-9 conference, University of California, Berkeley, USA, 2016
- MHRD doctoral fellowshipIISc Bangalore, 2014

RECENT PUBLICATIONS

Keerthana K, and J M Chandra Kishen (2018). “An experimental and analytical study on fatigue damage in concrete under variable amplitude loading. “ International Journal of Fatigue, Volume 111, June 2018, Pages 278-288

Keerthana K, and J M Chandra Kishen (2020). “Micromechanics of fracture and failure in concrete under monotonic and fatigue loadings. “ Mechanics of Materials, Volume 148, September 2020, 103490

Keerthana K, and J M Chandra Kishen (2021). “Micromechanical Effects of Loading Frequency on Fatigue Fracture in Concrete. “ ASCE Journal of Engineering Mechanics, Volume 147 Issue 12 - December 2021

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EDUCATION

- Ph. D., University of Texas, USA, 1992
- M. S., University of Texas, USA, 1987
- B. E., Anna University, 1986

EXPERIENCE

- Professor, IIT Madras, 2004–present
- Visiting Faculty, University of Texas, USA, 2004–2005
- Visiting Eminent Scholar, Arizona State University, USA, 2002–2003
- Asso. Professor, IIT Madras, 2000–2004
- Lecturer/Asst. Professor., IITM, 1993–2000

RESEARCH INTERESTS

- Automation and IT in Construction,
- Lean Construction
- Design Management
- Project Controls

RECOGNITIONS

- Member, Board of Directors, IAARC, 2005–present
- Best paper Award, World Construction Symposium (WCS), 2017
- President, IAARC, 2013–2016
- Tucker Hasagawa Award, IAARC, 2012
- Distinguished Scholar Award, Project Management Institute (PMI), 2012
- Best paper Award ASCE Journal of Computing in Civil Engineering, 2011

RECENT PUBLICATIONS

Jeevan Jacob, Koshy Varghese, “A framework for ad hoc information management for the building design process”, *Engineering, Construction and Architectural Management, 25, (2018), 1034–1052.*

R. K. Soman, B. Raphael, K.Varghese, “A System Identification Methodology to monitor construction activities using structural responses”, *Automation in Construction, 75, (2017), 79–90.*

Loganathan Santhosh, Srinath Purushothaman, Kumaraswamy Mohan, Kalidindi Satyanarayana, Varghese Koshy, “Identifying and addressing critical issues in the Indian construction industry: Perspectives of large building construction clients”, *Journal of Construction in Developing Countries, 22, (2017), 121–144.*

Joshua Liju, Varghese Koshy, “Automated recognition of construction labour activity using accelerometers in field situations” *International Journal of Productivity and Performance Management, 63, (2014), 841–862.*

Ummer Naseef, Maheswari Uma, Matsagar Vasant A., Varghese Koshy, “Factors influencing design iteration with a focus on project duration”, *Journal of Management in Engineering, 30, (2014), 127–130.*

Senthilkumar, Venkatachalam, Koshy Varghese, “Case Study–Based Testing of Design Interface Management System”, *Journal of Management in Engineering, 29, (2013), 279–288.*

Joshua Liju, Koshy Varghese, “Selection of Accelerometer Location on Bricklayers Using Decision Trees”, *Computer-Aided Civil and Infrastructure Engineering, 28, (2013), 372–388.*

Senthilkumar V., Varghese K., "Case study–based testing of design interface management system", *Journal of Management in Engineering, 29(3), (2013), 279-288.*

Joshua L., Varghese K., "Accelerometer-based activity recognition in construction", *Journal of computing in civil engineering, 25(5), (2011), 370-379.*

Industry oriented research in computer integrated construction.

LAKSHMI PRIYA P. S. | ASSISTANT PROFESSOR

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EDUCATION

- Ph. D., Georgia Inst. of Tech., USA, 2015
- M. S., The University of Texas, USA, 2008
- B. Tech., Visvesvaraya National Institute of Technology, Nagpur, 2006

EXPERIENCE

- Asst. Professor, IIT Madras, 2017–present
- Post Doctoral Research Associate, Georgia Institute of Technology, USA, 2016–2017
- Engineer, Walter P Moore and Associates, USA, 2008–2012

RESEARCH INTERESTS

- Stability of Steel Structures
- Strucural Fire Engineering

RECOGNITIONS

- Chair, Task Group for Bridges, Structural Stability Research Council, 2021
- Prof. Juergen Plaehn Award, (with student Shanmughavel R.), IIT Madras, 2018
- Two-time winner of the Vinnakota Award
- Runner-up for the best student paper, Annual Stability Conference, SSRC'15 & SSRC'16, 2015 & 2016
- Second place in the zone, and best report nation-wide in Big Beam Contest, USA, 2007
- Institute Medal at VNIT for topping the graduating Civil Engineering class, 2006

RECENT PUBLICATIONS

Nayak N., Subramanian L.P., “Fire Loads in Educational and Office Buildings”, *Proceedings of the Applications of Structural Fire Engineering, ASFE, Singapore, (2019).*

John J.B., Subramanian L.P., “A modified approach towards estimating the lateral torsional buckling effective length”, *Proceedings of the Annual Stability Conference, Structural Stability Research Council, St.Louis, Missouri, (2019).*

Nayak, N., Ananthaselvan, M. ,Subramanian, L.P., “Characterization of Elastic Flexural and Shear Buckling Strengths of I-Sections”, *Proceedings of the Annual Stability Conference, Structural Stability Research Council, (2019).*

Subramanian L.P., White D. W., “Flexural Resistance of Longitudinally Stiffened Curved I-Girders”, *Proceedings of the Annual Stability Conference, Structural Stability Research Council, Baltimore, Maryland, (2018).*

Subramanian, L. P., Jeong, W. Y., Yellepeddi, R., and White, D. W., “Assessment of I-section member LTB resistances considering experimental tests and practical inelastic buckling design calculations”, *Engineering Journal, AISC, 55(1), (2018).*

Subramanian L.P., White D. W., “Flexural resistance of longitudinally stiffened I-girders. I: yield limit state”, *Journal of Bridge Engineering, ASCE, 22(1), (2017).*

Our research team focuses on addressing fundamental behaviour of structural steel members and systems at ambient and elevated temperature conditions. The more we learn, we realize that there is more to learn. Our motto : Stay hungry, Stay foolish!

LELITHA DEVI VANAJAKSHI | PROFESSOR

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EDUCATION

- Ph. D., Texas A&M University, USA, 2004
- M. Tech., College of Engineering, Trivandrum, 1995
- B. Tech., College of Engineering, Trivandrum, 1993

EXPERIENCE

- Professor, IIT Madras, 2018–present
- Asso. Professor, IIT Madras, 2013–2018
- Asst. Professor, IIT Madras, 2006–2013
- Adjunct Professor, School of Civil and Environmental Engineering, Australia
- Associate Editor, Journal of Advanced Transportation and Journal of the Institution of Engineers (India): Series A
- Editorial Board, Journal of Big Data Analytics in Transportation and Transportation in Developing Economies

RESEARCH INTERESTS

- Traffic flow modeling
- Traffic operations and control
- Intelligent transportation systems
- Sensors and data analysis

RECOGNITIONS

- Arthur M. Wellington Prize for the paper, Journal of Transportation Engg, 2019
- Best Women Engineer Award,Institution of Engineers (India) Tamilnadu, 2018–19
- IITM Institute Research award for the Ph.D. thesis of student Dr. Bachu Anil Kumar, 2017
- Bhagyalakshmi - Krishna Iyengar award for guiding best student project in the road infrastructure, 2013

RECENT PUBLICATIONS

Anagha Girijan, Lelitha Vanajakshi, Bhargava Chilukuri, "Dynamic Thresholds Identification for Green Extension and Red Truncation Strategies for Bus Priority", *IEEE Access, 9, (2021), 64291-64305.*

Achar Avinash, B. Dhivyabharathi, Kumar Anil and Vanajakshi Lelitha, “Bus Travel Time Prediction: A log-normal Auto-Regressive (AR) Modeling Approach”, *Transportmetrica A: Transport Science, 16(3), (2020), 807–839.*

Abdhul Khadhir S. H, B. Anil Kumar and Lelitha Vanajakshi, “Analysis of GPS Based Bus Travel Time Data and its use for APTS Applications”, *Journal of Intelligent Transportation Systems: Technology, Planning, and Operations, (2020).*

Achar Avinash, B. Dhivyabharathi, Kumar Anil and Vanajakshi Lelitha, “Bus Arrival Time Prediction: A Spatial Kalman Filter Approach”, *IEEE Transactions on Intelligent Transportation Systems, 21(3), (2020).*

Reenu George, Shankar Subramanian, Lelitha Vanajakshi, "Area Occupancy Based Adaptive Density Estimation for Mixed Road Traffic", *IEEE Access, 8(1), (2019), 5502–5514.*

Rushikesh Amrutsamanvar, Bharathiraja Muthurajan, Lelitha Vanajakshi, "Extraction and Analysis of Microscopic Traffic Data in Disordered Heterogeneous Traffic Conditions", *Transportation Letters: the International Journal of Transportation Research, (2019).*

Abdhul Khadir, Anil Kumar, Lelitha Vanajakshi; "Analysis of global positioning system based bus travel time data and its use for advanced public transportation system applications", *Journal of Intelligent Transportation Systems: Technology, Planning and Operations, (2019).*

LIGY PHILIP | PROFESSOR

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EDUCATION

- Ph. D., IIT Kanpur, 1998
- M. Tech., IIT Kanpur, 1993
- B. Tech., Mahatma Gandhi University, Kottayam, 1990

EXPERIENCE

- Professor, IIT Madras, 2009–present
- Asso. Professor, IIT Madras, 2004–2009
- Asst. Professor, IIT Madras, 2001–2004

RESEARCH INTERESTS

- Water treatment and Rural Water Supply
- Domestic and Industrial wastewater treatment with emphasis on wastewater reuse and recycling
- Bioremediation of contaminated soils, air and water with heavy metals, pesticides and other hazardous organic compounds

RECOGNITIONS

- Fellow of National Academy of Engineering (FNAE)
- Fellow of Royal Society of Chemistry (FRSC)

RECENT PUBLICATIONS

Jose J., Philip L., "Continuous flow pulsed power plasma reactor for the treatment of aqueous solution containing volatile organic compounds and real pharmaceutical wastewater", *Journal of Environmental Management, 286, (2021), 112202.*

Choudhary V., Vellingiri K., Thayyil M. I., Philip L., "Removal of antibiotics from aqueous solutions by electrocatalytic degradation", *Environmental Science: Nano, (2021).*

Mukherjee S., Shah M., Chaudhari K., Jana A., Sudakar C., Srikrishnarka P., Islam M. R., Ligy Philip, Pradeep T., "Smartphone-based Fluoride-specific Sensor for Rapid and Affordable Colorimetric Detection and Precise Quantification at Sub-ppm Levels for Field Applications", *ACS Omega, 5(39), (2020), 25253–25263.*

Nippala N., Ligy Philip, "Electrochemical process employing scrap metal waste as electrodes for dye removal", *Journal of Environmental Management, 273(1), (2020), 111039.*

Krithika D., Ligy Philip, "Characterization of segregated greywater from Indian households: Part A: Physico-chemical and microbial parameters", *Environmental Monitoring and Assessment, 192(7), (2020), 428.*

Krithika D., Ligy Philip, "Characterization of segregated greywater from Indian households: Part B: emerging contaminants", *Environmental Monitoring and Assessment, 192(7), (2020), 432.*

A.R.Thomas, Martin Kranert, Ligy Philip, "Fate and impact of pharmaceuticals and personal care products during septage co-composting using an in-vessel composter", *Waste Management, 109(15), (2020), 109–118.*

Nippala N, Ligy Philip, "Performance evaluation of a novel electrolytic reactor with rotating and non-rotating bipolar disc electrodes for synthetic textile wastewater treatment", *Journal of Environmental Chemical Engineering, 8(2), (2020), 103462.*

Sharon H, Reddy K. S., Krithika D., Ligy Philip, "Viability assessment of solar distillation for desalination in coastal locations of Indian sub-continent – Thermodynamic, condensate quality and enviro-economic aspects", *Solar Energy, 197, (2020), 84–98.*

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EDUCATION

- Ph. D., Purdue University, USA, 2001
- M.S., Purdue University, USA, 1996
- B. Tech., IIT Madras, 1994

EXPERIENCE

- Professor, IIT Madras, July 2013–present
- Associate Professor, IIT Madras, 2009–2013
- Assistant Professor, IIT Madras, 2003–2009
- Visiting Faculty, IIT Madras, 2001–2003
- Senior R&D Chemist, Sika Corporation, USA, 1996–1998

RESEARCH INTERESTS

- Impact of supplementary cementing materials on concrete performance
- Multi-scale characterization of concrete and heritage materials
- Laboratory and field performance assessment of concrete

RECOGNITIONS

- Indian Concrete Institute – Prof. V. Ramakrishnan Award for Outstanding Young Researcher in Concrete Technology, 2006
- Indian National Academy of Engineering (INAE) Young Engineer Award 2008
- Indian Concrete Institute – Fosroc Award for Outstanding Concrete Technologist 2018

RECENT PUBLICATIONS

K. Mohammed Haneefa, S. Divya Rani, R. Ramasamy, Manu Santhanam, "Microstructure and geochemistry of lime plaster mortar from a heritage structure", *Construction and Building Materials 225 (2019), 538 – 554.*

Swathy Manohar, Manu Santhanam, Naresh Chockalingam, "Performance and microstructure of bricks with protective coatings subjected to salt weathering", *Construction and Building Materials 226 (2019), 94 – 105.*

A V Rahul, Manu Santhanam, Hitesh Meena, Zimam Ghani, "Mechanical characterization of 3D printable concrete", *Construction and Building Materials 227 (2019), 116710.*

Yuvaraj Dhandapani, Manu Santhanam, "Investigation on the microstructure-related characteristics to elucidate performance of composite cements with limestone-calcined clay combination", *Cement and Concrete Research 129 (2020), 105959.*

Swathy Manohar, Karpagam Bala, Manu Santhanam, Arun Menon, "Characterization and Deterioration Mechanisms in Coral Stones Used in a Historical Monument in a Saline Environment", *Construction and Building Materials 241 (2020), 118102.*

I focus on the link between microstructure and performance of construction materials, spanning heritage materials such as lime mortar and brick/stone masonry to modern high performance cementitious composites. They involve a mixture of chemistry and materials science with civil engineering.

MATHAVA KUMAR | ASSOCIATE PROFESSOR

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EDUCATION

- Ph. D., IIT Madras, 2006
- M. E., Bharathiyar Univ., Coimbatore, 2002
- B. E., Bharathiyar Univ., Coimbatore, 2000

EXPERIENCE

- Asso. Professor, IIT Madras, 2016–present
- Asst. Professor, IIT Madras, 2014–2016
- Asst. Professor, NIT Calicut, 2011–2014

RESEARCH INTERESTS

- Application of membrane (bio) reactors for water & wastewater treatment
- AOPs for water and wastewater treatment
- Technology development for tertiary wastewater treatment
- Algal-bacterial symbiosis for wastewater treatment

RECOGNITIONS

- Young Scientist Award (YSA-2018), Academy of Sciences, Chennai, 2019
- Young Faculty Recognition Award (YFRA-2018), IIT Madras, 2018
- Best poster award, Indo-German Bilateral Workshop on Membrane for Water and Energy, India, 2019
- Best paper award, International Conference on Desalination, NIT Trichy, 2018
- Awarded GE Ecomagination Excellence award for the best environmentally friendly ("green"), PhD Thesis, IIT Madras, 2006

RECENT PUBLICATIONS

Manjunath S. V., Mathava Kumar, "Simultaneous removal of antibiotic and nutrients via Prosopis juliflora activated carbon column: Performance evaluation, effect of operational parameters and breakthrough modeling". *Chemosphere, 262, (2021), 127820.*

Manjunath S. V., Ranu Singh Baghel, Mathava Kumar, "Antagonistic and Synergistic Analysis of Antibiotic Adsorption on Prosopis Juliflora Activated Carbon in Multi-component Systems", *Chemical Engineering Journal, 381, (2020), 122713.*

Minh Hang Do, Huu Hao Ngo, Wenshan Guo, Soon Woong Chang, Dinh Duc Nguyen, Yiwen Liu, Sunita Varjani, Mathava Kumar, "Microbial fuel cell-based biosensor for online monitoring wastewater quality: A critical review", *Science of the Total Environment, 712, (2020), 135612.*

Tripathy B.M., Ramesh G., Debnath A., Mathava Kumar, "Mature Landfill Leachate Treatment Using Sonolytic-Persulfate/Hydrogen Peroxide Oxidation: Optimization of process parameters", *Ultrasonics Sonochemistry, 54, (2019), 210–219.*

Tripathy B.M., Mathava Kumar, "Sequential coagulation/flocculation and microwave- persulfate processes for landfill leachate treatment: assessment of bio-toxicity, effect of pretreatment and cost-analysis", *Waste Management, 85, (2019), 18–29.*

Neghi N., Mathava Kumar, Burkhalov D., "Synthesis and application of stable, reusable TiO2 polymeric composites for photocatalytic removal of metronidazole: Removal kinetics and density functional analysis", *Chemical Engineering Journal, 359, (2019), 963–975.*

Our research group work on 3 broad areas. 1) Sustainable and low-cost technology development 2) Application of membrane technology for desalination, emerging pollutants removal and water treatment 3) Bioenergy production from landfill-leachate and organic fraction of municipal solid waste using hybrid technologies.

MEHER PRASAD A. | PROFESSOR

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EDUCATION

- Ph. D., Rice University, USA, 2002
- B. Tech., IIT Madras, 1982

EXPERIENCE

- Professor, IIT Madras, 2004–present
- Asso. Professor, IIT Madras, 2000–2004
- Asst. Professor, IIT Madras, 1991–2000

RESEARCH INTERESTS

- Earthquake engineering
- Solid dynamics
- Machine foundations
- Off-shore structures
- Computer aided design
- Structural reliability

RECENT PUBLICATIONS

Geevar I., Menon D. Prasad A. M., "Strut-and-Tie-Based Design and Testing of Reinforced Concrete Pier Caps", *ACI Structural Journal, 117(2), (2020), 211–223.*

Cherian P., Palaniappan S., Menon D., Anumolu M. P., "Comparative study of embodied energy of affordable houses made using GFRG and conventional building technologies in India", *Energy and Buildings, 223, (2020), 110138.*

Deepthi T. M., Saravanan U., Meher Prasad A., "Algorithms to determine wheel loads and speed of trains using strains measured on bridge girders", *Structural Control and Health Monitoring, 26(1), (2019), e2282.*

Krishna S. G., Cherian P., Menon D., Prasad A. M., "Glass Fibre Reinforced Gypsum Panels for Sustainable Construction", *Recent Advances in Structural Engineering, Springer, Singapore, 1, (2019), 855–867.*

Biswal A., Prasad A. M., Sengupta A. K., "Study of shear behavior of grouted vertical joints between precast concrete wall panels under direct shear loading", *Structural Concrete, 20(2), (2019), 564-582.*

Menon D., Prasad A. M., Varughese J. A., Seismic Design Philosophy: From Force-Based to Displacement-Based Design", *Advances in Indian Earthquake Engineering and Seismology, Springer, Cham., (2018), 273–289.*

Ronald J. A., Menon A., Prasad A. M., Menon D., Magenes G., Modelling and analysis of South Indian temple structures under earthquake loading", *Sadhana, 43(5), (2018)., 74.*

Priyadharshani S. A., Prasad A. M., Sundaravadivelu R., "Analysis of GFRP stiffened composite plates with rectangular cutout", *Composite Structures, 169, (2017), 42–51.*

Cherian P., Paul S., Krishna S. G., Menon D., Prasad A. M., "Mass housing using GFRG panels: a sustainable, rapid and affordable solution", *Journal of The Institution of Engineers (India): Series A, 98(1–2), (2017), 95–100.*

S. MOHAN | PROFESSOR

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EDUCATION

- Ph. D., IISc., Bangalore, 1987
- M. E. (Distn), IISc., Bengaluru, 1983
- B. E. (Distn), Madurai Kamaraj University, 1981

EXPERIENCE

- Professor, IIT Madras, 2000–present
- Asso. Professor, IIT Madras, 1996–2000
- Asst. Professor, IIT Madras, 1991–1995

RESEARCH INTERESTS

- Environmental Engineering: Water Quality Modeling, Air Quality Modeling, Water and Wastewater Treatment, Solid Waste Mgmt., Envr. Impact Assmnt., Sustainability Engg
- Water Resources Management: Reservoir Operation, Multi-objective Analysis, Climate Change and its Adaptation, Irrigation Water Mgmt., Floods and Droughts Modelling
- Groundwater Assessment and Management: Multi Aquifer Modeling, Artificial Recharge Studies, Contaminant Transport Modeling, Regional Groundwater Modelling

RECOGNITIONS

- Awarded Certificate of merit for the best paper, CSCCM, 2017
- Awarded the John Penny Cuick Eminent Engineer Award, Association of Consulting Civil Engineers (India), Madurai, 2014
- Chairman, International Water Association (India)

RECENT PUBLICATIONS

Abhijith G. R., S. Mohan, "Cellular Automata-based Mechanistic Model for Analyzing Microbial Regrowth and Trihalomethanes Formation in Water Distribution Systems", *Journal of Env. Engg. 147(1), (2020).*

S. Mohan, Ninad Oke, Gokul Dayalan, "Conventional and zero liquid discharge treatment plants for textile wastewater through the lens of carbon footprint analysis", *Journal of Water and Climate Change, (2020).*

G. R. Abhijith, S. Mohan, "Random Walk Particle Tracking Embedded Cellular Automata model for Predicting Temporospatial variations of Chlorine in water Distribution systems", *Environmental Process, 7(1), (2020), 271–296.*

S. Mohan, G. R. Abhijith, "Hydraulic Analysis of Intermittent Water Distribution Networks considering Partial Flow Regimes", *Journal of Water Resources Planning and Management, ASCE., 146(8), (2020).*

S. Mohan, Vijay V. Nair, "Comparative Study of Separation of Heavy metals from leachate Using Activated Carbon and Fuel Ash", J. Hazard. Toxic Radioact. Waste, *ASCE, 24(4), (2020).*

S. Mohan, Hadas Mamane, Dror Avisar, Igal Gozlan, Aviv Kaplan, Gokul Dayalan, "Treatment of Diethyl Phthalate leached from Plastic Products in Municipal Solid Waste using an Ozone-based Advanced Oxidation Process", *Materials, 12(24), (2019), 4119.*

Marykutty Abraham, S. Mohan, "Effectiveness of check dam and percolation pond with percolation wells for artificial groundwater recharge using groundwater models", *Water Supply, 19(7), (2019), 2107–2115.*

My role is to think far ahead and visualize the future role for my domain area of expertise namely Environmental and Water Resources Engineering. My emphasis is on being at the frontier (and anticipating future frontiers), and finding niches rather than being everything to everyone. I am data-informed and planful. I can make sound decisions in complex, unscripted, and ambiguous situations.

MURALI JAGANNATHAN | ASSISTANT PROFESSOR

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EDUCATION

- Ph.D. (Construction Dispute Resolution), IIT Bombay (2022)
- M.Tech. (Construction Technology and Management) IIT Madras (2011)
- B.Tech. (Civil Engineering) , NITK Surathkal (2007)

EXPERIENCE

- Assistant Professor, BTCM, IIT Madras (2023-Present)
- Faculty, L&T Institute of Project Management (2022-2023)
- Assistant Professor, NICMAR, Pune (2016-2022)
- Manager (Civil), Larsen and Toubro Limited (2007-2016)

RESEARCH INTERESTS

- Construction Contracts and Claims Management
- Construction Dispute Resolution
- Lean Construction Management
- Application of NLP in contract management

RECOGNITIONS

- Outstanding Reviewer Recognition from American Society of Civil Engineers (ASCE)
- Best Paper Award (Third Prize) at the (ICCRIP) 2021 Conference, NICMAR, Pune
- Runner-up Paper Award at the PMI on RAC -2019
- Research Excellence Award 2018 by the NICMAR

RECENT PUBLICATIONS

- Jagannathan, M. and Delhi, V.S.K. (2023), "Decoding a construction organisation's tendency to litigate: an understanding through financial statements", Built Environment Project and Asset Management, Vol. 13 No. 3, pp. 453-470 (https://doi.org/10.1108/BEPAM-08-2022-0128)
- Jagannathan, M., & Delhi, V. S. K. (2022). Identifying focus areas to decode the decision to litigate contractual disputes in construction . Engineering, Construction and Architectural Management, 29(8), 2976 – 2998 (DOI: 10.1108/ecam-01-2021-0014)
- Malla, V. , Jagannathan, M. , Delhi, V. S. K., & S. Nair, B. (2022). BIM - specific prequalification criteria in construction projects: exploring the nature and timeline of their inclusion. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, 14(2), 04522008. DOI: 10.1061/(ASCE)LA.1943-4170.0000540)
- Malla, V., Jagannathan, M., & Delhi, V. S. K (2022). Identification of BIM Dimension-Specific Contract Clauses in EPC Turnkey Projects. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, 14(1), 04521040. (DOI: 10.1061/(ASCE)LA.1943-4170.0000512)
- Jagannathan, M., Nawl e, V., Delhi, V. S. K ., & Malla, V. (2022). Role of Case-Laws in Claim Management and Contracts.Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, 14(4), 1–14 (https://doi.org/10.1061/(ASCE)LA.1943-4170.0000558).
- Jagannathan, M., Roy, D., & Delhi, V. S. K. (2022). Application of NLP-based topic modeling to analyse unstructured text data in annual reports of construction contracting companies. CSI Transactions on ICT, 10(2), 97-106, (DOI: 10.1007/s40012-022-00355-w)
- Jagannathan, M ., Quapp, U., & Delhi, V. S. K. (2021). Litigation Risk Transfer Mechanisms in Construction Dispute Resolution Process: Cross - Case Analysis. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, 13(3), 04521018. (DOI : 10.1061/ (ASCE) LA.1943-4170.0000347)
- Agrawal, A. K., Jagannathan, M., & Delhi, V. S. K. (2021). Control focus in standard forms: An assessment through text mining and NLP. Journal of Legal Affair s and Dispute Resolution in Engineering and Construction, 13(10). (DOI: 10.1061/(ASCE)LA.1943-4170.0000441)
- Padhy, J ., Jagannathan, M ., & Kumar Delhi, V. S. (2021). Application of Natural Language Processing to Automatically Identify Exculpatory Clauses in Construction Contracts. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction ,13(4), 04521035. (DOI: 10.1061/(ASCE)LA.1943-4170.0000505)

> Contract Management is one such multi-disciplinary research area that involves engineering, law, language, economics, behavioural and analytics domains, influencing human lives and their decisions on a daily basis

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EDUCATION

- Ph. D., IIT Madras, 1999
- M. E., NIT Trichy, 1993

EXPERIENCE

- Professor, IIT Madras, 2015–present
- Asso. Professor, IIT Madras, 2010–2015
- Asst. Professor, IIT Madras, 2004–2010

RESEARCH INTERESTS

- Pavement Engineering
- Material Characterization
- Viscoelasticity

RECOGNITIONS

- Associate Editor, International Journal of Pavement Engineering (from June 2014), Taylor and Francis (ISI cited)

RECENT PUBLICATIONS

Athira P. K., Narayan S. A., Krishnan J. M., Jain P. K., "Comparison of binder and mixture tests to characterize permanent deformation of elastomer and terpolymer modified binders", *Construction and Building Materials, 264, (2020), 120138.*

Jose A., Nivitha M. R., Krishnan J. M., Robinson R. G., "Characterization of cement stabilized pond ash using FTIR spectroscopy", *Construction and Building Materials, 263, (2020), 120136.*

Chakkoth U., Krishna K. R., Ramkumar M., Hussain S. A., Rao P. V. C., Choudary N. V., Sriganesh G., Krishnan, J. M., "Component blending for bitumen production for Indian refineries", *Sadhana, 45(1), (2020), 1–16.*

Vishal U., Chowdary V., Padmarekha A., Murali Krishnan J., "Influence of Moisture Damage on Fatigue of Warm Mix and Hot Mix Asphalt Mixture", *Journal of Materials in Civil Engineering, 32(9), (2020), 04020247.*

Nivitha M. R., Murali Krishnan J., "Rheological characterisation of unmodified and modified bitumen in the 90–200° C temperature regime", *Road Materials and Pavement Design, 21(5), (2020), 1341–1358.*

Dokku B., Savio D., Nivitha M. R., Krishnan J. M., "Development of Rutting Model for Indian Highways Based on Rut Depth Simulations from AASHTOWare Pavement ME Design Software", *Journal of Transportation Engineering, Part B: Pavements, 146(2), (2020), 04020013.*

Nivitha M. R., Krishnan J. M., Rajagopal K. R., "Viscoelastic transitions exhibited by modified and unmodified bitumen", *International Journal of Pavement Engineering, 21(6), (2020), 766–780.*

MURTY B. S. | PROFESSOR

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EDUCATION

- Ph. D., Washington State Univ., USA, 1989
- M. E., IISc., Bengaluru, 1984
- B. E., University of Madras, Chennai, 1982

EXPERIENCE

- Inst. Chair Professor, IITM, 2019–present
- Professor, IIT Madras, 2004–present
- Asso. Professor, IIT Madras, 2001–2004
- Asst. Professor, IIT Madras, 1998–2001

RESEARCH INTERESTS

- Open Channel Flows & Free Surface Flows
- Sediment Transport Modeling
- Surface & Subsurface Flow Interaction
- Pipe flows & Condition Assessment
- Contaminant Transport Modeling
- Water Resources Management in Coastal and Deltaic Systems

RECOGNITIONS

- Fellow of Indian Society for Hydraulics
- S.N. Gupta Memorial Award of Indian Society for Hydraulics, 2010

RECENT PUBLICATIONS

Jamal J. F., Bhallamudi S. M., "Efficient Solution Algorithm for Unsteady Flow in Channel Networks Using Subtiming Technique", *Journal of Irrigation and Drainage Engineering, 146(6), (2020), 04020012.*

Wagner P. D., Bhallamudi S. M., Narasimhan B., Kumar S., Fohrer N., Fiener P., "Comparing the effects of dynamic versus static representations of land use change in hydrologic impact assessments", *Environmental Modelling & Software, 122, (2019), 103987.*

Prabu P., S. Murty Bhallamudi, Abhijit Chaudhuri, S. A. Sannasiraj, "Numerical investigations for mitigation of tsunami wave impact on onshore buildings using sea dikes", *Ocean Engineering 187, (2019), 106159.*

Akella C. S., Bhallamudi S. M., Managing Municipal Wastewater Treatment to Control Nitrous Oxide Emissions from Tidal Rivers" , *Water, 11(6), (2019), 1255.*

S. Murty Bhallamudi, R. Kaviyarasn, A. Abilarasu, Ligy Philip, "Nexus between Sanitation and Groundwater Quality: Case Study from a Hard Rock Region in India", *Journal of Water, Sanitation and Hygiene for Development, IWA Publishing, 9(4), (2019), 703–713.*

Vijayanandan A., Philip L., Bhallamudi S. M., "Enhanced removal of PhACs in RBF supplemented with biofilm coated adsorbent barrier: Experimental and model studies", *Chemical Engineering Journal, 338, (2018), 341–357.*

Thappeta S. K., Bhallamudi S. M., Fiener P., Narasimhan B., Resistance in Steep Open Channels due to Randomly Distributed Macroroughness Elements at Large Froude Numbers", *Journal of Hydrologic Engineering, 22(12), (2017), 04017052.*

Palleti V. R., Narasimhan,S., Rengaswamy R., Teja R., Bhallamudi S. M., "Sensor network design for contaminant detection and identification in water distribution networks", *Computers & Chemical Engineering, 87, (2016), 246-256.*

IIT Madras has been providing me enthusiastic students, highly motivated research scholars and excellent colleagues who help me to pursue my hobbies of teaching and research.

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EDUCATION

- Ph. D., Caltech, USA, 1992
- M. Tech., IIT Madras, 1986
- B. Tech., IIT Madras, 1984

EXPERIENCE

- Professor, IIT Madras, 2010–present
- Visiting Professor, IIT Hyderabad, 2009–2010
- Professor (on Deputation), IIT Madras, 2008–2009
- Professor, IIT Kanpur, 2003–2010

RESEARCH INTERESTS

- Nonlinear Seismic Behaviour of Structures
- Earthquake-Resistant Design of Buildings and Bridges
- Seismic Design Codes
- Books on Earthquake Resistant, Design and Construction

RECOGNITIONS

- Chairman, Earthquake Engineering Committee, BIS, 2020 onwards
- Member, 2nd Advisory Committee, NDMA, 2016–present
- Best Teacher Award, IIT Hyderabad, 2009
- Distinguished Teacher Award, IIT Kanpur, 2008
- Fellow, INAE since 2006
- Editor-in-Chief, World Housing Encyclopedia, EERI, 2005–2009

Learning to Make Safe;
Making Safe to Serve;
Serving to Learn more…

RECENT PUBLICATIONS

Tamizharasi G., Prasad A. M., Murty C. V. R., "Lateral Torsional Seismic Behaviour of Plan Unsymmetric Buildings", *Earthquakes and Structures, Techno-Press, 20, (3) (2021), 239–260*

Kumar R. P., Srinagesh D., Seshunarayana T., Chadha R. K., Bodige N., Suresh G., Hima Chandan D., Murty C. V. R., "Vulnerability Assessment of a Heritage Structure subjected to Blast induced Ground Motions", *Current Science, Indian Academy of Sciences, Bangalore, 119(7), (2020)*

Zeneeb A. M., Goswami R.,Murty C. V. R., "Lateral Shear Strength of Rectangular RC Columns subjected to combined P-V-M Monotonic Loading", *Bulletin of the New Zealand Society of Earthquake Engineering, New Zealand National Society of Earthquake Engineering, Christchurch, NZ, 53(4), (2020), 227–241*

Vijayanarayanan A.R., Goswami R., Murty C.V.R., "Identifying Stiffness Irregularity in Buildings using Fundamental Lateral Mode Shape", *Earthquakes and Structures, 12(4), (2017), 437–448*

Sunitha P., Goswami R., Murty C.V.R., "Seismic behaviour of RC moment frame buildings designed and detailed as per First Revision of IS13920 - Draft Provisions", *The Indian Concrete Journal, 90(4), (2016), 64–71*

Sunitha P., Goswami R., Murty C.V.R., "Idealised bilinear moment-curvature curves of slender rectangular RC wall sections", *Journal of Seismology and Earthquake Engineering, 17(4), (2015), 223–231*

Dasgupta K., Murty C. V. R., "Improved geometric design of earthquake-resistant RC slender structural walls. I: Parametric study", *Journal of Engineering Mechanics, 140(5), (2014), 04014006.*

Dasgupta K., Murty C. V. R., "Improved geometric design of earthquake-resistant RC slender structural walls II: Design implications", *Journal of Engineering Mechanics, 140(5), (2014), 04014007.*

Malik J. N., Shishikura M., Echigo T., Ikeda Y., Satake K., Kayanne H., Sawai Y., Murty C. V. R., Dikshit, O., "Geologic evidence for two pre-2004 earthquakes during recent centuries near Port Blair, South Andaman Island, India", *Geology, 39(6), (2011), 559-562.*

B. N. RAO | PROFESSOR

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EDUCATION

- Ph. D., The University of Iowa, USA, 2002
- M. E., The Maharaja Sayajirao University of Baroda, 1994
- B. Tech., Jawaharlal Nehru Technological University, Hyderabad, 1992

EXPERIENCE

- Professor, IIT Madras, Jul 2013–present
- Asso. Professor, IIT Madras, 2009–2013
- Asst. Professor, IIT Madras, 2004–2009

RESEARCH INTERESTS

- Research interests include computational solid/facture mechanics, finite element analysis, meshless analysis, structural reliability, stochastic mechanics, fuzzy structural analysis, dimension reduction methods, Prefabricated Structures, Pre Engineered Buildings, Experimental & Numerical studies on Reinforced Concrete Structures and related fields

RECOGNITIONS

- DAAD German-Indian STAR for Study visit at TU Hamburg-Harburg, Germany, 2010
- Alexander von Humboldt Research fellowship, 2006
- Young Investigator Fellowship, 6th World Congress on Computational Mechanics, China, 2004 & 7th US National Congress on Computational Mechanics, Albuquerque, USA, 2003

RECENT PUBLICATIONS

Sagadevan R., Rao B. N., “Flexural Behaviour of Reinforced Concrete Biaxial Voided Square Slabs”; *ACI Structural Journal, 117(5), (2020), 3–14.*

Sagadevan R., Rao B. N., “Experimental and Analytical Study on Structural Performance of Polyurethane Foam-Filled Built-up Galvanized Iron Members”, *Thin-Walled Structures, 146, (2020),106446.*

Anilkumar P. M., A. Haldar, Eelco Jansen, Rao B. N., R. Rolfes, “Design Optimization of Multistable Variable-Stiffness Laminates”, *Mechanics of Advanced Materials and Structures, 26(1), (2019), 48–55.*

Krishnanunni C. G., Rao B. N., “Decoupled Technique for Dynamic Response of Vehicle-Pavement Systems”, *Engineering Structures, 191, (2019), 264–279.*

Sagadevan R., Rao B. N., “Experimental and Analytical Investigation of Punching Shear Capacity of Biaxial Voided Slabs”, *Structures, 20, (2019), 340–352.*

Shereena O. A., Rao B. N., “Combined Road Roughness and Vehicle Parameter Estimation Based on a Minimum Variance Unbiased Estimator”, *International Journal of Structural Stability and Dynamics, 20(1), (2019), 2050013.*

R. Suresh Kumar, Rao B. N., K. Velusamy, Jalaldeen S., “Relevance of Factor of Safety Based on Number of Cycles in the Prediction of Fatigue Crack Initiation as per A16 Sigma-D Approach”, *International Journal of Pressure Vessels and Piping, 175, (2019), 103924.*

Developing Innovative, Efficient, Robust, Reliable and Economical Solution Techniques for Structural Engineering Problems through Numerical & Experimental Studies.

NIKHIL BUGALIA | ASSISTANT PROFESSOR

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EDUCATION

- Ph. D., The University of Tokyo, Japan, 2020
- M. Engg., The Univ. of Tokyo, Japan, 2017
- B. Tech., IIT Kanpur, 2013

EXPERIENCE

- Asst. Professor, IIT Madras, 2021–present
- Visiting Professor, IIT Madras, 2020–2021
- Post Doc. Research Scholar, The University of Tokyo, Japan, 2020
- Research Associate, Asian Development Bank Institute, Japan, 2019–2020

RESEARCH INTERESTS

- Safety Management for construction and railway
- Public Private Partnerships
- Infrastructure Operations and Management
- System Dynamics
- Policy Formulation

RECOGNITIONS

- Twice Winner, MEXT Scholarship, Japanese Government, Japan
- Diploma from Global Leadership Program on Social Design and Management (GSDM), Utokyo
- Good Samaritan Team Player Award, Fractal Analysis, India, 2014
- Academic Excellence Award, Director of IIT Kanpur, 2012

RECENT PUBLICATIONS

Oo P., Bugalia N., Seetharam K. E., "Frontiers of Water-Related Disaster Management and the Way Forward", *(2020).*

Bugalia N., Yamamoto S., Kim C. J., "Revisiting the Public–Private Partnership for Rapid Progress on the Sanitation-Related Sustainable Development Goals", *(2020).*

Bugalia N., Maemura Y., Ozawa K., "Organizational and institutional factors affecting high-speed rail safety in Japan", *Safety science, 128, (2020), 104762.*

Bugalia N., Maemura Y., Ozawa K., "Safety Culture in High-Speed Railways and the Importance of Top Management Decisions", *(2019).*

Bugalia N., Maemura Y., Ozawa K., "Demand risk management of private High-Speed Rail operators: A review of experiences in Japan and Taiwan. Transport Policy", *(2019).*

Seetharam K. E., Hashimoto K., Bugalia N., "Institutional Mechanisms for Sustainable Sanitation: Learning from Successful Case Studies", *(2018).*

Bugalia N., Maekawa K., Time-Dependent Capacity of Large Scale Deep Beams under Sus-tained Loads, *Journal of Advanced Concrete Technology, 15(7), (2017), 314–327.*

Modern-day Civil Engineering systems such as Railways, Construction are complex, and require special attention for their safe functionality. We strive to learn about the interaction between various technical, human, organizational and regulatory factors for assuring the safety of these systems.

PHANISRI PRADEEP PRATAPA | ASSISTANT PROFESSOR

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EDUCATION

- Ph. D., Georgia Institute of Tech., USA, 2016
- M. S., The University of Texas, USA, 2011
- B. Tech., IIT Madras, 2010

EXPERIENCE

- Asst. Professor, IIT Madras, 2019–present
- Postdoctoral Fellow, Georgia Institute of Technology, USA, 2016–2018
- Associate Structural Engineer, McDermott Inc., Houston, USA, 2012–2013

RESEARCH INTERESTS

- Metamaterials
- Lattice structures
- Origami engineering
- Structural and Computational mechanics

RECENT PUBLICATIONS

K. Liu, T. Zegard, P. P. Pratapa, G. H. Paulino, “Unraveling tensegrity tessellations for metamaterials with tunable stiffness and bandgaps”, *Journal of Mechanics and Physics of Solids, 131, (2019), 147–166.*

P. P. Pratapa, K. Liu, G. H. Paulino, “Geometric mechanics of origami patterns exhibiting Poisson’s ratio switch by breaking mountain and valley assignment”, *Physical Review Letters, 122(15), (2019), 155501.*

P. P. Pratapa, P. Suryanarayana, G. H. Paulino, “Bloch wave frame-work for structures with nonlocal interactions: Application to the design of origami acoustic metamaterials”, *Journal of Mechanics and Physics of Solids, 118, (2018), 115–132.*

P. P. Pratapa, P. Suryanarayana, J. E. Pask, "Anderson acceleration of the Jacobi iterative method: An efficient alternative to Krylov methods for large, sparse linear systems", *Journal of Computational Physics 306, (2016), 43–54.*

P. P. Pratapa, P. Suryanarayana, “On numerically predicting the onset and mode of instability in atomistic systems”, *Mechanics Research Communications,78, (2016), 27–33.*

P. P. Pratapa, P. Suryanarayana, "Restarted Pulay mixing for efficient and robust acceleration of fixed-point iterations", *Chemical Physics Letters 635, (2015), 69–74.*

The overarching goal of my research is to understand and develop new types of materials and structural systems that will lead to technological advancement of our society in terms of efficient engineering, sustainable infrastructure and overall improved quality of life.

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EDUCATION

- Ph. D., University of Illinois, USA, 2015
- M. S., Clarkson University, USA, 2010
- B. Tech., National Institute of Technology, Warangal, 2007

EXPERIENCE

- Asst. Professor, IIT Madras, 2018–present
- Postdoc. Asso., Massachusetts Inst. of Tech., 2015–2018
- Graduate Engineer Trainee, GMR Group, 2007–2008

RESEARCH INTERESTS

- Sustainability and Durability of Infrastructure Materials

RECOGNITIONS

- Listed among Teachers Ranked as Excellent by their Students, University of Illinois, 2015
- Conference Travel Award, Graduate College, University of Illinois, 2014
- Chester P. Siess Award, Civil and Environmental Engineering, University of Illinois, 2013
- Ravindar K. and Kavita Kinra Fellowship, Civil and Environmental Engineering, University of Illinois, 2010–2012
- Merit Scholarship, NIT Warangal, 2004–2005

RECENT PUBLICATIONS

P. Chaunsali, S. Vaishnav Kumar, "Calcium Sulfoaluminate-Belite Cements: Opportunities and Challenges", *Indian Concrete Journal, 94(2), (2020).*

H. Uvegi, P. Chaunsali, B. Traynor, E. Olivetti, "Reactivity of industrial wastes as measured through ICP-OES: A case study on siliceous Indian biomass ash", *Journal of American Ceramic Society, 102(12),(2019), 7678–7688.*

P. Chaunsali, H. Uvegi, B. Traynor, E. Olivetti, "Leaching Characteristics of Biomass Ash-Based Binder in Neutral and Acidic Media", *Cement and Concrete Composites, 100, (2019), 92–98.*

P. Chaunsali, A. Ardeshirilajimi, P. Mondal, "On the Interaction of Fly Ash with Portland Cement-Calcium Sulfoaluminate Cement Binder", *Materials and Structures, 51(5), 2018, 1–9.*

P. Chaunsali, H. Uvegi, R. Osmundsen, M. Laracy, T. Poinot, J. Ochsendorf , E. Olivetti, "Mineralogical and Microstructural Characterization of Biomass Ash Binder", *Cement and Concrete Composites, 89, (2018), 41–51.*

A. Ardeshirilajimi, D. Wu, P. Chaunsali, P. Mondal, "Effects of Pre-Soaked Lightweight Aggregate on Deformation Properties of OPC-CSA Cement Blends", *ACI Materials Journal, 114(4), (2017), 643–652.*

P. Chaunsali, P. Mondal, "Physico-Chemical Interaction of Mineral Admixtures with an OPC-CSA cement System: Implication on Expansion", *Cement and Concrete Research, 80, (2016), 10–20.*

Interdisciplinary research will be the key to solving complex challenges.

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EDUCATION

- Ph. D., Texas A&M University, USA, 2009
- M. S., Texas A&M University, USA, 2009
- B. E., University of Allahabad, 1999

EXPERIENCE

- Asso. Professor, IIT Madras, 2017–present
- Asst. Professor, IIT Madras, 2010–2017
- Post-doctoral Scholar, Oregon State University, USA, 2009–2010

RESEARCH INTERESTS

- Construction materials and concrete technology
- Corrosion, its control, and service life estimation of concrete structures
- Maintenance/repair/protection of concrete structures
- Prestressed and precast concrete systems.
- Grouting of post-tensioned systems

RECOGNITIONS

- Excellence in Corrosion Science and Technology Award, NIGIS Corrosion Awareness Awards, 2019
- Excellent Public Sector Laboratory, NIGIS Corrosion Awareness Awards, 2019
- ICI Ultratech Award for Outstanding Young Concrete Engr, Indian Concrete Inst., 2016
- Former Students Association Scholarship, TAMU, Spring, 2009
- Richard Gehle Memorial Scholarship, Zachry Dept. of Civil Engg., TAMU, Fall, 2006

RECENT PUBLICATIONS

Naveen Krishnan, Deepak K. Kamde, Zameel D. Veedu, Radhakrishna G. Pillai, Dhruvesh Shah, Rajendran Velayudham, "Long-term performance and life-cycle-cost benefits of cathodic protection of concrete structures using galvanic anodes", *Journal of Building Engineering, (2021).*

Deepak K. Kamde, Radhakrishna G. Pillai, "Effect of sunlight/ultraviolet exposure on corrosion performance and service life of Fusion-Bonded-Epoxy (FBE) coated steel rebars", *Corrosion, NACE International, (2020).*

Dyana Joseline, Radhakrishna G. Pillai, "Enhancing service life of prestressed concrete structures by using fly ash and corrosion inhibitors", *Indian Concrete Journal, (2020).*

Sripriya Rengaraju, Anand Godara, Prasanth Alapati, Radhakrishna G Pillai, "Macrocell corrosion mechanisms of prestressing strands in various concretes", *Magazine of Concrete Research, Inst. of Civil Engrs., (ICE), UK, (2020).*

Sooraj Nair, Radhakrishna G Pillai, "Microstructural and corrosion characteristics of Quenched and Self-Tempered (QST) steel reinforcing bars", *Construction and Building Materials, Elsevier, (2020).*

Radhakrishna G Pillai, Ravindra Gettu, Manu Santhanam, Sripriya Rengaraju, Yuvaraj Dhandapani, Sundar Rathnarajan, Anusha S Basavaraj, "Service life and life cycle assessment of reinforced concrete systems with limestone calcined clay cement (LC3)", *Cement and Concrete Research, Elsevier, (2019).*

Sripriya Rengaraju, Lakshman Neelakantan, Radhakrishna G Pillai, "Investigation on the polarization resistance of steel embedded in highly resistive cementitious systems–An attempt and challenges", *Electrochimica Acta, Elsevier, (2019).*

My research focuses on developing technologies to estimate service life, combat steel corrosion and extend the service life of concrete structures.

RAGHUKANTH S. T. G. | PROFESSOR

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EDUCATION

- Ph. D., IISc., Bangalore, 2000
- M. Tech., Maulana Azad National Institute Of Technology, Bhopal, 2000
- B. Tech., Jawaharlal Nehru Technological University, Anantapur, 1998

EXPERIENCE

- Professor, IIT Madras, 2018–present
- Asso. Professor, IIT Madras, 2013–2018
- Asst. Professor, IIT Madras, 2008–2013

RESEARCH INTERESTS

- Natural Hazards and risk assessment
- Structural dynamics and earthquake engg
- Computational mechanics
- Design of steel structures
- Random vibrations

RECENT PUBLICATIONS

Dhabu A. C., Raghukanth S. T. G., "Translational and rotational ground motion simulations in homogeneous reduced micropolar half-space", *Journal of Seismology, (2021), 1-25.*

Sangeetha S., Dhanya J., Raghukanth S. T. G., "3D crustal velocity model for ground motion simulations in North-East India", *Journal of Earthquake Engineering, 25(3), (2021), 475-511.*

Mohanty R., Kumar P. S., Raghukanth S. T. G., Lakshmi K. J. P., "The Long-Lived and Recent Seismicity at the Lunar Orientale Basin: Evidence From Morphology and Formation Ages of Boulder Avalanches, Tectonics, and Seismic Ground Motion", *Journal of Geophysical Research: Planets, (2020).*

Dhanya J., Raghukanth S. T. G., "Implication of source models on tsunami wave simulations for 2004 (Mw 9.2) Sumatra earthquake", *Natural Hazards, 104(1), (2020), 279–304.*

Dhanya J., Raghukanth S. T. G., "Neural network-based hybrid ground motion prediction equations for Western Himalayas and North-Eastern India", *Acta Geophysica, (2020), 1–22.*

Dhanya J., Raghukanth S. T. G., "A non-stationary random field model for earthquake slip", *Journal of Seismology, (2020), 1–19.*

RAMAMURTHY K. | PROFESSOR

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EDUCATION

- Ph. D., IIT Madras, 1992
- M. S., IIT Madras, 1992
- B. Tech., Annamalai University, Chennai, 1981

EXPERIENCE

- Chair Professor, IIT Madras, 2020–present
- Professor, IIT Madras, 2004–2020
- Asso. Professor, IIT Madras, 2000–2004

RESEARCH INTERESTS

- Sustainable building technology
- Foam concrete and Aerated concrete
- Lightweight aggregates using industrial wastes
- High performance masonry

RECENT PUBLICATIONS

Subramaniam N., Ramamurthy K., "Effect of mode of delivery and background noise on speech characteristics of talkers in a classroom environment", *Building Acoustics, 27(2), (2020), 113–135.*

Shriram S., Ramamurthy K., "Assessment of CO_2-based demand controlled ventilation requirement for a flexible work environment with ductless split air conditioners", *Science and Technology for the Built Environment, 25(7), (2019), 805–818.*

Priyadharshini P., Ramamurthy K., Robinson R. G., "Influence of Temperature and Duration of Thermal Treatment on Properties of Excavated Soil as Fine Aggregate in Cement Mortar", *Journal of Materials in Civil Engineering, 31(8), (2019), 04019137.*

Shriram S., Ramamurthy K., Ramakrishnan S., "Effect of occupant-induced indoor CO2 concentration and bioeffluents on human physiology using a spirometric test", *Building and Environment, 149, (2019), 58–67.*

Priyadharshini P., Ramamurthy K., Robinson R. G., "Reuse potential of stabilized excavation soil as fine aggregate in cement mortar", *Construction and Building Materials, 192, (2018), 141–152.*

Priyadharshini P., Ramamurthy K., Robinson R. G., "Sustainable reuse of excavation soil in cementitious composites", *Journal of Cleaner Production, 176, (2018), 999–1011.*

Kumar E. M., Ramamurthy K., "Influence of production on the strength, density and water absorption of aerated geopolymer paste and mortar using Class F fly ash", *Construction and Building Materials, 156, (2017), 1137–1149.*

Priyadharshini P., Ramamurthy K., Robinson R. G., "Excavated soil waste as fine aggregate in fly ash based geopolymer mortar", *Applied Clay Science, 146, (2017), 81-91.*

Anju T. R., Ramamurthy K., Dhamodharan R., "Surface modified microcrystalline cellulose from cotton as a potential mineral admixture in cement mortar composite", *Cement and Concrete Composites, 74, (2016), 147-153.*

RAMESH KANNAN KANDASAMI | ASSISTANT PROFESSOR

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EDUCATION

- Ph. D., IISc., Bangalore, 2016
- M. Tech., IIT Delhi, 2010
- B. E., Anna University, Chennai, 2007

EXPERIENCE

- Asst. Professor, IIT Madras, 2019–present
- Research Associate, University of Cambridge, 2017–2019
- Senior Research Associate, IISc Bangalore, 2016–2017

RESEARCH INTERESTS

- Constitutive behaviour of transitional geo-materials at multiple length scales
- Hydraulic fracturing and wellbore strengthening
- Bio-mediated geotechnics

RECOGNITIONS

- Received international travel grants from CSIR, DST, GARP & IISc
- Media coverage for the work on 'Termite engineered geo-materials' based on the paper published in Environmental Geotechnics

RECENT PUBLICATIONS

Kandasami R. K., Singh S., Murthy T. G., "Experimental Investigations of the Stress Path Dependence of Weakly Cemented Sand", *Journal of Geotechnical and Geoenvironmental Engineering, 147(4), (2021), 04021007*.

Kandasami R. K., Murthy T. G., "Manifestation of particle morphology on the mechanical behaviour of granular ensembles", *Granular Matter, 19(21), (2017), 1–13.*

Kandasami R. K., Borges R. M., Murthy T. G., "Engineering properties of biocemented termite mounds", *Environmental Geotechnics, 3(2), (2016), 99–113.*

Kandasami R. K., Murthy T. G., "Experimental studies on the influence of intermediate principal stress and inclination on the mechanical behaviour of angular sands", *Granular Matter, 17(2), (2015), 217–230.*

Bhargav S. D. B., Kandasami R. K., Murthy T. G., Ananthasuresh G. K., "Design of a portable compliant device for estimating the failure-load of meso-scale cemented sand specimens", *Journal of Mechanical Design, ASME, 137(6), (2015), 1–8.*

Kandasami R. K., Murthy T. G., "Effect of intermediate principal stress on the mechanical behaviour of angular sand", *Soil Behavior and Geomechanics, ASCE GSP, 236, (2014), 406–415. ed: Zhang X., Chu J., and Bulut R.*

Kandasami R. K., Murthy T. G., "Effect of particle shape on the mechanical response of a granular ensemble", *Geomechanics from Micro to Macro, 2, (2014), 1093–1098.*

"Unearthing the mystery of mechanics of geomaterials will be the focus of my research group. A particle to continuum level fundamental understanding through experimental and numerical tools will cater to better engineer intricate geo-systems."

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EDUCATION

- Ph. D., Northwestern University, USA, 1992
- M. S., Marquette University, USA, 1986
- B. E. (Hons.), University of Madras, 1984

EXPERIENCE

- Dean, IC&SR, IIT Madras, 2018–present
- V.S. Raju Chair Professor, IIT Madras 2018–present
- Professor, IIT Madras, 2004–2018

RESEARCH INTERESTS

- Fibre & Textile Reinforced Concrete
- Sustainability Assessment
- Effective Use of Admixtures
- Failure Characterization
- Technology Implementation

RECOGNITIONS

- Elected Foreign Member of the Russian Academy of Engineering, 2019
- Elected Fellow of the Indian National Academy of Engineering, 2018
- Co-honoree at the Gettu-Kodur Symposium, on Advances in Science & Technology of Concrete, India Chapter of the American Concrete Institute, 2018
- Honorary Chairman, International RILEM Workshop, Valencia, Spain, 2016 Honoured for outstanding contributions at the Third Intl. Conf. on Sustainable

RECENT PUBLICATIONS

S. J. Stephen, R. Gettu, "Fatigue Fracture of Fibre Reinforced Concrete in Flexure", *Mater. Struct., 53(56), (2020), DOI: 10.1617/s11527-020-01488-7.*

S. K. Nayar, R. Gettu, "Mechanistic–Empirical Design of Fibre Reinforced Concrete (FRC) Pavements Using Inelastic Analysis", *Sādhana, 45(19), (2020), DOI: 10.1007/s12046-019-1255-1.*

S. J. Stephen, R. Gettu, "Rate-Dependence of the Tensile Behaviour of Fibre Reinforced Concrete in the Quasi-Static Regime", *Materials and Structures, 52(107), (2019), DOI: 10.1617/s11527-019-1405-2. (with Supplementary Material published online).*

Q. H. Vu, G. Pham, A. Chonier, E. Brouard, S. Rathnarajan, R. Pillai, R. Gettu, M. Santhanam, F. Aguayo, K. J. Folliard, M. D. Thomas, T. Moffat, C. Shi, A. Sarnot, "Impact of Different Climates on the Resistance of Concrete to Natural Carbonation", *Construction and Building Materials, 216, (2019), 450-467.*

R. Gettu, A. Patel, V. Rathi, S. Prakasan, A. S. Basavaraj, S. Palaniappan, S. Maity, "Influence of Supplementary Cementitious Materials on the Sustainability Parameters of Cements and Concretes in the Indian Context", *Materials and Structures, 52(10), (2019), DOI: 10.1617/s11527-019-1321-5.*

R. G. Pillai, R. Gettu, M. Santhanam, S. Rengaraju, Y. Dhandapani, S. Rathnarajan, A. S. Basavaraj, "Service Life and Life Cycle Assessment of Reinforced Concrete Systems with Limestone Calcined Clay Cement (LC3)", *Cement and Concrete Research, 118, (2019), 111-119, DOI: 10.1016/j.cemconres.2018.11.019.*

S. J. Stephen, B. Raphael, R. Gettu, S. Jose, "Determination of the Tensile Constitutive Relations of Fiber Reinforced Concrete Using Inverse Analysis", *Construction and Building Materials, 195, (2019), 405-414, DOI: 10.1016/j.conbuildmat.2018.11.014.*

Striving to make the world a better place through knowledge and experience.

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EDUCATION

- Ph. D., IISc., Bangalore, 1998
- M. S., IISc., Bangalore, 1992
- B. E., Madurai Kamaraj University, 1988

EXPERIENCE

- Professor, IIT Madras, 2013–present
- Asso. Professor, IIT Madras, 2009–2013
- Asst. Professor, IIT Madras, 2004–2009

RESEARCH INTERESTS

- Soil characterisation
- Ground improvement
- Soft clay engineering
- Physical modelling

RECOGNITIONS

- “EBM of the year 2017" for contribution to the Indian Geotechnical Journal, 2017
- The IGS-Warrangal Chapter Biannual Prize for the Best paper on “Solutions to the Problems of Expansive Soils”, 2014–2015
- IGS-AIMIL Biannual Prize for the best paper published in the Indian Geotechnical Journal, 2014–2015
  IGS – Mr. H.C. Verma Diamond Jubilee
- Award for Innovative Instrument Design, 2015–2016
  IGS – Mr. H.C. Verma Diamond Jubilee
- Award for Innovative Instrument Design, 2013–2014

RECENT PUBLICATIONS

Raheena M., Robinson R. G., "End-of-Primary Consolidation Parameters Using Inflection Point Method", *Geotechnique, (2020), (In Print).*

Azneb A. S, Banerjee S., Robinson R. G., "Shear Strength of Cement Treated Marine Clay Under Triaxial And Plane Strain Conditions", *Ground Improvement, (2020), (In print).*

Kumar A. T., Robinson R. G., Thyagaraj T., "Distress of an industrial building constructed on an expansive soil - A case study", *Forensic Engineering, ICE, London, 171(3), (2019), 121–126.*

Mishra S., Robinson R. G., "Laboratory Investigation on Quasi-Static Penetration Testing Using SPT Sampler in Soft Clay Bed", *Geotechnical Testing Journal, ASTM, 42(4), (2019), 985–1005.*

Raheena M., Sridhar G., Robinson R. G., "Simplified Apparatus for CRS Consolidation Testing of Soils", *Geotechnical Testing Journal, ASTM, 42(3), (2019), 817–828.*

Nagula S. S., Robinson R.G., Krishnan J. M., "Mechanical characterization of pavement granular materials using hardening soil model", *International Journal of Geomechanics, ASCE, 18(12), (2018), 04018157.*

Gangaputhiran S., Robinson R.G., Karpurapu R., "Horizontal coefficient of consolidation from inward- and outward-flow tests", *Proceedings of the Institution of Civil Engineers: Ground Improvement, 171(3), (2018), 159–166.*

RUPEN GOSWAMI | ASSOCIATE PROFESSOR

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EDUCATION

- Ph. D., IIT Kanpur, 2008
- M. Tech., IIT Kanpur
- B. E., Jadavpur University

EXPERIENCE

- Asso. Professor, IIT Madras, 2017–present
- Asst. Professor, IIT Madras, 2008–2017
- Structural Design Engr., M/s Development Consultants Pvt. Ltd., Calcutta, 1999–2000

RESEARCH INTERESTS

- Earthquake Resistant Design of Structures
- Nonlinear Response of Structures

RECOGNITIONS

- Member, Sectional Committee on Earthquake Engineering, Bureau of Indian Standards, Since 2014
- ACCE(I)–NAGADI Award for Best Publication (Book) in Civil Engineering for the book titled Some Concepts in Earthquake Behaviour of Buildings by Association of Consulting Civil Engineers (India), 2016
- ICI Best Paper Award, 2016

RECENT PUBLICATIONS

Saravanan M., Goswami R., Palani G.S., “Energy dissipative beam-column connection for earthquake resistant moment frames”, *Journal of Constructional Steel Research, 176, (2021), 106428.*

Zeneeb A. M., Goswami R., Murty C. V. R., “Lateral Shear Strength of RC Members Subjected to Combined P-V-M Loading”, *The Bulletin, NZSEE, 53(4), (2020), 227-241.*

Joseph T. J., Goswami R., “An Analytical Model of Anchor Bolted Column-Baseplate Connections in Steel Moment Frame Buildings”, *Proceedings of the 17th World Conference on Earthquake Engineering, Sendai, Japan, Paper ID 2C-0222, (2020).*

Vijayanarayanan A. R., Goswami R., “Floor Acceleration Spectrum for RC Moment Frame Buildings on Slopes”, *Proceedings of the 17th World Conference on Earthquake Engineering, Sendai, Japan, Paper ID 2B-0138, (2020).*

Sunitha P., Murty C. V. R., Goswami R., "Idealized bilinear moment-curvature curves of slender rectangular RC wall sections", *Journal of Seismology and Earthquake Engineering, 17(4), (2020), 223-231.*

Joju J., Goswami R., “Behaviour of Steel Special Moment Resisting Frame Buildings designed using current Indian Code”, *Journal of Structural Engineering, SERC Madras, 47(1), (2019), 36-54.*

Saravanan M., Goswami R., Palani G., “Replaceable Fuses in Earthquake Resistant Steel Structures: A Review”, *International Journal of Steel Structures, 18(3), (2018), 868–879.*

Deshmukh A. B., Goswami R., “Use of Walls in Controlling Detrimental Effects of Stiffness Irregularity in RC Buildings on Hills Slopes”, *The Indian Concrete Journal, The ACC Limited, Thane, 92(6), (2018), 19–30.*

Vijayanarayanan A. R., Goswami R., Murty C. V. R., "Identifying stiffness irregularity in buildings using fundamental lateral mode shape", *Earthquakes and Structures, 12(4), (2017), 437-448.*

Passion in teaching and patience in research is required to develop earthquake resistant built environment in the country.

SACHIN S. GUNTHE | ASSOCIATE PROFESSOR

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EDUCATION

- Ph. D., Indian Inst. of Tropical Meteorology, Pune, 2006
- M. S., IISc., Bengaluru, 2001

EXPERIENCE

- Asso. Professor, IIT Madras, 2016–present
- Asst. Professor, IIT Madras, 2011–2016
- Visiting Scholar, Harvard Univ., USA, 2015

RESEARCH INTERESTS

- Atmospheric Chemistry and Physics
- Aerosol-cloud-precipitation interactions
- Effect of increasing anthropogenic aerosols on Indian summer monsoon
- Characterizing properties of atmospheric aerosols

RECOGNITIONS

- Associate at SEAS, Harvard University, 2021

RECENT PUBLICATIONS

Kalpana B., Prabhu P., Bhat A. H., Senthilkumar A., Arun R. P. Asokan, S., Verma R. S., "Bacterial diversity and functional analysis of severe early childhood caries and recurrence in India", *Scientific Reports, 10(1), (2020), 21248–21248.*

Ojha N., Sharma A., Kumar M., Girach I., Ansari T. U., Sharma S. K., Gunthe S. S., "On the widespread enhancement in fine particulate matter across the Indo-Gangetic Plain towards winter", *Scientific reports, 10(1), (2020), 1–9.*

Gunthe S. S., Patra, S. S., "Impact of international travel dynamics on domestic spread of 2019-nCoV in India: origin-based risk assessment in importation of infected travelers", *Globalization and Health, 16, (2020), 1–7.*

Yadav S., Gettu N., Swain B., Kumari K., Ojha N., Gunthe S. S., "Bioaerosol impact on crop health over India due to emerging fungal diseases (EFDs): an important missing link", *Environmental Science and Pollution Research, (2020), 1–28.*

Sharma A., Ojha N., Ansari T. U., Sharma S. K., Pozzer A., Gunthe S. S., "Effects of dry deposition on surface ozone over South Asia inferred from a regional chemical transport model", *ACS Earth and Space Chemistry, 4(2), (2020), 321–327.*

Krishnamoorthy S., Swain B., Verma R. S., Gunthe S. S., "SARS-CoV, MERS-CoV, and 2019-nCoV viruses: an overview of origin, evolution, and genetic variations", *Virus Disease, (2020), 1–13.*

SARAVANAN U. | PROFESSOR

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saran@iitm.ac.in

EDUCATION

- Ph. D., Texas A&M University, USA, 2005
- M. Tech., Texas A&M University, 2001
- B. Tech., IIT Madras, 1999

EXPERIENCE

- Professor, IIT Madras, 2018–present
- Asso. Professor, IIT Madras, 2013–2018
- Asst. Professor, IIT Madras, 2006–2013

RESEARCH INTERESTS

- Condition Monitoring
- Constitutive theory
- Continuum Mechanics
- Nonlinear analysis

RECOGNITIONS

- Mathematics research impact centric award, Science and Engineering Research Board, 2018
- Young Faculty Recognition Award, IIT Madras, 2017
- L&T Endowment Award for best outgoing student in Civil Engineering, IIT Madras, 1999

RECENT PUBLICATIONS

Saravanan U., Rajagopal K. R., Tom R. M., Bharadwaj K., "A model for a solid undergoing rate-independent dissipative mechanical processes", *Mathematics and mechanics of solids, 26(2), (2021), 230–243.*

Gokulnath C., Saravanan U., "Modeling the non-dissipative response of vulcanized unfilled rubber", *International Journal of Engineering Sciences, 148, (2020), 103224.*

Ananthapadmanabhan S., Saravanan U., "Numerical techniques for solving truss problems involving viscoelastic materials", *International Journal of Non-Linear Mechanics, 122, (2020), 103479.*

Shariff M., Saravanan U., Menon D., "Time-Dependent Strains in Axially Loaded Reinforced Concrete Columns, *Journal of Engineering Mechanics, 146(8), (2020).*

Deepthi T. M., Saravanan U., Meher Prasad A., "Algorithms to Determine Wheel Loads and Speed of Trains using Strains Measured on Bridge Girders", *Structural Control and Health Monitoring, 26(1), (2019), 1–26.*

Pitchai P., Saravanan U., Goswami R., "Mechanics-based algorithms to determine the current state of a bridge using quasi-static loading and strain measurement", *Structural Health Monitoring, 18, (2019), 1874–1888.*

Gokulnath C., Varaprasad Dara, Saravanan U., "A three dimensional constitutive model for plain cement concrete", *Construction and Building Materials, 203, (2019), 456–468.*

Vivek P. V., Saravanan U., "Large deformation axial element for implicit constitutive relations", *International Journal of Non-Linear Mechanics, 110, (2019), 9-15.*

Gouder C., Saravanan U., "Modeling diffusion and reaction of sulfates with cement concrete using mixture theory" *Acta Mechanica, 229(3), (2018), 1353-1385.*

Deepa S., Saravanan U., Murali Krishnan J., "On measurement of dynamic modulus for bituminous mixtures", International Journal of Pavement Engineering, 20(9), (2019), 1073-1089.

Next generation constitutive models and analysis algorithms for safer and economical design.

SATYANARAYANA K. N. | PROFESSOR

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EDUCATION

- Ph.D, Clemson University, USA, 1991
- M.S, Clemson University, USA, 1986
- B.Tech, IIT, Madras, 1984

EXPERIENCE

- Director, IIT Tirupati, 2017–present
- Professor, IIT Madras, 2004–present
- Advisor-Alumni Affairs, IIT Madras, 2004-2009
- Chairman-Engineering Unit, IIT Madras, 2010-2013
- Chairman of the Academic Advisory Group, Project Management Institute (PMI) India
- Vice-Chairman, Board of Advisors of The Glass Academy
- Expert Member on the Board of Management of Building Materials & Promotion Council (BMTPC)

RESEARCH INTERESTS

- Construction Project Management
- Quality Management
- Construction Methods and Equipment
- Construction Contracts
- Public Private Partnerships

RECOGNITIONS

- PMI (India) Distinguished Scholar Award, 2011

RECENT PUBLICATIONS

Loganathan S., Forsythe P., Kalidindi S. N., "Work practices of onsite construction crews and their influence on productivity", *Construction economics and building, 18(3), (2018), 18.*

Vilventhan A., Kalidindi S. N., "Utility relocation management in highway projects", *Built Environment Project and Asset Management, (2018).*

Roy D., Kalidindi S. N., "Critical challenges in management of heritage conservation projects in India", *Journal of Cultural Heritage Management and Sustainable Development, (2017).*

Kumaraswamy M., Mahesh G., Mahalingam A., Loganathan S., Kalidindi S. N., "Developing a clients' charter and construction project KPIs to direct and drive industry improvements", *Built Environment Project and Asset Management, (2017).*

Ram V. G., Kalidindi S. N., "Estimation of construction and demolition waste using waste generation rates in Chennai, India", Waste Management & Research, 35(6), (2017), 610-617.

Loganathan S., Srinath P., Kumaraswamy M., Kalidindi S., Varghese K., "Identifying and addressing critical issues in the Indian construction industry: Perspectives of large building construction clients", *Journal of Construction in Developing Countries, 22, (2017), 121-144.*

Sherfudeen A. P., Kumar N., Raghavan N., Pillai R. G., Kalidindi S. N., "Promoting precast concrete for affordable housing–An overview on promotional policies worldwide and challenges and possibilities in India", *Indian Concrete Journal, 90(5), (2016), 13-25.*

SATISH KUMAR S. R. | PROFESSOR

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EDUCATION

- Ph. D., Nagoya University, Japan, 1996
- M. Tech., IIT Bombay, 1992

EXPERIENCE

- Professor, IIT Madras, 2010–present
- Asso. Professor, IIT Madras, 2007–2010
- Asst. Professor, IIT Madras, 1998–2007

RESEARCH INTERESTS

- Design of Steel Structures (Hot-rolled, Cold-formed and Steel-concrete composite construction)
- Earthquake Resistant Design
- Seismic testing

RECOGNITIONS

- Honorable Jury Member for INSDAG Professional Award on Steel Construction

RECENT PUBLICATIONS

Senthilkumar R., Satish Kumar S. R., "Seismic performance of semi-rigid steel-concrete composite frames", *Structures, 24, (2020), 526–541, Elsevier.*

Vishwajit Anand, Satish Kumar S. R., "Seismic soil-structure interaction: A state-of-the-art review", *Structures 16, (2018), 317–326, Elsevier.*

Marimuthu V, Palani G. S., Satish Kumar S. R., "Strength and Stiffness Characteristics of Self-drilling Screw Lap Joints", *Journal of Strutural Engineering, SERC, 44(2), (2017), 63–69.*

Senthilkumar R., Satish Kumar S. R., "Design of semi-rigid steel-concrete composite frames for seismic performance", *Journal of Structural Engineering SERC, 44(2), (2016), 136–147.*

Satish Kumar S. R., "Lessons from failures in India", *Forensic Engineering, ICE Publishing, Paper No. 1600019, (2016), UK.*

Satish Kumar S. R., "Structural Design of Tall Buildings in India, The Bridge & Structural Engineer", *Journal of the ING of IABSE, 46(3), (2016), 28–35.*

Satish Kumar S. R., Smitha M. S, "Steel–concrete composite flange plate connections: Cyclic performance and tests", *J. of Construct. Steel Research, Elsevier, 82, (2013), 216–222.*

Smitha M. S., Satish Kumar S. R., "Steel-concrete composite flange plate connections - Finite element modeling and parametric studies", *J. of Construct. Steel Research, Elsevier, 82, (2013), 164–176.*

Researchers explore theoretical possibilities, Engineers explore practical feasibilities, I explore both !

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EDUCATION

- Ph. D., IIT Delhi, Delhi, 2003
- M. Tech., University of Mysore, 1998
- B. E., University of Mysore, 1995

EXPERIENCE

- Professor, IIT Madras, 2018–present
- Asso. Professor, IIT Madras, 2013–2018
- Asst. Professor, IIT Madras, 2006–2013

RESEARCH INTERESTS

- Urban Air Quality Management- Monitoring, Source Apportionment, Modelling, Control and Policy
- Real World Exhaust Emission Monitoring, Modelling and Control
- Sensors for Hotspot Air Pollution Monitoring
- Personal Exposure and Health Impact
- Ambient and Source Emission Control Technologies
- Indoor Air Quality Monitoring, Modelling and Control
- Machine Learning Techniques for Air Quality Classification and Prediction

RECOGNITIONS

- Shri J C Bose Patent Award, IITM for the Design of a compact, portable & smart air purifier, 2018
- Rekha Nandi & Bhupesh Nandi Prize, The Institution of Engineers (India) for best paper VP, Society for Indoor Environment, 2014

RECENT PUBLICATIONS

Shiva Nagendra S. M., Uwe Schlink, Andrea Müller, Mukesh Khare, "Urban air quality monitoring, modelling and human exposure assessment", *Springer. (2020), ISBN 978-981-15-5511-4/ ISBN 978-981-15-5510-7.*

V. Dheeraj Alshetty, Sudheer Kumar Kuppili, S. M. Shiva Nagendra, Gitakrishnan Ramadurai, Virendra Sethi, Rakesh Kumar, Niraj Sharma, Anil Namdeo, Margaret Bell, Paul Goodman, Tim Chatterton, Jo Barnes, Laura De Vito, James Longhurst., "Characteristics of tail pipe (Nitric oxide) and resuspended dust emissions from urban roads–A case study in Delhi city", *Journal of Transport & Health, (2020), 100653.*

Peter A. E., Shiva Nagendra S. M., Nambi I. M., "Environmental burden by an open dumpsite in urban India", *Waste Management, 85, (2019), 151–163.*

Deepthi Y., Shiva Nagendra S. M., Gummadi S. N., "Characteristics of indoor air pollution and estimation of respiratory dosage under varied fuel-type and kitchen-type in the rural areas of Telangana state in India", *Science of the Total Environment, 650, (2019), 616–625.*

Maji K. J., Ye W. F., Arora M., Shiva Nagendra S. M., "PM2. 5-related health and economic loss assessment for 338 Chinese cities", *Environment International, 121, (2018), 392–403.*

Menon J. S., Shiva Nagendra S. M., "Statistical distribution and particle dosimetry models to estimate personal exposure at urban sidewalks of tropical climate", *Sustainable cities and society, 40, (2018), 254–265.*

Mukesh Khare, Shiva Nagendra S. M., "Artificial neural networks in vehicular pollution modelling", *Springer-Verlag, Germany, SCI-41, (2007), ISBN-10: 3-540-37417-5 / ISBN-13: 978-3-540-37417-6.*

Air pollution in indoor and outdoor environments pose a significant threat to human health and quality of life. Our goal is to nurture young researcher to develop smart technologies and innovative solutions to manage hotspots air quality.

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EDUCATION

- Ph. D., Arizona State University, 2009
- M. S., IIT Madras, 2002
- B. E., Madurai Kamaraj University, 1997

EXPERIENCE

- Asso. Professor, IIT Madras, 2019–present
- Asst. Professor, IIT Madras, 2010–2019
- Senior Systems Engineer, Wipro Technologies, Bangalore, 2001–2004

RESEARCH INTERESTS

- Embodied energy assessment of construction materials and buildings
- Sustainability indicators of on-site construction processes
- Green building ratings & Techno-economic feasibility studies
- Construction Project Planning, Scheduling and Control

RECOGNITIONS

- Representing India at the IEA Annex 72 committee on life cycle impacts of buildings
- Built Environment Project and Asset Management (BEPAM) Highly Commended Paper Award, 2018
- Best Academic Performance Award, Bachelor of Civil Engineering
- Best Presentation Award, REAS Symposium, Arizona State University, 2016

RECENT PUBLICATIONS

S. Prakasan, S. Palaniappan, R. Gettu, “Study of Energy Use and CO_2 Emissions in the Manufacturing of Clinker and Cement”, *Journal of The Institution of Engineers (India), Series A, 101(1), (2020), 221–232.*

L. Pinky Devi, Sivakumar Palaniappan, “Life cycle energy analysis of a low-cost house in India”, *International Journal of Construction Education and Research, 15(4), (2019), 256–275.*

Narayanan S., Kure A.M., Palaniappan S, “Study on Time and Cost Overruns in Mega Infrastructure Projects in India”, *Journal of The Institution of Engineers (India), Series A, 100, (2019), 139–145.*

Rethnam O., Palaniappan S., Ashokkumar V., “Life cycle cost analysis of 1MW power generation using roof-top solar PV panels”, *Built Environment Project and Asset Management, 10(1), (2019), 124–139.*

C.R. Subhash Varma, Sivakumar Palaniappan, “Comparision of green building rating schemes used in North America, Europe and Asia”, *Habitat International, 89, (2019), 101989.*

L. Pinky Devi, Sivakumar Palaniappan, “A study on energy use for excavation and transport of soil during building construction”, *Journal of Cleaner Production, 164, (2017) , 543–556.*

L. Pinky Devi, Sivakumar Palaniappan, “A case study on life cycle energy use of residential building in Southern India”, *Energy and Buildings, 80, (2014), 247–259.*

“Towards education of next generation civil engineering professionals on project management and sustainable construction, and facilitating improved understanding of sustainability indicators of built environment through development of scientific tools and methodologies.”

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EDUCATION

- Ph. D., Virginia Polytechnic Institute and State University (Virginia Tech), USA, 1991
- M. Tech., IIT Madras, 1984
- B. Sc. (Engg.), College of Engineering, Kerala University, 1981

EXPERIENCE

- Professor, IIT Madras, 2006–present
- Asso. Professor, IIT Madras, 1997–2006
- Asst. Professor, Civil Engg. Dept & Asst. Director of Research, University Center for Transportation Research, Virginia Tech., USA, 1994–1997

RESEARCH INTERESTS

- Intelligent Transportation Systems (ITS)
- Traffic Operations and Modeling
- Congestion Management
- Simulation of Mixed Traffic Flow
- Optimization Applications to Transportation Problems

RECOGNITIONS

- Best paper awards, Conferences, Co-author, 2020, 2017, 2014
- Invited Member, Confederation of Indian Industries, Southern Region's Smart City Task Force, 2018–2019
- Invitee, Intelligent Transportation Systems, Working Group on Capacity Building and Awareness, NITI Aayog, Govt. of India, 2018

RECENT PUBLICATIONS

Madhu K. Sivanandan R., Srinivasan K.K., "Identification of Different Vehicle-following Manoeuvres for Heterogeneous Weak-lane Disciplined Traffic Condition from Vehicle Trajectory Data", *IOP Conference Series Earth and Environmental Science, 491(1), (2020), 012052.*

Kumar S. V., Sivanandan R., "Traffic Congestion Quantification for Urban Heterogeneous Traffic Using Public Transit Buses as Probes", *Periodica Polytechnica Transportation Engineering, 47(4), (2019), 257–267.*

Anusree Anand P., Priyanka Atmakuri, Viswa Sri Rupa Anne, Gowri Asaithambi, Karthik K. Srinivasan, R. Sivanandan, Bhargava Rama Chilukuri, "Calibration of Vehicle-Following Model Parameters Using Mixed Traffic Trajectory", *Transportation in Developing Economies, 5(18), (2019), Springer Nature Switzerland AG 2019 (Based on CTRG Conference paper conferred Best paper award).*

Gowri Asaithambi, Venkatesan Kanagaraj, Karthik K. Srinivasan, Sivanandan R., "Study of Traffic Flow Characteristics using Different Vehicle-Following Models under Mixed Traffic Conditions", *Transportation Letters: The International Journal of Transportation Research (Taylor and Francis), 10(2), (2018), 92–103.*

Balakrishnan S., Sivanandan R., "Developing Free-Flow Speed Models for Urban Roads under Heterogeneous Traffic Conditions", *International Journal of Traffic and Transport Engineering, 7(4), (2017), 443–460.*

Jaikumar R., Shiva Nagendra S.M., Sivanandan R., "Modeling of Real Time Exhaust Emissions of Passenger Cars under Heterogeneous Traffic Conditions", *Atmospheric Pollution Research, 8(1), (2017), 80–88.*

I have always believed in applying my domain expertise to address societal needs. This was made possible through my involvement in various expert committee memberships, both at state and national levels, thanks partly to our Centre of Excellence in Urban Transport and major sponsored research projects, which served as channels for me to contribute.

SOUMENDRA NATH KUIRY | ASSISTANT PROFESSOR

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EDUCATION

- Ph. D., IIT Kharagpur, 2007
- M. Tech., IIT Kharagpur, 2001
- B. E., Jalpaiguri Govt. Engineering College, West Bengal, 1999

EXPERIENCE

- Asst. Professor, IIT Madras, 2012–present
- Research Scientist, NCCHE, The University of Mississippi, USA, 2009–2012
- Post-doctoral Fellow, NCCHE, The University of Mississippi, USA, 2007–2009

RESEARCH INTERESTS

- Modelling of urban flooding, flash flooding, dam-break and levee-breach flooding
- Modelling of river flow, tidal wave propagation, dam break flow, coastal and estuarine flow.
- Modelling of pipe flow and surge propagation
- Modelling of hurricane and tsunami wave propagation
- Modelling of sediment transport in rivers and coasts
- Experimental study on river-network flow and river-bank protection

RECOGNITIONS

- Recipient of the Outstanding Performance Award, NCCHE, The University of Mississippi, USA, 2010

RECENT PUBLICATIONS

Nithila Devi N., Sridharan B., Bindhu V. M., Narasimhan, Murty B. S., Bhatt C. M., Usha T., Vasan D. T., Kuiry S. N., "Investigation of Role of Retention Storage in Tanks (Small Water Bodies) on Future Urban Flooding: A Case Study of Chennai City, India", *Water, 12(10), (2020), 2875, 1–30.*

Sridharan B., Gurivindapalli D., Kuiry S. N., Mali V. K., Nithila Devi N., Bates P. D., Sen D., "Explicit Expression of Weighting Factor for Improved Estimation of Numerical Flux in Local Inertial Models", *Water Resources Research, 56(7), (2020).*

Mali V. K., Veeranna B., Parik A., Kuiry S. N., "Experimental and numerical study of flood dynamics in a river-network-floodplain set-up", *Journal of Hydroinformatics, 22(4), (2020), 793–814.*

Mali V. K., Kuiry S. N., "Experimental and numerical study of flood in a river-network-floodplain set-up", *Journal of Hydraulic Research, (2019), 1–19.*

Nithila Devi N., Sridharan B., Kuiry S. N., "Impact of urban sprawl on future flooding in Chennai city, India", *Journal of Hydrology, 574, (2019), 486–496.*

Mali V. K., Kuiry S. N., "Assessing the accuracy of high-resolution topographic data generated using freely available packages based on SfM-MVS approach", *Measurement, 124, (2018), 338–350.*

Kuiry S. N., Ding Y., "A hybrid finite-volume/finite-difference-based one-dimensional Boussinesq model for waves attenuated by vegetation", *Journal of Ocean Engineering and Marine Energy, 2, (2016), 19–34.*

Ding Y., Kuiry S. N., Elgohry M., Jia Y., Altinakar M. S., Yeh K. C., "Impact assessment of sea-level rise and hazardous storms on coasts and estuaries using integrated processes model", *Ocean Engineering, 71, (2013), 74-95.*

Kuiry S. N., Sen D., Ding Y., "A high-resolution shallow water model using unstructured quadrilateral grids", *Computers & fluids, 68, (2012), 16-28.*

SRINIVASAN K. | PROFESSOR

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EDUCATION

- Ph. D., IIT Madras, Chennai, 1985
- M. Tech., IIT Madras, 1979
- B. Tech., Regional Engineering College, Warangal, 1977

EXPERIENCE

- Professor, IIT Madras, 2000–present
- Asso. Professor, IIT Madras, 1996–2000
- Asst. Professor, IIT Madras, 1991–1996

RESEARCH INTERESTS

- Stochastic Modeling of Hydrologic Processes
- Optimal Operation of Multi-purpose Multi Reservoir Systems
- Performance based Design & Rehabilitation of Water Distribution System
- Dynamic Flood Control Operation of Multiple River-Reservoir Systems
- Regionalization of Hydrologic Information
- Risk based Design of Water Resources Systems

RECENT PUBLICATIONS

Chithra A., Fozin T. F., Srinivasan K., Kengne E. M., Kouanou A. T., Mohamed I. R., "Complex Dynamics in a Memristive Diode Bridge-Based MLC Circuit: Coexisting Attractors and Double-Transient Chaos", *International Journal of Bifurcation and Chaos, 31(03), (2021), 2150049.*

Leutcho G. D., Kengne J., Fonzin Fozin T., Srinivasan K., Njitacke Tabekoueng Z., Jafari S., Borda M., "Multistability Control of Space Magnetization in Hyperjerk Oscillator: A Case Study", *Journal of Computational and Nonlinear Dynamics, 15(5), (2020).*

Azad S. M. A. K., Srinivasan K., "Analysis of time delays in scheduled and unscheduled communication used in process automation", *Automatika, 61(1), (2020), 109–116.*

Kanagaraj R., Rajkumar N., Srinivasan K., "Multiclass normalized clustering and classification model for electricity consumption data analysis in machine learning techniques", *J. of Ambient Intelligence and Humanized Computing, (2020), 1–11.*

Roy A. K., Srinivasan K., "State estimation for a networked control system with packet delay, packet dropouts, and uncertain observation in S-E and C-A channels", *Optimal Control Applications and Methods, 41(6), (2020), 2094-2114.*

Kanagaraj R., Rajkumar N., Srinivasan K., Anuradha R., "Regional Blood Bank Count Analysis Using Unsupervised Learning Techniques", *International Conference on Emerging Current Trends in Computing and Expert Technology, (2019), 987–992, Springer, Cham.*

Fonzin Fozin T., Kengne R., Kengne J., Srinivasan K., Souffo Tagueu M., Pelap F. B., "Control of multistability in a self-excited memristive hyperchaotic oscillator", *International Journal of Bifurcation and Chaos, 29(09), (2019), 1950119.*

Sunitha R., Sharmila B., Srinivasan K., "Feature extraction methods using image processing techniques", *International Journal of Engineering and Advanced Technology, 8(4), (2019), 1–7.*

SUBBARAO PICHUKA | ASSISTANT PROFESSOR

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EDUCATION

- Ph.D., IIT Kharagpur, 2019.
- M.Tech., IIT Guwahati, 2012.
- B.Tech., Acharya Nagarjuna University Guntur, 2010.

EXPERIENCE

- Asst. Professor, IIT Madras, 2023-Present.
- Asst. Professor, NIT Andhra Pradesh, 2019-2023
- Lecturer, IIIT Basar, 2012-2013.

RESEARCH INTERESTS

- Hydroclimatology, Climate Change
- Hydrological Extremes
- Integrated Watershed Management
- Urban Hydrology
- Dams and their safety under the changing climate

RECOGNITIONS

RECENT PUBLICATIONS

Pichuka S., Maity SS & Maity R (2022) Benefit of Time - Varying Downscaling Model (TVDM) for the Assessment of Urban Temperature Rise. Modelling Earth Systems and Environment. Doi: https://doi.org/10.1007/s40808-021-01239-9.

Pichuka S., & Maity R (2020) How far the CORDEX high-resolution data represents observed precipitation for the Indian region: an analysis across Indian mainland Theoretical and Applied Climatology, 142:892-910. doi.org /10.1007/s00704-020-03355-5.

Pichuka S., & Maity R (2020) Assessment of Extreme Precipitation in Future through Time-Invariant and Time-Varying Downscaling Approaches. Water Resources Management, 34:1809–1826. Doi: 10.1007/s11269-020-02531-6.

Pichuka, S., & Maity, R. (2018). Development of a time-varying downscaling model considering non-stationarity using Bayesian approach. International Journal of Climatology, 38 (7) 3157-3176, doi:10.1002/joc.5491.

Pichuka, S., Rajendra Prasad, R., Maity, R., & Kunstmann, H. (2017) . Development of a method to identify change in the pattern of extreme streamflow events in future climate: Application on the Bhadra reservoir inflow in India. Journal of Hydrology: Regional Studies, 9, 236–246.doi: 10.1016/.ejrh. 2016.12.084.

Pichuka, S., & Maity, R. (2016). Spatio-temporal downscaling of projected precipitation in the 21st century : indication of a wetter monsoon over the Upper Mahanadi Basin, India. Hydrological Sciences Journal, 62(3), 467–482. doi:10.1080/02626667.2016.1241882.

SUBHADEEP BANERJEE | ASSOCIATE PROFESSOR

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EDUCATION

- Ph. D., National Univ. of Singapore, 2010
- M. Tech., IIT Roorkee, 2005
- B. E., Jadavpur University, Kolkata, 2003

EXPERIENCE

- Asso. Professor, IIT Madras, 2016–present
- Asst. Professor, IIT Madras, 2011–2016
- Visiting Professor, University of Technology Sydney, Australia, 2018

RESEARCH INTERESTS

- Soil Dynamics and Earthquake Engineering.
- Shake Table Testing
- Soil-structure interaction.
- Finite Element Application to Soil Dynamics Problem

RECOGNITIONS

- Young Faculty Recognition Award, 2020
- Guest editor for a special volume of ASCE International Journal of Geomechanics on Advanced Modeling of Geosystems with Smart & Green Life Cycle Solutions
- IGS-ONGC Biennial Award for the best paper on marine geotechnical engineering, 2018
- IGS–YGE Best Paper Biennial Award for the best paper on soil dynamics, 2016
- A.S. Arya Young Earthquake Engineer Award 2015, IIT Roorkee, 2015
- IGS-Dr. Shamsher Prakash Biennial Award for the best paper on soil dynamics, 2015

RECENT PUBLICATIONS

Banerjee S., Malek Sardar, “Assessment of a Hyperbolic Model for Undrained Cyclic Shearing of Remoulded Clay”, *Journal of Engineering Mechanics, ASCE, (2020), (In press).*

Sona Gokuldas, Banerjee S., Nimbalkar S. S., “Effects of Tunnelling Induced Ground Movements on Stability of Piled Raft Foundation: Three-Dimensional Finite Element Approach”, *International Journal of Geomechanics, ASCE, (2020), (In press).*

Subramaniam P., Banerjee S., “Shear Modulus and Damping Ratio Model for Cement Treated Clay”, *International Journal of Geomechanics, ASCE, (2020), (In press).*

Boominathan A., Varghese R., Banerjee S., “Stiffness and Load Sharing Characteristics of Piled Raft foundations Subjected to Dynamic Loads. Soil Dynamics and Earthquake Engineering”, *Elsevier, (2020).*

Azneb A. S., Banerjee S., Robinson R.G., “Shear Strength of Cement Treated Marine Clay under Triaxial and Plane Strain Conditions. Ground Improvement”, *ICE, (2019).*

George B.E., Banerjee S., Gandhi S.R., “Study on helical piles installed in cohesionless soil by displacement method”, *International Journal of Geomechanics, ASCE, (2019).*

Subhadeep Banerjee, Siang Huat Goh, Fook Hou Lee, “Earthquake-induced Bending Moment in Fixed Head Piles in Soft Clay. Geotechnique”, *ICE, 64(6), (2014), 431–446.*

Successes (or failures) of my group are buried underground !!!

SUDHEER K. P. | PROFESSOR

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EDUCATION

- Ph. D., IIT Delhi, 2000
- M. Tech., IIT Kharagpur, 1994
- B. Tech., Kerala Agricultural University, 1991

EXPERIENCE

- Professor, IIT Madras, 2013–Present
- Asso. Professor, IIT Madras, 2009–2013
- Asst. Professor, IIT Madras, 2003–2009
- Adjunct Professor, Purdue University, 2015–Present
- Scientist, National Institute of Hydrology, 1996–2002

RESEARCH INTERESTS

- Hydrologic Modelling, Stochastic Hydrology, Hydrological forecasting
- Predictions in Ungauged Basins, Uncertainty Analysis
- Irrigation Water Management
- Application of ANN and Fuzzy systems to Hydrology and Water Resources
- Soft Computing based Models

RECENT PUBLICATIONS

Lakshmi G., Sudheer K. P., “Parameterization in hydrological models through clustering of the simulation time period and multi-objective optimization based calibration”, *Environmental Modelling & Software, 138, (2021), 104981.*

Nayak A. K., Biswal B., & Sudheer K. P., "A novel framework to determine the usefulness of satellite-based soil moisture data in streamflow prediction using dynamic Budyko model", *Journal of Hydrology, 595, (2021), 125849.*

Thomas T., Ghosh N. C., Sudheer K. P., "Optimal Reservoir Operation–a Climate Change Adaptation Strategy for Narmada basin in Central India", *Journal of Hydrology, (2021), 126238.*

Kumar A., Vema V. K., Kurian C., Thomas J., Sudheer K. P., "A decision support system for the identification of critical zones in a watershed to implement land management practices", *Stochastic Environmental Research and Risk Assessment, (2021), 1-16.*

Athira P., Sudheer K. P., "Calibration of distributed hydrological models considering the heterogeneity of the parameters across the basin: a case study of SWAT model", *Environmental Earth Sciences, 80(4), (2021), 1-18.*

Thomas J., Jainet P. J., Sudheer K. P., "Ambient air quality of a less industrialized region of India (Kerala) during the COVID-19 lockdown", *Anthropocene, 32, (2020), 100270.*

Ashitha G. N., Prince M. V., Sudheer K. P., "Mild thermal processing of cashew apple juice using ohmic heating", *Journal of Tropical Agriculture, 58(1), (2020).*

Srikanth V., Rajesh G. K., Kothakota A., Pandiselvam R., Sagarika N., Manikantan M. R., Sudheer K. P., "Modeling and optimization of developed cocoa beans extractor parameters using box behnken design and artificial neural network", *Computers and Electronics in Agriculture, 177, (2020), 105715.*

Vema V. K., Sudheer K. P., "Towards quick parameter estimation of hydrological models with large number of computational units", *Journal of Hydrology, 587, (2020), 124983.*

SURENDER SINGH | ASSISTANT PROFESSOR

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surender@iitm.ac.in

EDUCATION

- Ph. D., IIT Roorkee, 2018
- M. Tech., NIT Kurukshetra, , Haryana, 2015
- B. Tech., Deenbandhu Chhotu Ram Univ. of Science and Technology, Murthal, 2013

EXPERIENCE

- Asst. Professor, IIT Madras, 2019–present
- Asst. Professor, Amity University, Noida, 2018–2019

RESEARCH INTERESTS

- Pavement Material Characterization
- Valorization of Recycled Materials
- Design, Evaluation, and Rehabilitation of Rigid Pavements
- Special Concrete Pavements
- Rural Roads

RECOGNITIONS

- Vice-Chairperson, RILEM Youth Council, 2021
- RILEM RYC Member representing South Asian Countries, 2020
- Guest Associate Editor, International Journal of Frontiers in Built Environment, 2020
- Executive Committee Member of Indian Concrete Institute (ICI) Chennai Centre, 2020
- Indian National Academy of Engineering (INAE) Innovative Project Award in Doctoral Category, 2019
- Honorary Student Membership for 5 years by INAE, 2019

RECENT PUBLICATIONS

Solomon Debbarma, Selvam M., Surender Singh, “Can Flexible Pavements’ waste (RAP) be utilized in Cement Concrete Pavements? – A Critical Review”, *Construction and Building Materials, Elsevier, 259, (2020).*

Ran Bir Singh, Solomon Debbarma, Navanit Kumar, Surender Singh, “Hardened State Behaviour of Self-Compacting Concrete Pavement Mixes containing Alternative Aggregates and Secondary Binders”, *Construction and Building Materials, Elsevier. 266, (2020).*

Surender Singh, G.D. Ransinchung R.N., “Laboratory and Field evaluation of RAP for cement concrete pavements”, *Journal of Transportation Engineering Part B: Pavements, ASCE. 146(2), (2020), 04020011-1–04020011-11.*

Solomon Debbarma, G.D. Ransinchung R.N., Surender Singh, “Improving the properties of RAP-RCCP mixes by incorporating supplementary cementitious mineral admixtures as part addition of Portland Cement”, *Journal of Materials in Civil Engineering, ASCE, 32(8), (2020), 04020229-1–04020229-12.*

Solomon Debbarma, G.D. Ransinchung R.N., Surender Singh, “Zinc waste as a substitution of portland cement in roller compacted concrete pavement mixes containing RAP aggregates”, *Journal of Materials in Civil Engineering, ASCE, 32(8), (2020), 04020207-1–04020207-12.*

Solomon Debbarma, G.D. Ransinchung R.N., Surender Singh, Surya K. Sahdeo, “Utilization of industrial and agricultural wastes for productions of sustainable roller compacted concrete pavement mixes containing reclaimed asphalt pavement aggregates”, *Resources, Conservation & Recycling, Elsevier, 152, (2020).*

As human beings, it’s our responsibility to sustain the environment. Recycling of waste can help in inducing sustainability in cement concrete pavements. Waste material characterization and its optimization for different concrete mixes is the main focus of my group.

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EDUCATION

- Ph. D., IISc., Bangalore, 2018
- M. E., IISc, Bangalore, 2010
- B. E., Indian Institute of Engineering Science and Technology, West Bengal, 2008

EXPERIENCE

- Asst. Professor, IIT Madras, 2018–present
- Research Associate, IISc, Bangalore, 2017–2018
- Research Scholar, IISc, Bangalore, 2012–2017

RESEARCH INTERESTS

- Wave Propagation in Elastic Media
- SASW/MASW
- Bender Element Test
- Site Response Analysis
- Geotechnical Earthquake Engineering

RECENT PUBLICATIONS

Naskar T., Kumar J., "A Faster Scheme to Generate Multimodal Dispersion Plots for Rayleigh Wave Propagation", *Soil Dynamics and Earthquake Engineering, 177, (2019), 280–287.*

Kumar J., Naskar T., "Resolving phase wrapping by using sliding transform for generation of dispersion curves", *Geophysics, 82(3), (2017), 127–136.*

Kumar J., Naskar T., "A fast and accurate method to compute dispersion spectra for layered media using a modified Kausel-Roësset stiffness matrix approach", *Soil Dynamics and Earthquake Engineering, 92, (2017), 176–182.*

Naskar T., Kumar J., Predominant modes for Rayleigh wave propagation using the dynamic stiffness matrix approach", *Journal of Geophysics and Engineering, 14(5), (2017), 1032–1041.*

Kumar J., Naskar T., "Effects of site stiffness and source to receiver distance on surface wave tests' results", *Soil Dynamics and Earthquake Engineering, 77, (2015), 71–82.*

Kumar J., Naskar T., "Vertical uplift capacity of a group of two coaxial anchors in a general c–f soil", *Canadian Geotechnical Journal, 49(3), (2012), 367–373.*

THYAGARAJ T. | ASSOCIATE PROFESSOR

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EDUCATION

- Ph. D., IISc., Bangalore, 2006
- M. S., IISc, Bangalore, 2006
- B. E., Osmania University, Hyderabad, 1998

EXPERIENCE

- Professor, IIT Madras, 2020–present
- Asso. Professor, IIT Madras, 2015–2020
- Asst. Professor, IIT Madras, 2008–2015
- Asst. Professor, NIT, Warrangal, 2006–2007

RESEARCH INTERESTS

- Unsaturated soil behaviour
- Ground improvement techniques
- Geo-environmental Engineering

RECENT PUBLICATIONS

Raja P. S., Thyagaraj T., "Significance of compaction time delay on compaction and strength characteristics of sulfate resistant cement-treated expansive soil", *Journal of Rock Mechanics and Geotechnical Engineering, (2021).*

Julina M., Thyagaraj T., "Effect of hydraulic gradient on swell and hydraulic response of desiccated expansive soil–an experimental study", *International Journal of Geotechnical Engineering, (2021), 1-14.*

Raja P. S. K., Thyagaraj T., "Sulfate effects on sulfate-resistant cement–treated expansive soil", *Bulletin of Engineering Geology and the Environment, (2020), 1–14.*

Raja P. S. K., Thyagaraj T., "Effect of compaction time delay on compaction and strength behavior of lime-treated expansive soil contacted with sulfate", *Innovative Infrastructure Solutions, 5(1), (2020), 14.*

Julina M., Thyagaraj T., "Combined effects of wet-dry cycles and interacting fluid on desiccation cracks and hydraulic conductivity of compacted clay", *Engineering Geology, 267, (2020), 105505.*

Kumar T. A., Raheena M., Robinson R. G., Thyagaraj T., "A Rapid Method of Determination of Swell Potential and Swell Pressure of Expansive Soils Using Constant Rate of Strain Apparatus",*Geotechnical Testing Journal, 43(6), (2020).*

Kumar K. S. R., Thyagaraj T., "Comparison of lime treatment techniques for deep stabilization of expansive soils", *International Journal of Geotechnical Engineering, (2020), 1–19.*

Buragadda V., Thyagaraj T., "Bearing Capacity of Jute Geotextile-Reinforced Sand Bed", *International Journal of Geosynthetics and Ground Engineering, 5(4), (2019), 27.*

Julina M., Thyagaraj T., "Quantification of desiccation cracks using X-ray tomography for tracing shrinkage path of compacted expansive soil", *Acta Geotechnica, 14(1), (2018), 35–56.*

A. VEERARAGAVAN | PROFESSOR

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EDUCATION

- Ph. D., Bangalore University, India, 1990
- M. Tech., IIT Madras, 1980
- B. E., Annamalai University, 1978

EXPERIENCE

- Professor, IIT Madras, 2004–present
- Reader, Bangalore University, 1994–2004
- Lecturer, Bangalore University, 1985–1994

RESEARCH INTERESTS

- Pavement Material Characterization
- Sustainable Highway Pavements
- Road Asset Management
- Road Safety Under Mixed Traffic Flow

RECOGNITIONS

- Member, National Panel of Experts to implement Value Engineering Programme, MoRTH
- Member, Standing National Advisory Committee on Use of Latest Technology and Innovative Materials in Construction of Rural Roads, NRIDA
- Member, Highway Research Board, Flexible Pavement Committee, Composite Pavement Committee, Highway Maintenance and Asset Management Committee, Specifications and Standards Committee, IRC
- Fellow, Institution of Engineers (India)
- Fellow, International Society of Engineering Asset Management

RECENT PUBLICATIONS

Archana M.R., Anjaneyappa V., Amarnath M.S., Veeraragavan A., "Bench-Marking of Falling Weight Deflectometer Deflection Bowl Parameters to Indian Conditions and its Application to Overlay Design", *ASCE Journal of Transportation Engineering: Part B, Pavements, 146(2), (2020)*.

Nithin S., Arul A., Rajagopal K., Veeraragavan A., "Fatigue Performance of Geosynthetic Reinforced Asphalt Concrete Beams", *ASCE Journal of Materials in Civil Engineering, 32(8), (2020).*

Sakthivelan Ramachandran, Veeraragavan A., "Optimization of Pavement Maintenance Using Transition Matrices", *Infrastructure Asset Management Journal, Institution of Civil Engineers Journal, UK, 7(3), (2020).*

Nithin S., Arul A., K. Rajagopal, Veeraragavan A., "Digital Image Correlation Technique for Measurement of Surface Strains in Reinforced Asphalt Concrete Beams under Fatigue Loading", *ASCE Journal of Materials in Civil Engineering, 31(8), (2019).*

Sakthivelan Ramachandran S., Rajendran C., Veeraragavan A., "Decision Support System for the Maintenance Management of Road Networks Considering Multi-criteria", *International Journal of Pavement Research and Technology, 12(325), (2019).*

Nithin S., Rajagopal K., Veeraragavan A.,; "Investigations on fracture characteristics of geosynthetic reinforced asphalt concrete beams using single notch beam tests", *Geotextiles and Geomembranes, 47(5), (2019).*

From Theory to Practice for Sustainable Road Infrastructure.

VENKATRAMAN SRINIVASAN | ASSISTANT PROFESSOR

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venkatraman@iitm.ac.in

EDUCATION

- Ph. D., University of Illinois, USA, 2013
- M.S., University of Illinois Urbana Champaign, 2007
- B. Tech., IIT Madras, 2004

EXPERIENCE

- Asst. Professor, IIT Madras, 2018–present
- Research Scientist, Pacific Northwest National Laboratory, 2017–2018
- Post Doctoral Research Associate, Institute for Genomic Biology, University of Illinois, 2013–2017

RESEARCH INTERESTS

- Eco-hydrology
- Resilience
- Climate change
- Food & water security
- Complex adaptive systems
- Contaminant transport modeling and remediation

RECOGNITIONS

- CEE Alumni Assistantship for teaching excellence, University of Illinois, USA, 2012
- Montgomery-Watson-Harza Consulting Engineers/AEESP Award, for Outstanding Master's Thesis in Environmental Engineering and Science, USA, 2008

RECENT PUBLICATIONS

Q. Song, V. Srinivasan, S. Long, XG. Zhu, "Decomposition analysis on soybean productivity increase under elevated CO2 using 3-D canopy model reveals synergestic effects of Co_2 and light in photosynthesis", *Annals of Botany, 126(4), (2020), 601–614.*

A. Christinsen, V. Srinivasan, J. Hart, A. Marshall-Colon, "Advanced visualization can reveal emergent properties in agriculture data and lead to new strategies for food security", *Nutrition reviews, 76(5), (2018), 332-347.*

S. Long, A. Marshall-Colon, D. Allen, G. Daniel, A. Beard, B. Benes, A. Christensen, D. Cox, J. Hart, P. Hirst, K. Kannan, D. Katz, J. Lynch, A. Millar, B. Panneerselvam, N. Price, P. Prusinkiewicz, D. Raila, R. Shekar, S. Shrivastava, D. Shukla, V. Srinivasan, M. Stitt, E. Voit, S. Von Caemmerer, Y. Wang, X. Yin, X. Zhu, "Crops in silico: A prospectus from the Plants in silico symposium and workshop", *Frontiers in Plant Science, Section Plant Systems and Synthetic Biology, 8(786), (2017).*

V. Srinivasan, P. Kumar, S. Long, "Decreasing, not increasing, leaf area will raise crop yields under global atmospheric change", *Global Chance Biology, (2016).*

V. Srinivasan, P. Kumar, "Emergent and divergent resilience behavior in catastrophic shift system", *Ecological Modelling, 298, (2015), 87–105.*

Cutting edge computational modelling coupled with state of the art lab and field crop experiments can help us achieve food security under the threat of climate change.

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EDUCATION

- Ph. D., IIT Kanpur, 2011
- M. Tech., IIT Kanpur, 2003
- B. Tech., Nagarjuna University, Guntur, 2001

EXPERIENCE

- Asso. Professor, IIT Madras, 2019–present
- Asst. Professor, IIT Madras, 2012–2019
- Asso. Professor, Vignan University, 2011–2012
- Asso. Professor, GMRIT, 2010–2011

RESEARCH INTERESTS

- Hydraulics and Water Resources Engg
- Experimental Hydraulics
- Cohesive Sediment Dynamics
- River Morphology and Sediment Transport
- Hydrodynamics of Mountain Streams

RECOGNITIONS

- DAAD Fellowship, Karlsruhe Institute of Technology, Germany, 2006
- 1st and 3rd prize, Technical Exhibition, Ministry of Technical Education, Bhutan

Respect water, it will save your life.

RECENT PUBLICATIONS

Behara S., Chandra V., Ravikanth B., "Flow-induced oscillations of three tandem cylinders", *Journal of Fluids and Structures, 91, (2019).*

Kalathil S. T., Chandra V., "Review of step-pool hydrodynamics in mountain streams", *Progress in Physical Geography: Earth and Environment, 43(5),(2019), pp. 607–626.*

Ramalingam S., Chandra V., "Experimental investigation of water temperature influence on suspended sedimentation concentration", *Environmental Processes, 6, (2019), 511–523.*

Ramalingam S., Chandra V., "Determination of suspended sediments particle size distribution using image capturing method", *Marine Georesources and Geotechnology, 36(8), (2018), 867–874.*

Ramalingam S., Chandra V., "Influence of live microbes on suspended sediment concentration in coastal ecosystem", *Marine Geology, 405, (2018), 108–113.*

Kalathil S. T., Wuppukondur A., Balakrishnan R. K., Chandra V., "Control of sediment inflow into a trapezoidal intake canal using submerged vanes", *ASCE Journal of Waterway, Port, Coastal and Ocean Engineering 144(6), (2018), 04018020.*

Behara S., Ravikanth B., Chandra V., "Flow-induced oscillations of three tandem rotating cylinders", *Physics of Fluids, 30(11), (2018), 113604.*

VIDYA BHUSHAN MAJI | ASSOCIATE PROFESSOR

+91-44-2257 4294
vbmaji@civil.iitm.ac.in

EDUCATION

- Ph. D., IISc., Bangalore, 2007
- M. Tech., IIT, Banaras Hindu University, 2003
- B. Tech., BIT Sindri, Jharkhand, 2001

EXPERIENCE

- Asso. Professor, IIT Madras, 2016–present
- Asst. Professor, IIT Madras,2008–2016
- Associate Consultant – ATES, AIMIL LTD., New Delhi , 2007-2008

RESEARCH INTERESTS

- Behaviour of jointed rocks
- Fracture process in rocks
- Geomechanics and Tunnelling
- Slope stability and landslides

RECOGNITIONS

- ISRMTT-Best paper award, Category of "Case Histories of tunnelling and foundations on rock". Paper title "Tunnelling induced ground subsidence and its control using face pressure", 2016
- Nominated as Young members presidential group for the Asian region in International society of the rock mechanics (ISRM)
- IGS-C S Desai Biennial Best paper Award (2008) IGS New Delhi, India

RECENT PUBLICATIONS

Malavika Varma, V. B. Maji, A. Boominathan, "Influence of rock joints on longitudinal wave velocity using experimental and numerical techniques", *International Journal of Rock Mechanics and Mining Sciences, Elsevier Pubs. 141, (2021), 104699. https://doi.org/10.1016/j.ijrmms.2021.104699.*

Sivakumar G., Maji V. B., "Crack growth in rocks with pre-existing narrow flaws under uniaxial compression", *International Journal of Geomechanics, ASCE, 21, (4), (2021), 04021032.*

Malavika Varma, Maji V. B., Boominathan A., "Numerical modelling of a tunnel in jointed rocks subjected to seismic loading", *Underground Space, Elsevier Pubs. (4), (2019), 133-146.*

Adarsh S. C., Dodagoudar G. R., Maji V. B., "Numerical modelling of rainfall effects on the stability of soil slopes", *International journal of Geotechnical engineering, Taylor & Francis, 13(5), (2019), 425-437.*

Chandrasekaran S. S., Senthilkumar V., Maji V. B., "Investigation of landslide induced by rainfall infiltration - A case study of Marappalam landslide, Nilgiris district, Tamil Nadu, India", *Intl. Journal of Geomechanics, ASCE, 18(9), (2018), 05018006.*

Maji V. B., "Numerical analysis of Shiobara cavern using practical equivalent approach", *Journal of Rock mechanics and Geotechnical engineering, Elsevier Pubs, 10(2), (2018).*

DISTINGUISHED PROFESSORS

Prof. SURENDRA P SHAH
Northwestern University

Prof. K RAJAGOPAL
Texas A&M University

Our department hosts two Distinguished Professors, who bring in a wealth of academic experience and enrich our research programmes.

PROFESSORS OF PRACTICE

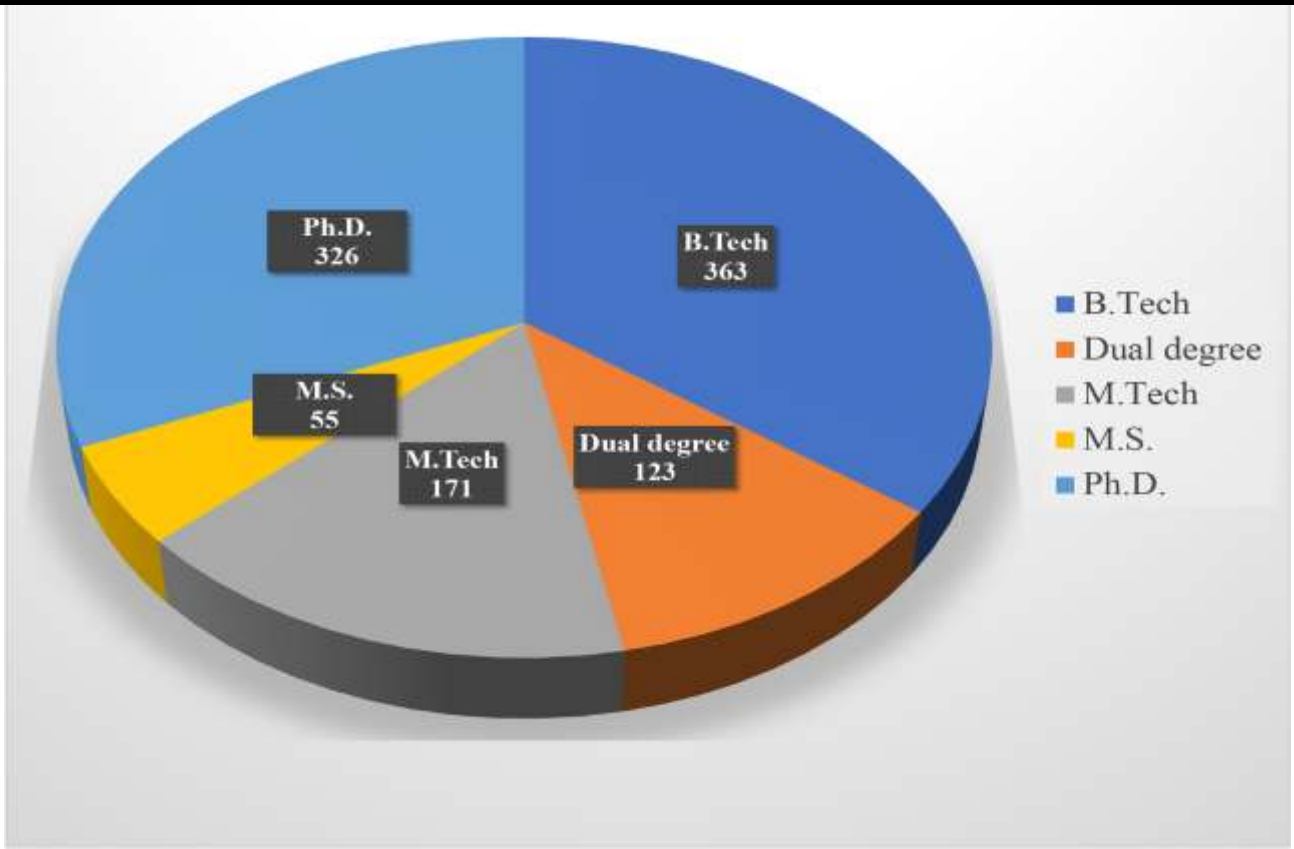
Mr. N. RAGHAVAN

Mr. P. R. SURENDHRA BABU

Mr. P. G. VENKATRAM

The department currently hosts three Professors-of-Practice who bring in their immense industry experience in guiding our courseworlk and projects. Their inputs are valuable in ensuring that the content delivered to the students as well as the projects undertaken by them are relevant to the current civil engineering practice. They also deliver lectures in courses and co-guide student projects, apart from providing guidance to the department.

STUDENT STRENGTH



RESEARCH INITIATIVE PROJECTS

SUBSURFACE MECHANICS AND GEO-ENERGY

VISION

The center envisions the creation of fundamental scientific knowledge, and technological solutions in subsurface mechanics to sustainably address the energy demands of a rapidly industrializing world. The center's vision is to provide global intellectual leadership in the area of subsurface mechanics and geo-energy, and to serve as a focal point for the interactions between leading academic universities, and private corporations.

MISSION

To conduct basic and applied scientific research, and develop technologies for
(a) Unconventional hydrocarbon extraction,
(b) CO_2 geo-sequestration, and,
(c) Enhanced geothermal systems.

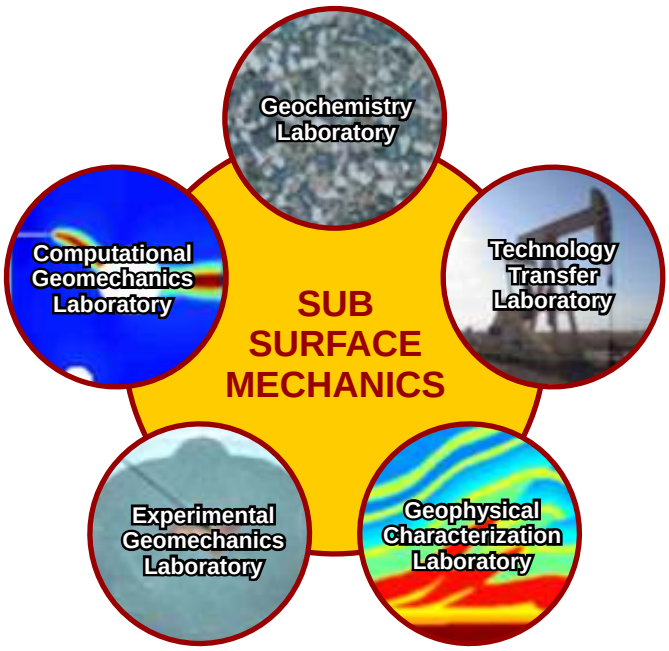
India accounts for 25% of global energy demand
- India's energy requirements are predicted to double by 2040

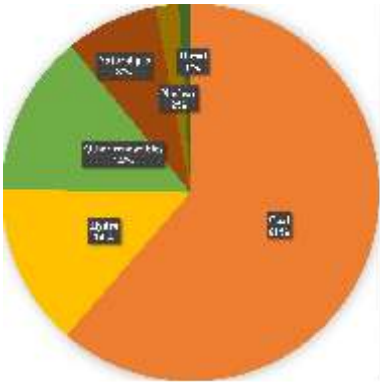
62% of India's energy needs are met by coal
- Adverse environmental impact
- Need for diversification

"Atmanirbhar Bharat" – energy self-reliance
- Increase domestic production of natural gas from unconventional reservoirs, and methane gas hydrates
- Harness India's geothermal energy potential

Mitigate environmental impact
- Develop technologies for underground CO_2 storage

INTEGRATED APPROACH





FACILITIES

Computer clusters | High pressure rheometer | Geo-phones | Enhanced oil recovery setup | Mass spectrometer | HPTC Triaxial apparatus | High pressure reactors | High pressure pump | Fingering/fracturing setup

PARTNERS

Experimental Mechanics Group
Dr. Ramesh Kannan K, CE, IIT M
Dr. Jitendra Sangwai, CH, IIT M
Dr. T. Thyagaraj, CE, IIT M
Dr. R. G. Robinson, CE, IIT M

Computational Mechanics Group
Dr. Chandrasekhar Annavarapu, CE, IIT M
Dr. Abhijit Chaudhuri, AM, IIT M
Dr. V. B. Maji, CE, IIT M
Dr. Antonio Rodriguez, UPC,Barcelona
Dr. Sonia Fernandez Mendez, UPC, Barcelona

Geochemistry and Geophysical Group
Dr. D. N. Arnepalli, CE, IIT M
Dr. Himanshu Goyal. CH, IIT M
Dr. T. Thyagaraj, CE, IIT M
Dr. Subhadeep Banerjee, CE, IIT M
Dr. Tarun Naskar, CE, IIT M

Academic and Industry Advisory Panel
Dr. A. Boominathan, CE, IIT M
Dr. K. Rajagopal, CE, IIT M
Dr. G. R. Dodagoudar, CE, IIT M
Dr. Ranjith Pathegama Gamage, Monash Univ.
Dr. Dakshina Valiveti, ExxonMobi,URC
Dr. D. Chandrasekharam, CE, IIT H
Dr. Joshua A. White, AEED, LLNL
Dr. Randolph R. Settgast, AEED, LLNL

RESEARCH INITIATIVE PROJECTS

LOW CARBON LEAN CONSTRUCTION TECHNOLOGIES

VISION

To be the primary destination in India for all interested in developing and implementing ideas on low-carbon, lean construction technologies.

MISSION

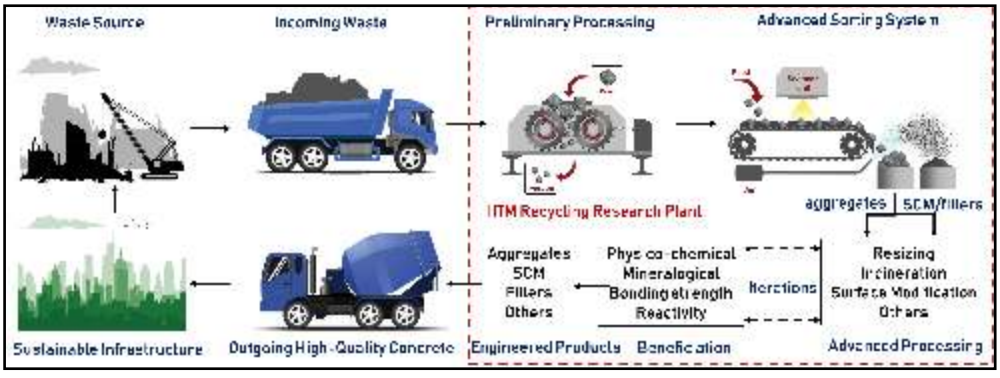
To develop India's first integrated testbed for evaluating the usage of agricultural, industrial, and construction & demolition waste in concrete for directing practices, policies, and standards for waste reduction in Indian construction industry.

To utilize technology for minimization of material and process waste.

APPROACH
- Scientific Research
- Technology Development
- Management & Organization
- Policy advocacy

IMPACT
- Waste to resource
- Sustainable systems
- Optimal strategies
- Policy frameworks

TESTBED



FACULTY

Dr. Manu Santhanam
Dr. Ashwin Mahalingam
Dr. Benny Raphael
Dr. G. Radhakrishna Pillai
Dr. K. Ramamurthy
Dr. Koshy Varghese
Dr. Nikhil Bugalia
Dr. Piyush Chaunsali
Dr. Ravindra Gettu
Dr. Sivakumar Palaniappan
Dr. Surender Singh

PARTNERS

SBI Foundation · L&T Construction · TIDEWATER

RESEARCH INITIATIVE PROJECTS

ATMOSPHERIC AND CLIMATE SCIENCES

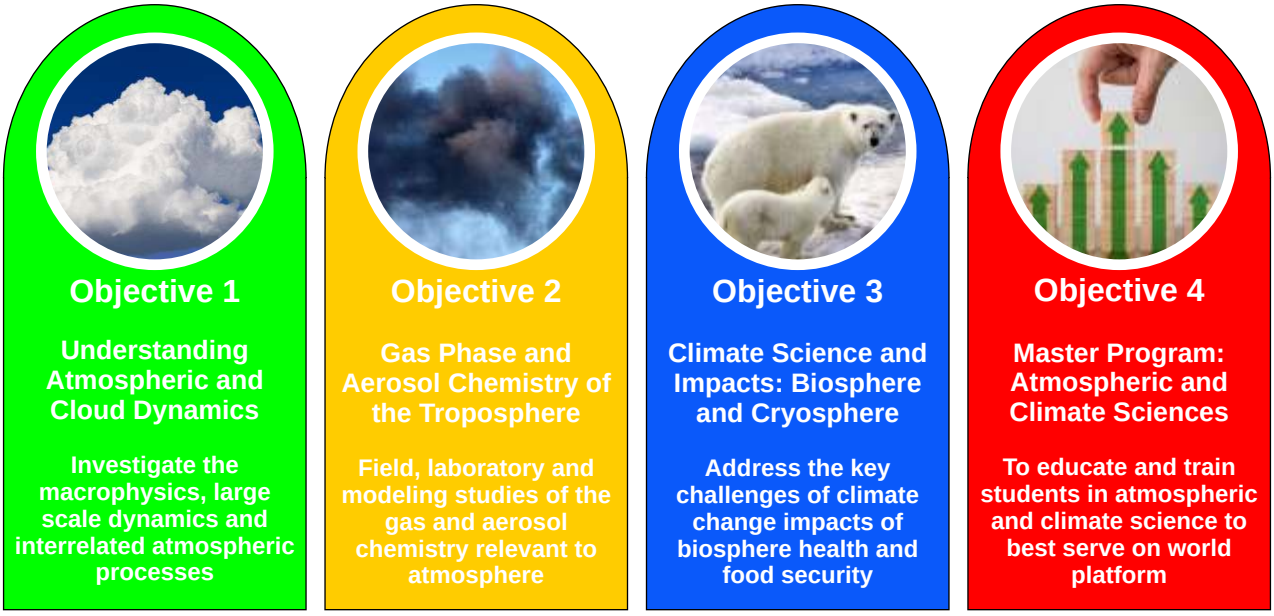
VISION / MISSION

The overall workplan of the proposed center is divided in to two major parts

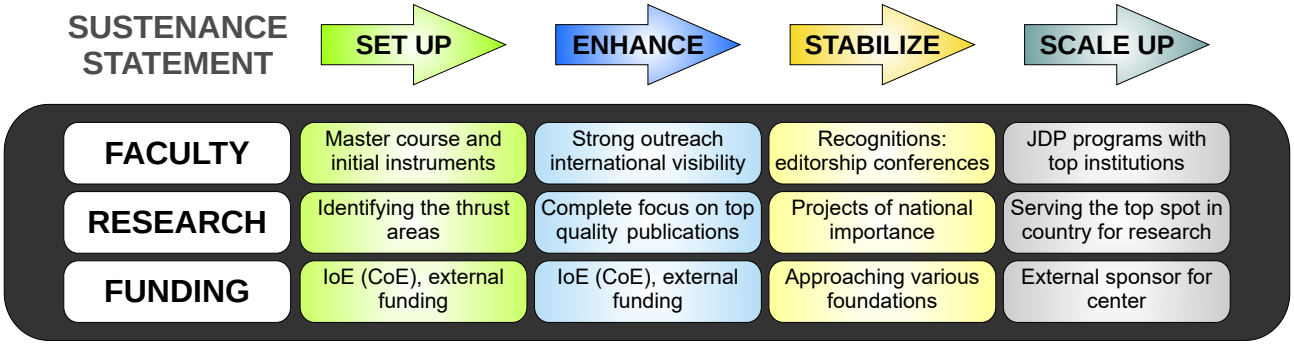
i) establishing a center, which will carry out fundamental research in the proposed areas by bringing in faculty to collaborate from IIT Madras with faculties form other national and international top call institutions.

ii) to introduce a masters program in “Atmospheric and Climate Sciences” in association with world’s top institutions. Below is the detailed workplan as to how each individual proposed objective will subserve the overall objective of the proposal.

PRIME OBJECTIVE



SUSTENANCE STATEMENT



FACULTY

Dr. Sachin S. Gunthe
Dr. Anubhab Roy
Dr. B. Rajakumar
Dr. Balaji C
Dr. Chandan Sarangi
Dr. R. Ravikrishna
Dr. S. M. Shiva Nagendra

PARTNERS

Georgia Tech · Manchester University · HARVARD UNIVERSITY

RESEARCH INITIATIVE PROJECTS

WATER AND SUSTAINABILITY

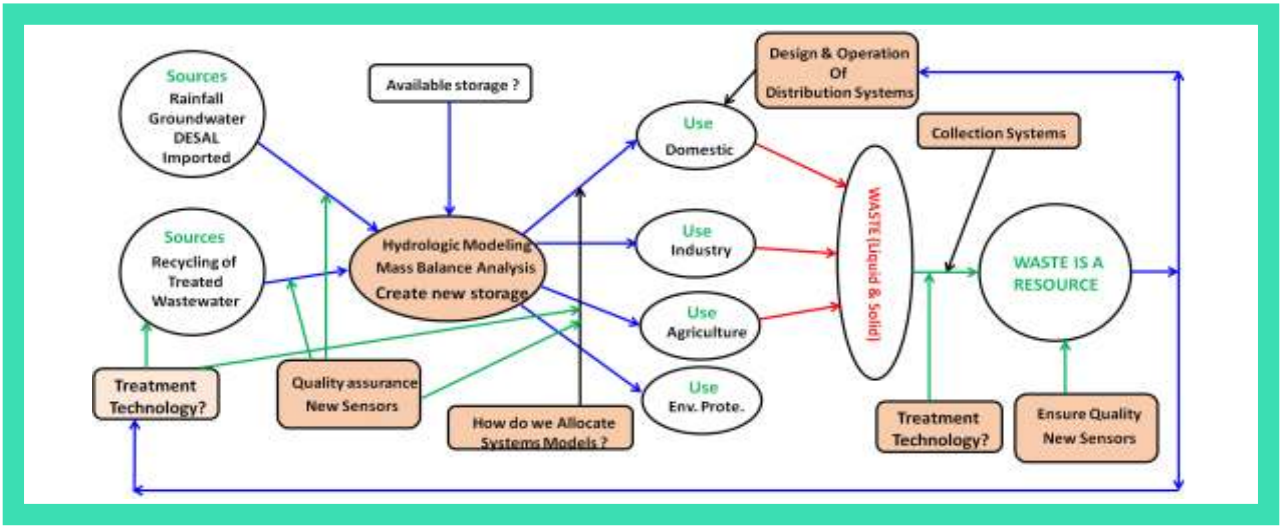
VISION / MISSION

The overarching aim of this research initiative is to solve challenging problems in water management using the framework of circular economy in order to achieve sustainability and water security in the backdrop of rapidly developing economies and impending climate change. This will involve development of new reliable process models for water resources, next generation technologies for water and wastewater treatment, novel sensors for monitoring water quality, application of IoT for online monitoring and control, and new paradigms for water infrastructure planning.

Experimental, field level pilot-scale and mathematical modeling studies will be conducted to address interrelated research problems which overlap the three main water use sectors of industrial, domestic and agriculture as depicted in the graphical abstract

FACILITIES

- State of the art analytical facilities for environmental systems
- Flux towers for field level measurement of H_2O and CO_2
- Fully automatic weather stations
- Completely instrumented catchment
- Data acquisition and electronic development systems
- Sensors
- Actuators
- Network elements
- IoT platforms
- Field experimental/demonstration stations



COLLABORATORS

Dr. Christoph Lüthi, EAWAG, Switzerland
Dr. George Tchobanoglous University Of California
Dr. Martin Kranert, University of Stuttgart, Germany
Dr. Sonia Grego-Asso., Duke University, USA
Dr. Yoram Oren, Ben-Gurion University of the Negev, Israel
Dr. Zeev Ronen, Ben-Gurion University of the Negev, Israel
Dr. Jack Gilron, Ben-Gurion University of the Negev, Israel
Dr. Fayyaz Ali Memon , University of Exeter, United Kingdom
Dr.-Ing. Heidrun Steinmetz, Wasser Infrastruktur Ressourcen, Kaiserslautern
Prof. Wenshan Guo,University of Technology Sydney
Dr. Huu-Hao Ngo,University of Technology Sydney
Dr. Raghavan Srinivasan, Texas A&M University, USA
Dr. -Ing. Nicola Fohrer,rvation University of Kiel, Germany
Dr. Jeffrey G. Arnold, ARS, USA
Dr. Peter Fiener, University of Augsburg, Germany
Dr. Indrajeet Chaubey,UNIVERSITY OF CONNECTICUT
Dr.-Ing. Ulrich Dittmer, Wasser Infrastruktur Ressourcen, Kaiserslautern
Dr. Maryam Imani, Anglia Ruskin University Chelmsford, United Kingdom
Dr. Subhas C. Mukhopadhyay, Macquarie University, Australia

FACULTY

Dr. Ligy Philip
Dr. B.S.Murty
Dr. Balaji Narasimhan
Dr. Boby George
Dr. Indumathi Nambi
Dr. K.P.Sudheer
Dr. Mathava Kumar
Dr. Shankar Narasimhan
Dr. Sridharakumar Narasimhan

PARTNERS

TORAY Innovation by Chemistry
AMARA RAJA
tandler.com
INGENIEURBÜRO SCHEER
twic Solution for Water & Environment
SAINT-GOBAIN
Greenvironment
BHEL
Thirumalai Chemicals Ltd.

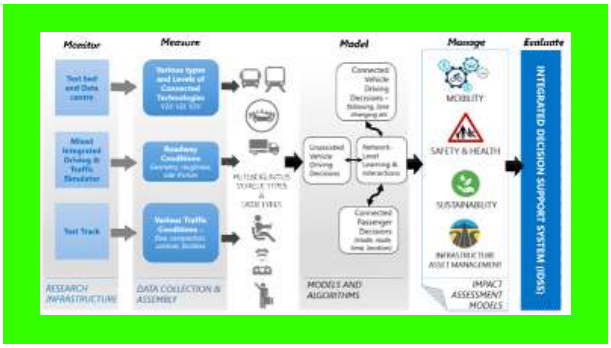
RESEARCH INITIATIVE PROJECTS

CONNECTED INTELLIGENT URBAN TRANSPORTATION

VISION / MISSION

The overarching research goal of the center is to develop and implement appropriate connected and integrated mobility solutions for highly heterogeneous traffic and transit system to yield substantial gains in:

a) mobility
b) safety
c) sustainability



INTERACTIONS ACROSS SUBSYSTEMS AND IMPACTS

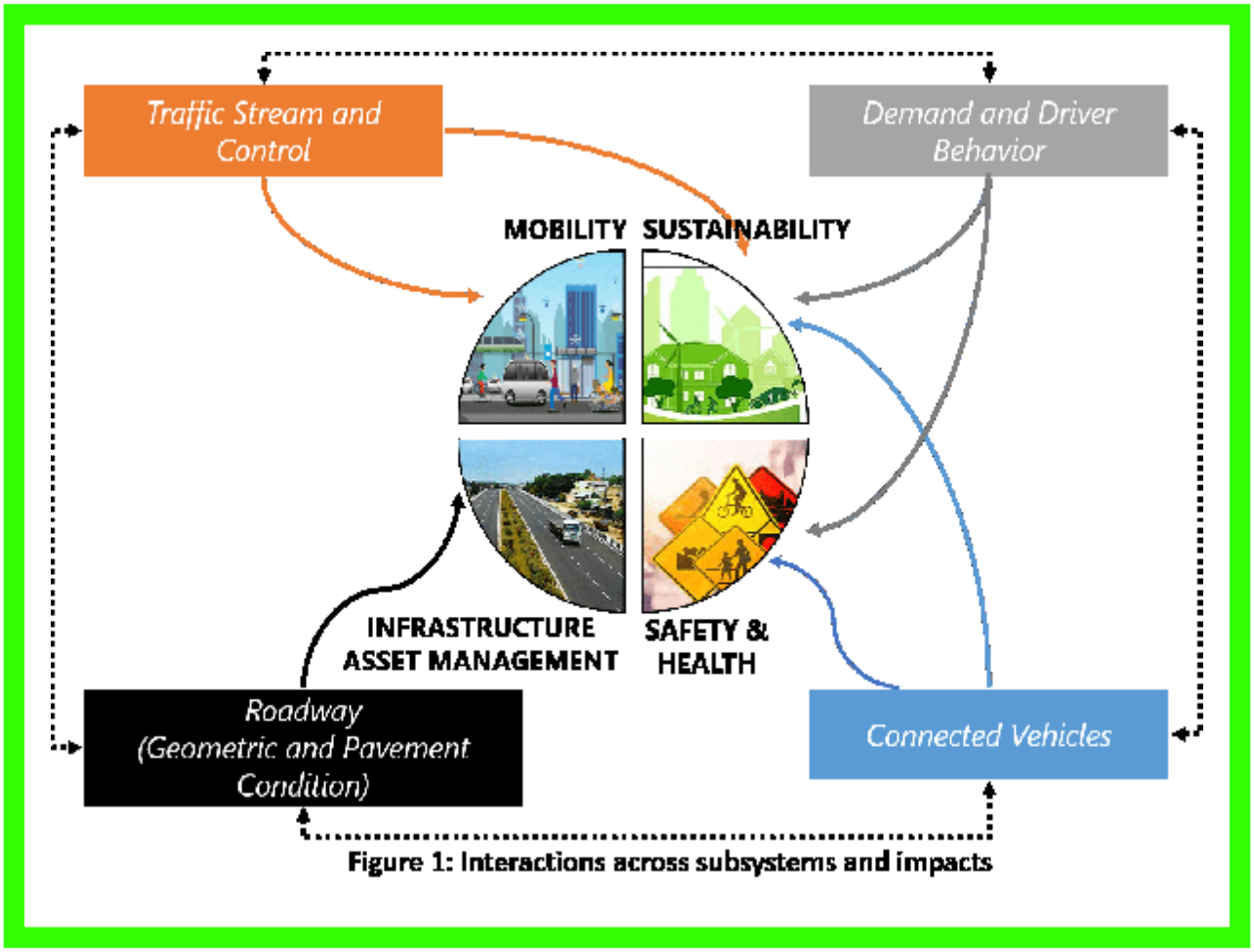


Figure 1: Interactions across subsystems and impacts

FACULTY

Dr. Gitakrishnan Ramadurai
Dr. Atul Narayan
Dr. Bhargava Rama Chilukuri
Dr. Karthik K. Srinivasan
Dr. Lelitha Devi V
Dr. Surender Singh

INTERNATIONAL COLLABORATIONS

Dr. Srinivas Peeta, Georgia Tech
Dr. Darcy Bullock, Purdue University
Dr. Ashish Bhaskar, Queensland University of Technology
Dr. Anuj Sharma, Iowa State University
Dr. Laurence Rilett, University of Nebraska
Dr. Satish Ukkusuri, Purdue University

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