

CURRICULUM VITAE



Correspondence address:-

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Dept. of Chemistry

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Career Aspiration:

Attaining a respectful position in an institution that values performance and commitment. I would be pleased to be associated with an institution that provides a congenial atmosphere to exploit my strengths.

Personal details :

Name: Dr. Pavithra K S

Date of Birth: 29th March, 1990.

Marital Status: Unmarried

Nationality: Indian

Languages known: Kannada, English, Hindi,

Educational Profile

| Degree | Year | University | Subjects | Marks/ Class |
|--------------|------|--|--|----------------------|
| B.Sc | 2010 | A V K Women's College, Davanagere, Kuvempu University | Chemistry, Botany Zoology | Distinction |
| M.Sc | 2012 | Kuvempu University | Industrial Chemistry | 5 th Rank |
| B. Ed | 2015 | B E A college, Davanagere, Davanagere University | Science Biology Chemistry | Distinction |
| Ph. D | 2020 | Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal | Thermal properties of nanofluids for heat transfer applications | Awarded |

Research Experience

- Selected as a project assistance for carrying out collaborative research work with Prof. Shivaraj at **Govt. science college**, Bangalore in 2016.
- Joined as Research Fellow at **Manipal Institute of Technology, MAHE, Manipal** under the guidance of Dr. M.P. Yashoda in 2017. A research topic entitled "A study on the effect of polymer dispersant on thermal conductivity of metal oxide based nanofluids".

➤ Teaching Experience

3 years of teaching experience in GM Institute of Technology, Davanagere

Summary of Research work:

Research work was taken up to explore the possibility of enhancing the thermal conductivity and stability of the nanofluids used as coolants for heat transfer applications. A key role is to enhance the thermal stability by using various dispersants such as ionic, non-ionic and functionalized copolymer and grafted copolymers as dispersants.

Studies carried out:

- Synthesis of nanoparticles and characterized by Ultra Violet spectroscopy (UV), X-ray diffraction (XRD), Scanning Electron Microscopy (SEM) and (Transmission electron microscopy (TEM).
- Synthesis of polymer dispersants by free radical polymerization technique and confirmed by Infrared spectroscopy (IR), Nuclear Magnetic Resonance spectroscopy (NMR).
- Preparation of nanofluids using polymer dispersants for the thermal conductivity measurement and compared the experimental results with the existing classical models.
- To study the heat transfer efficiency of nanofluids by using the heat pipe experiment and the obtained data are correlated with the theoretical models.

Journal Publications:

1. Synthesis, Characterization and Thermal Conductivity of CuO - Water based nanofluids with different Surfactants

Pavithra K.S, Fasiulla, Yashoda M.P, Prasannakumar S, *Part. Sci. Technol.*, vol 38 (5). 559-567, 2020. <https://doi.org/10.1080/02726351.2019.1574941>.

2. Viscosity and thermal conductivity of ZnO nanofluids stabilized by grafted SMA-g-MPEG copolymer for heat transfer applications

Pavithra K S, Yashoda M.P, Prasannakumar S, Srinivas Mutalik, *Iranian Polymer Journal*, vol. 29, pp.185–196, 2020. <https://doi.org/10.1007/s13726-020-00784-x>.

3. Effect of microwave irradiation power for the morphological changes of ZnO nanoparticles

K S Pavithra, Fasiulla and M P Yashoda, *Mater. Sci. Eng.* 577, 012120, 2018. <https://doi.org/10.1088/1757-899X/577/1/012120>.

4. Polymer dispersant stabilized Ag nanofluids for heat transfer applications

Pavithra K S, Gurumurthy S C, Yashoda M P, Tarun Mateti, Koduri Ramam, Roopa Nayak, Murari M S, *J Therm Anal Calorim.* vol. 146, pp. 601–610, 2021. <https://doi.org/10.1007/s10973-020-10064-8>.

5. Thermal conductivity of structurally designed copolymer stabilized ZnO nanofluid and its application in heat pipes

Pavithra K S, Yashoda M.P, A. Brusly Solomon, *International Journal of Experimental and thermal sciences*, (under review).

6. Analysis of shape dependency of thermal conductivity of silver-based nanofluids.

Smita Mahadevappa N, Vasavi Prasuna Silaparasetti, Shilpa M P, **Pavithra K S**, Shridhar M, K S Eshwarappa , Koduri Ramam , Ravikirana , Gurumurthy S C. *J Therm Anal Calorim* (2022). <https://doi.org/10.1007/s10973-022-11604-0>

7. Investigation of thermal conductivity and thermal performance of heat pipes by structurally designed copolymer stabilized ZnO nanofluid

Pavithra, K.S., Parol, V., Brusly Solomon, A. *et al. Sci Rep* **13**, 14219 (2023). <https://doi.org/10.1038/s41598-023-39598-1>

8. Synergistic effect of polymers dispersant for thermal performance of ZnO nanofluids for heat exchangers.

Pavithra K S, Gurumurthy SC, Shivakumar J S, *International Journal of Chemical Engineering Research and Design*, (under review).

9. Surface functionalized MWCNTs for degradation of organic dyes

Shivakumar Jagadish Shetty, Shilpa M P, Saideep Shirish Bhat, Shivamurthy R C, **Pavithra K S**, Gurumurthy S C, *Mater. Chem. Phys*, **311**, 128566 (2024).

10. Tailoring Nanofluidic Solutions: Functionalized MWCNTs and MXene for Enhanced Heat Transfer Performance

Shivakumar Jagadish Shetty, Shilpa M P, Saideep Shirish Bhat, Shivamurthy R C, **Pavithra K S**, Gurumurthy S C (communicated)

Oral/ Poster Papers Presented in Conferences:

- 1. Poster presented,** K S Pavithra, Fasiulla and M P Yashoda, “Effects of dispersants on stability and thermal conductivity of CuO/ water based nanofluids” in the international conference on emerging materials (ICEM 2017), department of chemistry, Vidyasagar University, Midnapore.
- 2. Poster presented,** K S Pavithra, Fasiulla and M P Yashoda, “Synthesis, characterisation of Al₂O₃-water based nanofluids: Role of dispersants” in the international conference on emerging trends in chemical sciences (ICETCS 2017), Dept. of Chemistry, MIT, Manipal University, Manipal.
- 3. Poster presented,** K S Pavithra, Fasiulla and M P Yashoda, “Viscosity and thermal conductivity of ZnO nanofluids stabilized by grafted SMA-g-MPEG copolymer for heat transfer applications” in Manipal research colloquium (2019), Manipal Academy of Higher Education, Manipal.
- 4. Poster presented,** K S Pavithra and M P Yashoda, “functionalized poly (styrene-co-2 acrylamide-2-methyl propane sulfonic acid) copolymer as dispersant for thermal conductivity of ZnO nanofluids” in national conference on trends in materials and chemical sciences (TMCS 2019), Dept. of Chemistry, Manipal Academy of Higher Education, Manipal.
- 5. Oral presentation,** K S Pavithra, Fasiulla and M P Yashoda, “Effect of microwave irradiation power for the morphological changes of ZnO nanoparticles” in international conference on 23 advances in material science and manufacturing engineering (ICON AMMA 2018), Dept. of Mechanical engineering, Amrita University, Bangalore
- 6. Oral presentation,** K S Pavithra and M P Yashoda, “effect of polymer dispersants on dispersibility and thermal conductivity of CuO water based nanofluids” in second national conference on advanced materials for health, energy and environment (AMHEE-2019), Dept. of Chemistry, JSS Science and Technology University, Mysore.

Workshops attended:

1. Attended the KSTA National conference on “**Impact of Science and Technology on Society and Economy**” organized by Karnataka Science and Technology Academy (KSTA), DST, GoK and Vijayanagara Sri Krishnadevaraya University, Bellary on 8-9th March 2017.
2. Attended one day workshop on “**Advanced Chemical Research for Engineering Applications**”, organized by Department of Chemistry, NMAMIT, Nitte on 20th July 2017.
3. Attended one day symposium on “**Recent Advances in Nanoscience and Technology**” organized by Department of Atomic and Molecular Physics, MIT, Manipal Academy of Higher Education, Manipal on 24th September 2018.
4. Attended one day workshop jointly organized by “**Springer Nature and Manipal Academy of Higher Education**”, organized by Manipal Academy of Higher Education, Manipal on 11th September 2019.

Expertise and Skills

- Acquainted knowledge in synthesis of nanoparticles and polymer synthesis
- Acquainted knowledge in using spectroscopic analysis (UV-Vis, IR & NMR) and analyzing the spectral data.
- Acquainted knowledge in data analysis of SEM, TEM, XPS, XRD, and AFM.
- Acquainted knowledge in Thermal analysis (DSC, TGA & DTA)
- Acquainted knowledge in the evaluation of Thermal conductivity of nanofluids and heat pipe experiments.

Computer knowledge

- Acquainted knowledge in MS Office, Web site design, Internet surfing.
- Acquainted knowledge in using Mendeley software's for reference citations.
- Acquainted knowledge in using software's for data analysis, Trancion software for particle size measurement, Origin, Chemdraw, Chemskech.

Teaching Experience:

- ✓ Working as lecturer at Dept of Chemistry, Basaveshwara PU College, Davanagere engaged for 1st and 2nd Year PUC in the year 2013-14.
- ✓ Presently working as an Assistant Professor, Dept. of Chemistry, GM Institute of Technology, Davanagere since from Novemeber 11th 2021.

Role and Responsibility:

- Class coordinator
- Science forum coordinator
- NAAC coordinator
- NBA coordinator

Declaration

I hereby declare that the information provided is to the best of my knowledge. I can provide documented evidences for my claims up on requested.

Place: Davanagere

Date: 22nd August, 2024

Dr. Pavithra K S