

Dr.Vishnumurthy K A

A dedicated and passionate educator in the field of Chemistry, with a strong commitment to teaching engineering students. The research interests span a broad range of materials chemistry, including nanomaterials, conducting polymers, chemical sensors, and energy storage devices. With numerous peer-reviewed publications, the work reflects a deep engagement with topics such as photophysical behavior, polymer-based functional materials, and advanced sensing mechanisms. This dual focus on innovative research and impactful teaching underscores a continual effort to inspire students and contribute meaningfully to scientific advancement.



Personal Information

- **Name:** Dr.Vishnumurthy K A
- **Designation:** Assistant Professor
- **Department:** Department of Chemistry
- **Email:** vishnumurthyka@rvce.edu.in
- **Phone:** 08068188228

Google Scholar: <https://scholar.google.com/citations?user=A00aVTYAAAAJ&hl=en>

ResearchGate: https://www.researchgate.net/profile/Dr-Vishnu-Murthy-K-A?ev=hdr_xprf

ORCID: <https://orcid.org/my-orcid?orcid=0000-0002-1982-2771>

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=56320807800>

Domain of Expertise

Conjugated polymers, Nanocomposites, Sensors, Photonics and synthetic chemistry

Research Focus

- **Primary Area:** Conjugated polymers and sensors
- **Allied Areas:**
 - Polymer composites
 - Gas sensory materials
 - EMI shielding materials
 - Organic materials for photonics

Academic Qualifications

- **Ph.D.:** National Institute of Technology Karnataka (2011)
- **M.Sc./M.Tech:** Industrial Chemistry, Kuvempu University (2007)
- **B.Sc.** Kuvempu University (2005)

- **Postdoctoral Research:** National Institute of Interdisciplinary Science Trivandrum (2012) Indian Institute of Science, Bengaluru (2013)

Professional Experience

Experience			
S.No	Institute/College/Industry	Job Title	Duration (From- To)
1.	RV College of Engineering	Assistant Professor	Nov 2013-present
2.	Indian Institute of science	Postdoctoral Research	Jan 2013 to Nov 2013
3	NIIST Trivandrum (photonic division)	Postdoctoral Research	Jun 2012 to jan-2013
4	National Institute of Karnataka Surathkal	PhD	Jan 2009- June 2012
5	Syngene International Biocon Ltd.	Scientist	June 2007 to Jan 2009

Publications & Patents

Journal Publications

1. H. S. Rashmi, K. A. Vishnumurthy, and R. Kusanur, "High-Performance Hydrogen Sulfide Gas Sensors Based on Conjugated Polymer Nanocomposites," Polymer Bulletin 2025.
2. A Vasudeva Adhikari M. S. Sunitha, P. Naik, and K. A. Vishnumurthy, "Synthesis of nonlinear heteroaromatic donor-acceptor conjugated polymers: Structural, theoretical, electrochemical, and optical properties," Polymer Engineering and Science, vol. 1, no. 1, pp. 1-13, 2025.
3. D. N. Patagar Dayanand N. Patagar, Raviraj Kusanur, Sheetal R. Batakurki, Maya Pai M, Vishnumurthy K. A, Swarna M. Patra, Aejaz A. Khan, "Synthesis, evaluation of antioxidant and antidiabetic potential of 3-ethoxy carbonyl coumarin-8-propionamides," Journal of the Indian Chemical Society, vol. 101, no. 12, p. 101465, 2024.
4. K. A. Vishnumurthy, R. Kusanur, and S. K. Swamy, "Naked eye detection of anions: Dihydrazone receptor-based visual sensing," Journal of the Indian Chemical Society, vol. 101, no. 11, p. 101431, 2024.
5. Yashesh Vijay Rajyaguru, Aditi Pandey, Arko Bose, Vishnumurthy KA. "Greening the future: Pioneering lithium battery recycling and beyond in the E-mobility revolution," Vietnam Journal of Chemistry, vol. 62, no. 5, pp. 704-716, 2024.
6. K. S. Anu, K. A. Vishnumurthy, A. Mahesh, and K. Natarajan, "Carbon fiber-reinforced, activated carbon-embedded copper oxide nanoparticles/epoxy hybrid composites for EMI shielding in aircraft applications," Polymer Bulletin, vol. 81, no. 10, pp. 8723-8750, 2024.
7. N. K. Anu K. S. and V. K. A. Journal, "preparation, Charecterization and electromagnetic shielding properties of Nickel doped Fe3O4/epoxy composites," Journal of Mines, Metals and Fuels, vol. 1, no. 1, pp. 134-142, 2024.
8. Dhivyadharshini Dhivyadharshini, Sindhu S Raj, BJ Arpita, KA Vishnumurthy "Unveiling the Performance Symphony of Iron Fluoride Cathodes in Advanced Energy Storage

- Devices," Korean Journal of Chemical Engineering, vol. 41, no. 1, pp. 53–72, 2024.
9. K. A. Vishnumurthy, K. S. S. Kendaganna, and K. H. Girish, "Naked Eye Detection of Fluoride Ions using Simple Dihydroxy Chalcone Sensor," RV Journal of Science Technology Engineering Arts and Management, vol. 4, no. 1, pp. 1–14, 2023.
 10. H. S. Rashmi, K. A. Vishnumurthy, K. H. Girish, and K. Raviraj, "Design and development of conjugated polymer-ferrite composite for selective recognition of NO₂ vapors," Journal of Molecular Structure, vol. 1271, p. 134149, 2023.
 11. K. S. Anu, K. A. Vishnumurthy, and K. Natarajan, "Preparation, Characterization and Electromagnetic Shielding Properties of Nickel-Doped Fe₃O₄/Epoxy Composites," Journal of Mines, Metals and Fuels, pp. 134–142, 2023.
 12. K. S. Anu, K. A. Vishnumurthy, A. Mahesh, and K. Natarajan, "Effect of carbon fiber reinforcement on the mechanical and electromagnetic shielding properties of the Fe₃O₄-carbonaceous/epoxy composites," Polymers for Advanced Technologies, 34(9), 2946–2960, 2023.
 13. KA Basavaraja, R.J.*, Rahul, O., Ranganatha, M., Suhas, K.S. and Vishnumurthy, "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. 49–56, 2023.
 14. Rashmi Hulimane Shivaswamy, Vishnumurthy Kanive bagilu Ananthapadmanabha, Raviraj Kusanur. "Highly sensitive acetone sensor based on conjugated polymer nanocomposites," Polymers for Advanced Technologies, 2023.
 15. KA Vishnumurthy, S Pramodini, P Poornesh, KK Nagaraja, TN Ahipa., "Design and synthesis of polyindole-ZnO nano composite for NLO applications," Journal of Indian Chemical Society, vol. 100, no. 1, p. 100827, 2023.
 16. K. S. Anu, K. A. Vishnumurthy, A. Mahesh, B. S. Suresh, and K. Natarajan, "Fabrication and comparison of mechanical and EMI shielding properties of various fibre reinforced multi-layered epoxy composites," Journal of the Indian Chemical Society, vol. 99, no. 10, p. 100720, 2023.
 17. R. K. Rashmi H. S. and K. A. Vishnumurthy, "Room temperature ammonia sensing by polyaminophenol-cobalt oxide nano composite sensor," RV Journal of Science Technology Engineering Arts and Management, 2022.
 18. R. S. A. Darshan S., S. B. W., and K. A. Vishnumurthy, "Simulation of CO Gas Sensing by Molybdenum Oxide using COMSOL Multiphysics," RV Journal of Science Technology Engineering Arts and Management, 2022.
 19. Vidya Niranjana Vishnumurthy K A, Haritha Rajaram, Harshitha N, Shweta A Ram, Swarna M Patra, "Targeting Non-Structural Proteins and 3CLpro in SARS-CoV-2 Virus using Phytochemicals from Medicinal Plants – In-silico Approach," Journal of Indian Chemical Society, vol. 99, no. 6, p. 100488, 2022.
 20. Sridhar R, Amith V, Aditya S, Vishnumurthy K.A Gangadhar A, "Electrospun PVDF/Cloisite-30B and PVDF/BaTiO₃/Graphene Nanofiber Mats for Development of Nanogenerators," Journal of Indian Chemical Society, Vol 99, Issue 6, June 2022, 1005012022.
 21. K. H. Girish, K. A. Vishnumurthy, and T. S. Roopa, "Role of conducting polymers in enhancing the stability and performance of perovskite solar cells: a brief review," Materials Today Sustainability, vol. 17, p. 100090, 2022.
 22. Nagaraj S Naik, Prajwal Sherugar, KA Vishnumurthy, G Arthanareeswaran, Diganta B Das, Mahesh Padaki., "Polycarbene-bearing membrane surface containing silver species for size and charge selective molecular separation," Environmental Science: Water Research & Technology, vol. 8, no. 10, pp. 2381–2397, 2022.
 23. J. H. Patil, K. A. Vishnumurthy, R. Kusanur, and R. Melavanki, "Synthesis and characterization of chitosan-hydroxyapatite composite for bone graft applications," Journal of the Indian Chemical Society, vol. 99, no. 1, p. 100308, 2022.
 24. K. A. Vishnumurthy and K. H. Girish, "A comprehensive review of battery technology for

- E-mobility," *Journal of the Indian Chemical Society*, vol. 98, no. 10, p. 100173, 2021.
25. Vidya Niranjana Ashwini S, Ghazala Masood, Harshitha B S, Sinchana H Vishnumurthy K A, Swarna M Patra., "Role of Absciscic Acid in Plant Growth and Regulation: An Insilico Study," *RV Journal of Science Technology Engineering Arts and Management (ISSN 2582)*, 2021.
 26. NS Naik, M Padaki, AM Isloor, KK Nagaraja, KA Vishnumurthy, "Poly (ionic liquid)-Based charge and size selective loose nanofiltration membrane for molecular separation," *Chemical Engineering Journal*, vol. 418, p. 129372, 2021.
 27. K. A. Vishnumurthy and K. H. Girish, "Synthesis, photophysical, electrochemical and computational study of indolocarbazole based donor acceptor type conjugated polymers," *Chemical Papers*, vol. 75, no. 5, pp. 1969-1980, 2021.
 28. V Amith, R Sridhar, A Gangadhar, KA Vishnumurthy, "Design and synthesis of PVDF-cloisite-30B nanocomposite fibers for energy harvesting applications," *Surfaces and Interfaces*, vol. 22, p. 100869, 2021.
 29. K. A. Vishnumurthy, K. H. Girish, and A. V. Adhikari, "Synthesis, physicochemical properties and computational study of donor-acceptor polymer for optical limiting application," *SN Applied Sciences*, vol. 2, p. 1727, 2020.
 30. K. H. Girish and S. G. Pallavi, "Synthesis, Experimental and Theoretical Study of Imine based Conjugated Polymer for Humidity Sensing Applications," *RV Journal of Science Technology Engineering Arts and Management*, 2020.
 31. K.A. Vishnumurthy a, Arul Varman Kesavan b, S.K. Swathi b, Praveen C. Ramamurthy, "Low band gap thienothiophene-diketopyrrolopyrrole copolymers with V2O5 as hole transport layer for photovoltaic application," *Optical Materials*, vol. 109, p. 110303, 2020.
 32. K. A. Vishnumurthy and A. V. Adhikari, "Reduction of nitro compounds carrying electron withdrawing groups: A convenient approach without metal catalyst," *Chemical Data Collections*, vol. 20, p. 100211, 2019.
 33. K. N. Pallavi S. G. and K. A. Vishnumurthy, "Effect of silver nanoparticles on the ammonia gas sensing behavior in diphenylamine based conjugated polymer," *Advanced Materials Letters*, vol. 10, no. 3, pp. 215-221, 2018.
 34. S. G. Pallavi, K. A. Vishnumurthy, and K. Natarajan, "Detection of Low Concentration Ammonia Gas Using Diphenylamine Based Conjugated Polymer Sensors," *Sensor Letters*, vol. 16, no. 6, pp. 460-466, 2018.
 35. Amith Veerabhadraiah, Sridhar Ramakrishna, Gangadhar Angadi, Mamtha Venkatram, Vishnumurthy Kanivebagilu Ananthapadmanabha, Narasimha Murthy Hebbale NarayanaRao, Krishna Munishamaiah. "Development of polyvinyl acetate thin films by electrospinning for sensor applications," *Applied Nanoscience*, vol. 7, pp. 355-363, 2017.
 36. R. Kottokkaran, A. Vishnumurthy, AV Kesavan, NV Vinila, PC Ramamurthy, "Thienothiophene-benzoxadiazole based conjugated copolymer for organic photovoltaic application," *Materials Today Communications*, vol. 11, pp. 132-138, 2017.
 37. M. M. Poojary, K. A. Vishnumurthy, and A. V. Adhikari, "Extraction, characterization and biological studies of phytochemicals from *Mammea suriga*," *Journal of Pharmaceutical Analysis*, vol. 5, no. 3, pp. 182-189, 2015.
 38. MG Murali, KA Vishnumurthy, S Seethamraju, PC Ramamurthy, "Colorimetric anion sensor based on receptor having indole-and thiourea-binding sites," *RSC Advances*, vol. 4, no. 39, pp. 20592-20598, 2014.
 39. S. M. Shivashankar, V. K. Anantapadmanabha, and A. V. Adhikari, "Optical limiting materials: Synthesis, electrochemical and optical studies of new thiophene based conjugated polymers carrying 1, 3, 4-oxadiazole units," *Polymer Engineering & Science*, vol. 53, no. 6, pp. 1347-1356, 2013.
 40. M. S. Sunitha, K. A. Vishnumurthy, and A. V. Adhikari, "Synthesis and two-photon absorption property of new π -conjugated donor-acceptor polymers carrying different heteroaromatics," *Journal of Chemical Sciences*, vol. 125, pp. 29-40, 2013.
 41. Vishnumurthy, K. A., Sunitha, M. S., & Adhikari, A. V. Synthesis and characterization of

- thiophene-based donor-acceptor type polyimide and polyazomethines for optical limiting applications. *Polymer bulletin*, 70, 147-169. 2013.
42. M. S. Sunitha, A. V. Adhikari, and K. A. Vishnumurthy, "Nonlinear optical studies of a π -type conjugated polymer containing heterocyclic moieties," *International Journal of Applied Physics and Mathematics*, vol. 2, no. 6, p. 436, 2012.
 43. K. A. Vishnumurthy, M. S. Sunitha, and A. V. Adhikari, "New optical limiting polymeric materials with different π -electron conjugation bridge structures: Synthesis and characterization," *European Polymer Journal*, vol. 48, no. 9, pp. 1575-1585, 2012.
 44. MS Sunitha, AV Adhikari, KA Vishnumurthy, K Safakath, R Philip, "Large third-order nonlinearity of new π -conjugated donor-acceptor polymers with substituted thiophene and 1, 3, 4-oxadiazole moieties," *International Journal of Polymeric Materials*, vol. 61, no. 7, pp. 483-504, 2012.
 45. MS Sunitha, AV Adhikari, KA Vishnumurthy, N Smijesh, R Philip, "Electrochemical and Nonlinear Optical studies of new D-A type π -Conjugated polymers carrying 3, 4-Benzoyloxythiophene, oxadiazole, and 3, 4-Alkoxythiophene systems," *Chemistry Letters*, vol. 41, no. 3, pp. 234-236, 2012.
 46. K. A. Vishnumurthy, M. S. Sunitha, R. Philip, and A. V. Adhikari, "New diphenylamine-based donor-acceptor-type conjugated polymers as potential photonic materials," *Reactive and Functional Polymers*, vol. 71, no. 12, pp. 1119-1128, 2011.
 47. KA Vishnumurthy, MS Sunitha, K Safakath, R Philip, AV Adhikari, "Synthesis, electrochemical and optical studies of new cyanopyridine based conjugated polymers as potential fluorescent materials," *Polymer*, vol. 52, no. 19, pp. 4174-4183, 2011.
 48. KA Vishnumurthy, AV Adhikari, MS Sunitha, KAA Mary, R Philip, "Design and synthesis of a new thiophene based donor-acceptor type conjugated polymer with large third order nonlinear optical activity," *Synthetic Metals*, vol. 161, no. 15-16, pp. 1699-1706, 2011.

Conference Papers

1. H. S. Rashmi, K. A. Vishnumurthy, and R. Kusanur, "Design and synthesis of new conjugated copolymer for methanol sensing application," *Materials Today: Proceedings*, vol. 54, pp. 596-601, 2022.
2. V. K. A. Praveen C. Ramamurthy Khadija Kanwal Khanum, V. Narayan, and V. P. K., "Hierarchical Structures of Thiophene and Pyrrole Derivatives for Optoelectric Application: Morphological Advances," in *2020 5th IEEE International Conference on Emerging Electronics (ICEE)*, 2020.
3. KM Ajay, MN Dinesh, KA Vishnu Murthy, CR Ravikumar, HP Nagaswarupa, "Deposition & Electrochemical characterization of Multilayer coated electrode material for super capacitor application," *Materials Today: Proceedings*, vol. 5, no. 10, pp. 21452-21457, 2018.
4. S. G. Pallavi, K. A. Vishnumurthy, and K. Natarajan, "Naked eye detection of ammonia gas using diphenylamine based conjugated polymers," *Materials Today: Proceedings*, vol. 5, no. 10, pp. 21421-21426, 2018.
5. Kush Benara, Sumanth Baliga, Devikiran D Pai, Suhas Shenoy, KA Vishnumurthy, MJ Vidya, Satheesh Babu Gandla, "Fabrication of a sensor to detect low concentration of methane: a bio-marker of colon cancer," in *2016 IEEE Annual India Conference (INDICON)*, 2016, pp. 1-4.
6. CS Satish, BM Girija, K Zumair, SA Kumar, KB Ramesh, KA Vishnumurthy, "Design of portable electronic instrument for detection of urea in milk by fabrication of urea sensor using ZnO nanoparticles," in *2016 IEEE International Conference on Recent Trends in Electronics*, 2016.
7. J Roopa, R Muniraj, TM Magaraj, Satya Narayana BS, Geetha KS, KA Vishnu Murthy, "Development of a Conducting Polymer [polyaniline] based gas sensor," in *2015 International Conference on Electrical, Electronics, Signals*, 2015.

8. Gurumurthy Hegde, MM Yusoff, AK Srivastava, VG Chigrinov, HS Kwok, AV Adhikari, K Vishnumurthy, "Recent developments in photoalignment technology: Alignment properties of a thiophene based bis-hydrazone derivative," in Proceedings of the International Display Workshops, 2012, pp. 97-98.
9. M. S. Sunitha, A. V. Adhikari, K. A. Vishnumurthy, and R. Philip, "Nonlinear optical properties of a newly synthesized thiophene based conjugated polymer," in AIP Conference Proceedings, vol. 1391, no. 1, pp. 703-705, 2011.
10. K. A. Vishnumurthy, A. V. Adhikari, M. S. Sunitha, and R. Philip, "Synthesis and characterization of a new conjugated polymer bearing pyrazole and thiophene moieties as potent NLO material," in AIP Conference Proceedings, vol. 1391, no. 1, pp. 652-654, 2011.
11. RA Alla, G Hegde, K Ravi, AV Adhikari, KA Vishnumurthy, L Komitov. "Photoalignment of nematic liquid crystal by thin films of bishydrazones derived from 3, 4 dipropoxythiophene," 1-64, 2010.

Patents Filed / Published / Granted

1. A method of synthesis of polymer nano composites for the detection of ethanol vapour in room temperature. 202341084841. Filed-Date 12-12-2023.
2. A method for the synthesis of poly(oxydb-codiacetonitrile) polymer nano composite (for methyl amine sensing). 202341040378, Published. Date 20-12-2024
3. A composition and method for preparation of edible ligands-based metal organic framework. 202441077006. Published Date 25/10/2024.

R & Grants & Consultancy Projects

Ongoing & Completed Consultancy Projects

- e-NoSens: An IoT based smart and portable sensor device for rapid detection of meat spoilage – Funding Agency: BioSouk Life Sciences LLP, Duration: March 2023-Apr-2025, Role: Co-PI.

Professional Memberships

- Life member ISTE- LM - 136089

Awards & Recognitions

- Young researcher of the year award by ISTE RVCE :2023
- Best poster award "International conference on Recent Trends in material science and technology, Tiruvananthapuram, 18-21, October 2010
- Gajendraghad Goldmedal from Kuvempu University: First rank award in M. Sc. (Industrial chemistry): 2007

Student Supervision

- Ph.D. Candidates: 2 Graduated
- M.Tech/M.Sc. Students: 10
- Undergraduate Research Mentees: 14

Professional Roles

- Chair/Committee Member: Convenor for the 8th IEEE International Conference on Computational Systems & Information Technology for Sustainable Solutions CSITSS-2024

Teaching

Core Courses: Current semester

- CM221IB: Chemistry of Functional Materials
- CM266TEG: Advanced energy storage for e-mobility

Responsibilities

- **Academic:** Time Table Coordinator- department of Chemistry

External Connect

- Member BoE: Department of Chemistry Rajarajeshwari College Engineering