Faculty Profile

Dr. Rajalakshmi Mudbidre is an accomplished academician and researcher with over two decades of interdisciplinary experience spanning environmental chemistry, chemical engineering, membrane technology, and environmental radioactivity. Currently an Assistant Professor in the Department of Chemical Engineering at RV College of Engineering, Bangalore, she holds a Ph.D. in Biomedical Sciences (Health and Environmental Chemistry) from Oakland University, Michigan. Her research integrates advanced analytical techniques and environmental modeling to address critical issues such as groundwater contamination, PCB distribution, and radionuclide tracing. She has held research and teaching roles in prestigious institutions in the USA and India, she has received research grants from BRNS, DST and KSCST, and has been recognized with multiple awards for academic excellence and research impact.

Personal Information

- Name: Dr. Rajalakshmi Mudbidre
- Designation: Assistant Professor
- Department: Chemical Engineering
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Domain of Expertise

Dr. Rajalakshmi Mudbidre is a multidisciplinary researcher with domain expertise in environmental radioactivity, polymer science, membrane technology, and water treatment. Her work spans critical areas such as uranium contamination in groundwater, radioisotope tracing (Po-210 and Pb-210) in aquatic systems, advanced polymer composites, and membrane development for desalination and arsenic removal. She has contributed to cutting-edge research on nanomaterials, graphene oxide membranes, and fuel cell catalyst alternatives, and holds a patent in nanostructured electrode materials for energy storage. Her cross-disciplinary collaborations and numerous international publications and presentations underscore her significant contributions to environmental safety, water purification, and materials science.

Research Focus

- Primary Area:
  - Fate and Transport of Chemicals
  - Membrane Technology

- Allied Areas:
  - Polymer Composites
  - Water Quality Analysis

Academic Qualifications

- Ph.D.: Biomedical Sciences, Health and Environmental Chemistry, 2009, Oakland University, Mi, USA.
- MTech: Masters in Chemical Engineering. Chemical Plant Design. *2003,* REC, Surathkal, (Presently NITK).
- B.E.: Bachelor of Chemical Engineering, *2000,* BMS College of Engineering, Bangalore

Professional Experience

Experience			
1	R.V College of Engineering, Bangalore	Assistant Professor	Jul 2011 - Present
2	Oakland University, MI, USA	Research Associate	Jun 2004 – Aug 2009
3	Macomb Community College, MI, USA	Adjunct Professor	Jul 2007 – Jun 2009
4	Oakland University, MI, USA	Adjunct Professor	Aug 2008 – Jan 2009
5	Oakland University, MI, USA	Lab Instructor	Jun 2004 – Jul 2007
6	Oakland University, MI, USA	Research Associate	Dec 2003 – Jun 2004
7	R.V College of Engineering, Bangalore	Lecturer	Aug 2003 – Dec 2003

Publications & Patents

Journal Publications

1. Poojashri Ravindra Naik, Vinod Alurdoddi Rajashekara, Rajalakshmi Mudbidre, Quantification of natural uranium and its risk evaluation in groundwater of Chikkaballapur district in Karnataka, India, Environmental monitoring assessment, 196: 779, August 2024. https://doi.org/10.1007/s10661-024-12913-7
2. Poojashri Ravindra Naik, Vinod Alurdoddi Rajashekara, Rajalakshmi Mudbidre, Estimation of Natural Uranium and Its Risk-Assessment in Groundwater of Bangalore Urban District of Karnataka, India, GEOMATICS AND ENVIRONMENTAL ENGINEERING, Volume 18, Number 2, Jan – 2024 https://doi.org/10.7494/geom.2024.18.2.21
3. Prakash Hadimani, P. Hadimani1, H. N. Narasimha Murthy and R. Mudbidre, Gangadhar Angadi, “Artificial seawater aging and chemical resistance of PPE/PS/Nylon-6/glass” International Polymer processing (Under Review)
4. J. Kavitha, Nagaraj S. Naik, A.R. Phani, G. Arthanareeswaran, M. Rajalakshmi, Mahesh Padaki, “Renewed physiognomies of titanium nanotubes for implementation in the polysulfone membrane matrix for desalination” Elsevier, Desalination. https://doi.org/10.1016/j.desal.2023.116444
5. J. Kavitha · M. Rajalakshmi · A. R. Phani · P. Sherugar · M. Padaki, “A transport channel-regulated graphene oxide-based composite membranes for salt rejection” Springer, International Journal of Environmental Science and Technology. https://doi.org/10.1007/s13762-022-04562-5

6. Iqra Arabia Ali Khan, Ujwal Shreenag Meda, Amrit Aman, Suresh R and Rajalakshmi Mudbidre, "Alternatives to Conventional Platinum-Based Catalysts in Polymer Electrolyte Membrane Fuel Cells", ECS Transactions, Volume 107, Number 1, 2022, https://doi.org/10.1149/10701.5487ecst

7. P. Hadimani1, H. N. Narasimha Murthy, Rajalakshmi Mudbidre and Gangadhar Angadi, "Effect of melamine cyanurate on thermal and flame-retardant behavior of chopped glass fiber reinforced Polyphenylene ether/Polystyrene Nylon-6", Polymers and polymer composites Vol-30; I-II, April 28, 2022, https://doi.org/10.1177/09673911221093165

8. Zakiya Tabassum and Rajalakshmi Mudbidre, "Treatment and Disposal methods of concentrate stream of seawater reverse osmosis- A Review, Nature Environment and Pollution Technology, Vol.20, No.4, pg., 1403-1414, December 2021. https://doi.org/10.46488/NEPT.2021.v20i04.003

9. Kavitha J, Pratyush K, Rajanikant L, Rishab K, Rajalakshmi M, "Studies on enhanced permeability of Graphitic carbon Nitride incorporated polysulfone composite membranes" RVJSTEAM, Vol 2, Issue 1, pg- 6-13, January, 2021.

10. Baskaran , R, Mudbidre, and L, Schweitzer., "Quantification of Po-210 and Pb-210 as tracer of sediment resuspension rate in a shallow riverine system: Case study from Southeast Michigan, USA"., *Journal of Environmental Radioactivity" - Elsevier publication*, Volume 222, October 2020, 106339, https://doi.org/10.1016/j.jenvrad.2020.106339

11. P. Hadimani1, H. N. Narasimha Murthy and R. Mudbidre ., "Thermal and mechanical properties of glass fibre reinforced polyphenylene ether/polystyrene/nylon-6 ternary blends" , *Polymers and polymer composites*, August 19, 2020, https://doi.org/10.1177/0967391120949490

12. P. Hadimani1, H. N. Narasimha Murthy and R. Mudbidre , "Processing and Characterization of Polyphenylene Ether/Polystyrene/Nylon-6 Ternary Blend", *International polymer processing,* Volume 35, Issue 2 (April 2020): page: 169-183
https://doi.org/10.3139/217.3864

13. J. Kavitha, M. Rajalakshmi, A.R. Phani and Mahesh Padaki , "Pretreatment processes for seawater reverse osmosis desalination systems—A review", *Journal of Water Process Engineering" - Elsevier publication*, Volume 32, December 2019, Article: 100926, Pg 1-13, https://doi.org/10.1016/j.jwpe.2019.100926.

14. R Mudbidre, M Baskaran, L Schweitzer, "Investigations of the partitioning and residence times of Po-210 and Pb-210 in a riverine system in Southeast Michigan, USA", *Journal of environmental radioactivity*, 138(2014), 375-383

15. Ashwin Shenoy, Abhita Dhavamani, Shifa S Fathima, Jagadish H Patil, Rajalakshmi M, "Optimization of Pre-Treatment Process in Sea Water Reverse Osmosis Plant", *International Journal of Innovative Research in Science, Engineering and Technology*, Vol. 3, Issue 7, July 2014, ISSN: 2319-8753

Conference Papers

1. Poojashri R. Naik, Vinod A. R. and Rajalakshmi M. A Study on Quantification of Uranium in Southern District of Karnataka 2nd GEAST Global Conference on Energy, Environment & Climate Change (EECC-2022) Organized By: Council of Industrial Innovation & Research (CIIR) B-17, Sector-6, Noida Uttar Pradesh, India. 201301 on September 10, 2022
2. J. Kavitha, M. Rajalaksmi, A.R. Phani, Mahesh Padaki. Fabrication of Graphene oxide/polysulfone mixed matrix membranes exhibiting improved permeability and antifouling properties for desalination. Second international

conference on sustainable Technologies for Water Treatment and Desalination (STWTD-2022) on 28-29 January 2022, Department of Chemical Engineering, National Institute of Technology, Calicut.

3. Mark Baskaran, Rajalakshmi Mudbidre, and Linda Schweitzer. An insight into the riverine suspension using Po-210 and Pb-210 as Tracers. 'Fourth International Conference on Po and Radioactive Pb Isotopes', East China Normal University, Shanghai, China, 8-11 April 2019.
4. Prakash Hadimani, P. Hadimani1, H. N. Narasimha Murthy and R. Mudbidre, "Processing and Characterization of PPE/PS/Nylon-6 ternary blends" 7th International conference on Novel Polymeric materials, SJCE, Mysore 15-16 September 2017
5. Prakash Hadimani, P. Hadimani1, H. N. Narasimha Murthy and R. Mudbidre "Development of PPE/PS blends with special extruder and process design" International conference on Advanced Materials. S J C E Mysore, presented on 26-28 May 2016
6. Rajalakshmi Mudbidre, Mark Baskaran, and Linda Schweitzer, "210Po and 210Pb as tracers *of particle cycling and resuspension in a dynamic freshwater system: Case Study from Clinton River, Southeast Michigan*,", Paper presented at American Geophysical Union's 46th annual Fall Meeting, San Francisco, California – Dec 9-13, 2013
7. Rajalakshmi Mudbidre, Linda Schweitzer, Edith Chopin and Ed Van Hees, *"Distribution and sources of PCBs in surficial, core and suspended sediments from the Clinton River Watershed, SE Michigan, USA"*, Paper presented at 3rd International Conference on Environmental Pollution and Remediation, Toronto, Canada, July 15 – 17, 2013
8. R Mudbidre, M Baskaran, L Schweitzer, "Investigations of the partitioning of 210 Po and 210 Pb in a riverine system in Southeast Michigan, USA, Proceedings of the second international conference on Po and radioactive Pb, INCO-PoPb-2013: 2. international conference on Po and radioactive Pb isotopes; Mangalore (India); 10-13 Feb 2013

Poster Presentation

1. A Poster titled "Composite membranes of mixed metal oxides and polysulfone for Arsenic removal" was presented at "International conference on frontiers in materials from basic science to real time applications" held at Centre for Nano and Material sciences, Jain Global Campus, Jakkasandra post, Kanakapura Road, Bangalore, during 13th -16th June 2019

Patents

1. Patent office journal number - 7/2023 dated 17/2/2023
   Title of Invention: Synthesizing $NiSe_2$ Active electrode nanoparticles for high energy density asymmetric supercapacitor coin cell. Date of filing: 4/1/2023 Publication date: 17/02/2023

Ongoing & Completed Research Projects

1. Project Title: Spatial Distribution of Uranium and associated water quality parameters in Bangalore Urban, Bangalore Rural, Ramanagara, Kolar and Chikkamagalur districts in Karnataka.
   Funding agency: BRNS
2. Carbon based nano composite mixed matrix membranes for desalination.
   Funding agency: DST
3. Transesterification of Pongamia Oil using Ionic Liquids (UG) (2015)
   Funding Agency: Karnataka State and Karnataka State Council for Science and Technology.
4. Transesterification of Pongamia Oil using Solid Based Catalyst (UG) (2014)
   Funding Agency: Karnataka State Council for Science and Technology

Professional Memberships

- Indian Society for Technical Education (ISTE) – Life Member

Awards & Recognitions

- Provost Graduate Student Research Award, Michigan- 2008 – 09.
- Research excellence award, Oakland University, Michigan. 2005-06.
- Graduate student scholarship, Oakland University, Michigan. 2004-05

Student Supervision

- Ph.D. Candidates: 2 Students
- M.Tech/M.Sc. Students: 6 Students
- Undergraduate Research Mentees: 28 Students

Teaching

Core Courses:

- Chemical Process Calculations
- Process Heat Transfer
- Green Technology
- Piping Engineering and Design
- Process Dynamics and Control

Lab Courses:

- Process Dynamics and Control
- Process Heat Transfer

Professional Roles & Responsibilities

- Academic: Associate- Dean, Cultural Activities, Department Exam Unit Coordinator.
- Administrative: Process Dynamics and Control Lab-In charge