Faculty Profile

Brief Profile (Few Paragraphs)

Dr. Basavaraja R J holds a Ph.D. in Engineering from the prestigious Indian Institute of Technology (IIT) Madras, specializing in energy and clean combustion. His doctoral research earned him the GE Eco-imagination Award for the best Ph.D. thesis at IIT Madras in 2015. With significant expertise in clean combustion technologies and carbon capture, Dr. Basavaraja has contributed to the development of chemical looping combustion-based power plant designs aimed at enhancing energy efficiency and reducing carbon emissions.

Throughout his career, Dr. Basavaraja has actively presented his research at leading conferences, including those held at IIT Bombay, IIT Madras, and Pennsylvania State University, USA, focusing on advancements in clean energy. He has published extensively in high-impact journals from Elsevier and Springer and has successfully completed two minor funded research projects. His innovative work led to a patent grant for a graphene-based thermal swing carbon capture system. Additionally, Dr. Basavaraja has conducted in-depth studies on the synthesis and characterization of advanced materials such as graphene, lime-based compounds, and covalent organic frameworks (COF-1), further contributing to the field of sustainable energy solutions.

Personal Information

- **Name:** Basavaraja R J
- **Designation:** Associate Professor
- **Department:** Chemical Engineering
- **Email:** basavarajarj@rvce.edu.in
- **Phone:** 8431

Google Scholar: https://scholar.google.com/citations?user=_gMoEDkAAAAJ&hl=en

ORCID: 0000-0002-4853-1551

Domain of Expertise

Clean Energy and Combustion

Research Focus

- **Primary Area:** Energy generation with CO_2 Capture
- **Allied Areas:**
  - Power Plant with carbon capture, Materials for CO_2 absorption
  - Chemical Looping Combustion, oxyfuel combustion

Academic Qualifications

- **Ph.D.**: Chemical Engineering, Indian Institute of Technology, Madras, 2015
- **M.Sc./M.Tech**: Chemical Engineering, Visvesvaraya Technological University, 2005
- **B.E./B.Tech**: Chemical Engineering, Visvesvaraya Technological University, 2002
- **Postdoctoral Research:** NA

Professional Experience

Experience

S.No	Institute/College/Industry	Job Title	Duration (From- To)
1.	R V College of Engineering, Bengaluru	Associate Professor	01/08/2016 to Till date
2.	R V College of Engineering, Bengaluru	Assistant Professor	11/08/2006 to 30/07/2016
3.	Siddaganaga Institute of Technology, Tumkuru	Assistant Professor	22/08/2005 to 30/06/2006

Publications & Patents

Journal Publications (Selected)

1. Basavaraja R. J. Development of multimode gas-fired combined-cycle chemical-looping combustion-based power plant layouts. Environ Sci Pollut Res 29, 54967–54987, 2023.
2. Basavaraja, R.J. Rahul, O. Ranganatha, M. Suhas, K.S. Vishnumurthy, K.A. Reduction of Chromium in Waste Water From Hard Chrome Plating Processes: A Review. Asian Journal of Water, Environment and Pollution, vol. 20, no. 1, pp. 49-55, 2023.
3. Viability of Fuel Switching of a Gas-fired Power Plant Operating in Chemical-Looping Combustion Mode, Basavaraja, R. J. and Jayanti, S. Energy, 81, 213-221, 2015.

4. Syngas-Fueled, Chemical-Looping Combustion-based Power Plant Lay-out for Clean Energy Generation, Basavaraja, R. J. and Jayanti, S, J. Clean Technol. and Environ. Policy, 17, 237-247, 2015.
5. Synthesis of porous graphene powder through improved Hummers' method, Basavaraja R. J., American Institute of Physics, 1966, pp 02001-14, 2018.
6. Comparative Analysis of four Gas-Fired, Carbon Capture-enabled Power Plant Lay-outs. Basavaraja, R. J. and Jayanti, S. J. Clean Technol. and Environ. Policy, 8, 2143-2156, 2015

Conference Papers (Selected)

1. Basavaraja R J, Development of Biodegradable Cellulose Acetate Membrane Material for the Separation of Oil-Water Emulsion. International Conference on Sustainable Technology (ICST-2025), Feb 19-20, 2025, NIT Mysuru.
2. Basavaraja R J, Carbonation of Lime-based Materials Under Ambient Conditions for CO2 in Direct Air Capture. International Conference on Sustainable Technology (ICST-2025), Feb 19-20, 2025, NIT Mysuru.
3. Samhita Kiran, Ujwal Shreenag Meda, Shravan Ranga, Antony Raj M a L and Basavaraja R J. Advances in Incorporation of Nanomaterials Onto Fabrics, ECS transactions, Volume 107, 1, 4853, 2022
4. Basavaraja, R. J. and Rajith Kumar, B. K. (2021) The Influence of Instructional Methods on Critical Thinking: A Comparison of Innovative Learning and Conventional Approach in Education. AICTE sponsored National conference on "Critical Thinking for GenZ-Multidisciplinary Approach (CTGZMA-2021)". R V College of Engineering, 28th & 29th October 2021.
5. Basavaraja R. J., Rajith Kumar, B. K., Uma B. V., Kendaganda Swamy (2021) Enhance the Critical Thinking ability among Engineering Students using Problem based Learning. AICTE sponsored National conference on "Critical Thinking for GenZ-Multidisciplinary Approach (CTGZMA-2021)". R V College of Engineering, 28th & 29th October 2021.
6. Basavaraja R. J. (2018) Synthesis of porous graphene powder through improved Hummers' method, International Conference on Inventive Research in Material Science and Technology (ICIRMCT 2018), RVSIT, Coimbatore, Tamil Nadu.
7. Basavaraja, R. J. and Jayanti, S. (2013) Analysis of natural gas fired chemical-looping combustion steam cycle. International Conference on Mathematics in Chemical Kinetics and Engineering. IIT Madras, Chennai, India. February 4-6, 2013.
8. Basavaraja, R. J. and Jayanti, S. (2013) Thermodynamic cycle analysis of atmospheric chemical looping combustion-based power plant with carbon capture and sequestration. International Conference on Coal Science and Technology. State College, Pennsylvania, USA. September 29-04 October, 2013.

Books/Book Chapters

1. Vinutha Moses, Archna Narula, Chetan N, Vidya C, Basavaraja R J and Jagadish H Patil. Government Incentives for Sustainable Clean Energy, Biotechnology Innovations for a Sustainable Future: Integrating Clean Energy, Life on the Planet, Clean Water, and Climate Action, Springer Nature, 2025.

Patents [Filed / Published / Granted]

1. Fluid Jacketed Temperature Swing Adsorption System for Carbon Dioxide Capture using Graphene, 407395, Granted Year 2022.

R & Grants & Consultancy Projects

Ongoing & Completed Research Projects

- **NIL**

Ongoing & Completed Consultancy Projects

- Development of Graphene-based post-combustion carbon dioxide capture system, 28/03/2018 to 20/07/2018, Karnataka State Council for Science and Technology, PI.
- Design and Fabrication of Radio Frequency (RF) Curing Syatem for Polymer composites, 27/03/2017 to 20/07/2017, Karnataka State Council for Science and Technology, PI.

Professional Memberships

- IIChE (LM33542)
- ISTE (LM105899)

Awards & Recognitions

- GE Ecomagination Excellence award, IIT Madras, Chennai, 2016
- Award for best Research Contribution, R V College of Engineering, Bengaluru, 2016

Student Supervision

- **Ph.D. Candidates:** -
- **M.Tech/M.Sc. Students:** 5
- **Undergraduate Research Mentees:** 22

Professional Roles

- **Editorial Board:** NA
- **Chair/Committee Member:** Program Chair for 8th IEEE International Conference on Computational Systems & Information Technology for Sustainable Solutions [CSITSS-2024] held during Nov 7th, 8th and 9th 2024.
- **Industry Advisor:** NA

Teaching

Core Courses: [Current semester]

- Mass Transfer I
- Chemical Technology

Advanced/Lab Courses:

- Mass Transfer
- Heat Transfer

Professional Roles

Responsibilities

- **Academic:** Exam conduction Co-ordinator, AICTE Co-ordinator, VTU data Co-ordinator

  Administrative: Member for Internal Research committee, budget committee, purchase comitte, Aluminee,, Academic monitoring committee.

External Connect

Member of BoS / BoE / Academic Council / Governing Body etc

- BOE member to VTU and BMSCE Chemical Engineering boards.
- Technical Paper Setter for Karnataka Examination Authority Board.