

Dr Venkatesh Babu K P

B.Sc., M.Sc., M.Phil., PhD



CONTACT ME

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EXPERTISE

- CFD & FEA
- ANSYS Workbench
- Parallel coding & Computing
- MATLAB/Simulink
- ORIGIN

EDUCATION

Doctor of Philosophy
Specialization : CFD & FEA
CHRIST (Deemed to be University)
2019 - 2023

Master of Philosophy
Specialization : Fluid Mechanics
CHRIST (Deemed to be University)
2017 - 2018

Master of Science
Specialization : Mathematics
CHRIST University
2015 - 2017

Bachelor of Science
Specialization : Physics,
Mathematics, Computer Science
Tumkur University
2012 - 2015

WORK EXPERIENCE

Assistant Professor 2022 - Present
St Joseph Engineering College, Mangalore

- Handled Higher Engineering Mathematics Subjects
- Co-ordinator for Intellectual Property Steering Committee
- Institutional Innovation Council Convener
- Designed an open elective course on Mathematical Modelling and Simulation
- Course Coordinator for the course Mathematics for EEE Stream
- Created lesson materials, visual, and digital presentations to supplement lesson Plans
- Implemented practice exercises and group projects to assist students in quick information grasping

Project Associate
Marathon Heater India Private Limited, Udaipur 2020 - 2021

- Handled Project on "Transient Thermal Analysis of Heater Assembly to Achieve Uniform Temperature Distribution for Industrial Applications" using ANSYS-Thermal and ANSYS-Structural
- Stress and Fatigue analysis of the assembly components due to the impact of thermal distribution.
- Evaluation of results and preparation of linear and non-linear analysis report based on the industrial requirement.

Research Fellow
CHRIST (Deemed to be University), Bengaluru 2019 - 2023

- I was part of a research team working in "Hydrogen Fuel Cells and Storage Techniques" at Applied Engineering and Computational Analysis Laboratory (AECAL), Mangalore funded by Vision Group of Science and Technology (VGST) [e GRD 477], Government of Karnataka, India.
- Developed several innovative ideas for the enhancement of the start-up time, performance, and degradation of high-temperature fuel cells.
- Authored several scientific research publications related to fuel cell technology in top ranked international peer-reviewed journals.
- Reviewed research papers and provided inputs for several research Projects.
- Involved in several research projects associated with modelling and fatigue analysis of the mechanical components using ANSYS workbench.
- Part of a research projects associated with modelling and simulations of Lithium Ion Batteries using ANSYS - FLUENT.

Mathematics Faculty
ELITE IIT Institution, Bengaluru 2017 - 2018

- Handled mathematics subject for Engineering students
- Handled lab sessions of MATLAB for Engineering Students
- Mentor for a group of students and recorded grades of coursework in online reporting system.
- Created lesson materials, visual, and digital presentations to supplement lesson Plans

- **Venkatesh Babu K P**, Purushothama Chippar, " Numerical modelling on the effect of CO poisoning on the misalignment of flow channels in High-temperature Polymer Electrolyte Membrane Fuel Cell", International Journal of Hydrogen Energy (IF 7.139), Forthcoming, **Scopus (Q1)**, Elsevier.

- **Venkatesh Babu K P**, Purushothama Chippar, "Sensitivity Analysis of Kinetic and structural parameters of High – Temperature Proton Exchange Membrane Fuel Cell", International Journal of Applied Physics (IF 5.186), Forthcoming, **Scopus (Q1)**, Elsevier.

- Purushothama Chippar, **Venkatesh Babu K P**" Effect of catalyst penetration into gas diffusion layer on high-temperature polymer electrolyte membrane fuel cell performance under various catalyst loading and with mechanical compression", Journal of Electrochemical Society (IF 4.386), Accepted, **Scopus (Q1)**.

- **Venkatesh Babu K P**, Purushothama Chippar, " Sensitivity Analysis of Operational Parameters in High-Temperature Polymer Electrolyte Membrane Fuel Cell", Journal of Electrochemical Society (IF 4.386), **Scopus (Q1)**.

- **Venkatesh Babu K P**, Geethu Varghese, T V Joseph, Purushothama Chippar, "Numerical modeling of novel cage-like cross-linked membranes for enhanced proton conductivity in a high temperature-polymer electrolyte membrane fuel cell", International Journal of Applied Polymer Science (IF 3.318), Forthcoming, **Scopus (Q2)**.

- Geethu Varghese, **Venkatesh Babu K P**, T V Joseph, Purushothama Chippar, "4. Impacts of Pore Scale Gas Diffusion Layer Deformation on PEMFC Performance at Sub Zero Operation", Journal of Electrochemical Society (IF 4.386), **Scopus (Q1)**.

- **Venkatesh Babu K P**, Geethu Varghese, T V Joseph, Purushothama Chippar, " Integrated Effect of Flow Field Misalignment and Gas Diffusion Layer Compression/Intrusion on High Temperature – Polymer Electrolyte Membrane Fuel Cell Performance", Journal of Electrochemical Society, (IF 4.386), **Scopus (Q1)**, Elsevier.

- Geethu Varghese, **Venkatesh Babu K P**, T V Joseph, Purushothama Chippar, " Combined Effect of Channel to Rib Width Ratio and Gas Diffusion Layer Deformation on High Temperature - Polymer Electrolyte Membrane Fuel Cell Performance ", International Journal of Hydrogen Energy (IF 7.139), **Scopus (Q1)**, Elsevier.

- **Venkatesh Babu K P**, Geethu Varghese, T V Joseph, Purushothama Chippar, "Optimization of graded catalyst layer to enhance uniformity of current density and performance of high temperature-polymer electrolyte membrane fuel cell", International Journal of Hydrogen Energy (IF. 7.139), Vol. 46, Issue 6, pp 4018-4032, 2022, **Scopus (Q1)**, Elsevier.

- Geethu Varghese, **Venkatesh Babu K P**, T V Joseph, Purushothama Chippar, "A numerical investigation on thermal gradients and stresses in high temperature P.E.M. fuel cell during startup", International Journal of Heat and Mass Transfer (IF 5.319), Vol. 175, 2021, **Scopus (Q1)**, Elsevier.

- **Venkatesh Babu K P**, Geethu Varghese, T V Joseph, Purushothama Chippar, "Spatial Analysis of CO Poisoning in High Temperature- Polymer Electrolyte Membrane Fuel Cell", International Journal of Hydrogen Energy (IF 7.319), Vol. 46, Issue 11, pp 8179-8196, 2021, **Scopus (Q1)**, Elsevier.

- **Venkatesh babu K P**, S Pranesh, "Linear and Non-Linear Analysis of Double Diffusive Convection in a Vertically Oscillating Couple Stress Fluid with Cross Diffusion Effects," International Journal of Applied Engineering Research, Vol. 13, Issue 23, pp 16498-16508, 2018.

ACHIEVEMENTS/INVITED TALKS

- Received Young Researcher Award from the Institute of Scholars for Publication the publication Optimization of graded catalyst layer to enhance uniformity of current density and performance of high temperature-polymer electrolyte membrane fuel cell
- Resource person for a workshop on “Research Methodology and Publication”, St Aloysius College (Autonomous), Mangaluru
- Resource person for a workshop on “Simulation using ANSYS Workbench”, CHRIST (Deemed to be University), Bengaluru
- Resource person for a session on “Mendeley – Reference Management Software” in a 3-day Skill development program on “Scientific Paper Writing and Publishing”, SJEC, Mangalore.
- Resource person for a session on “Data Visualization Tools” in a 3-day Skill development program on “Scientific Paper Writing and Publishing”, SJEC, Mangalore.
- Resource person for a workshop on “Thermal and Fluid Flow Analysis using ANSYS Workbench”, SJEC, Mangaluru.
- Resource person for a workshop on “Intellectual property rights and Patentability search” held at the Department of Mathematics, SJEC.
- Resource person for a workshop on “Novelty/Patentability search” for final year students of ECE, SJEC, Mangalore.
- Resource person for a workshop on "Thermal and Structural analysis Using ANSYS software" for undergraduate students on 20th October 2021 at St Joseph Engineering College, Mangaluru.
- Invited talk on “Applications of Mathematics in Engineering and Technology” for undergraduate students on 06th August 2022 at Sandur College, Ballery.
- Resource person for a workshop on "Thermal and Structural analysis Using ANSYS software" for undergraduate students on 20th October 2021 at St Joseph Engineering College, Mangaluru.
- Assisted in a workshop on “Computational Fluid Dynamics – Hands on Training using ANSYS-FLUENT Software” organized by Department of Mathematics, CHRIST (Deemed to be University), Bangalore from 26-27 November 2019.
- Placement co-ordinator for Masters Program at Department of Mathematics, CHRIST (Deemed to be University) during the period June 2015 to May 2017.
- Elected as a General Secretary of the Vasavi Hostel, Tumakuru, in 2015
- Scholarship received for securing first rank in Tumkur University in 2013.

REFERENCES

Dr T V Joseph

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CHRIST (Deemed to be University)

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Dr Purushothama Chippar

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