



# KLE Technological University

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Leveraging Knowledge

B. V. Bhoomaraddi Engineering & Technology College Campus, Hubballi - India

Department of Electrical Electronics Engineering

## CERTIFICATE

*This is to certify that the REU project entitled "Fuzzy logic based indirect field-oriented control of Induction motor drives" is a work carried out by, Achala Ayodhya (01FE18BEE003) bonafide student of VII Semester, Department of EEE, KLE Technological University, Hubballi for the fulfillment of the REU Project assigned for VII semester, BE in Electrical Electronics Engineering. The project report has been approved as it satisfies the academic requirements specified by the University.*

Signature of the guide  
(Mr.Sachin Angadi)

Signature of the H.O.D  
(Dr.A.B.Raju)

Signature of the Registrar  
(Dr. N. H. Ayachit)

Name of the examiners

1 Dr. S. B. Karajm

2 Dr. Anant Nank

Signature with date



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

2021-22

**CERTIFICATE**

*This is to certify that the REU project entitled "Fuzzy logic based zero direct-axis current control of PMSM drives" is a work carried out by, Adhithi Joshi (01FE18BEE004) bonafide student of VII Semester, Department of EEE, KLE Technological University, Hubballi for the fulfillment of the REU Project assigned for VII semester, BE in Electrical Electronics Engineering. The project report has been approved as it satisfies the academic requirements specified by the University.*

Signature of Guide  
(Dr. A. B. Raju)

Signature of H. O. D  
(Dr. A. B. Raju)

signature of Registrar  
(Dr. N. H. Ayachit)

Name of the examiners

1 Dr. S. B. Karajin

2 Dr. Anant Naik

Signature with date

K.L.E SOCIETY'S

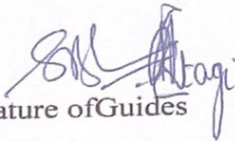
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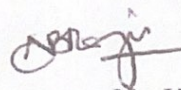



School of Electrical and Electronics Engineering

CERTIFICATE

This is to certify that research on “A Comparative study of standalone DC Microgrid for different converter topologies” is a bonafide work carried out by Aishwarya B Kallanagoudar(01FE18BEE007), in partial fulfillment of the award of Degree of Bachelor of Engineering in Electrical and Electronics engineering during the year 2021-22. The research thesis has been approved as it satisfies the academic requirement with respect to the research work prescribed for the above said program.

  
Signature of Guides  
(Dr. S B Karajgi)  
(Ms. Anupama Itagi)

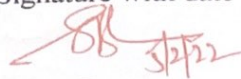

  
Signature of the HOD  
(Dr. A B Raju)

  
Signature of the Principal  
(Dr. Ashok Shetter)

Name of Examiner

1. Dr. S.B. Karajgi
2. Dr. Anant Wate

Signature with date



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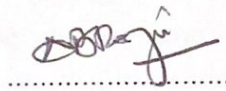
### Certificate

This is to certify that the Research Experience for Undergraduates entitled "Power Quality Assessment in Electrical Power Distribution System Integrated with Distributed Energy Resources" is a work carried out by C Shrivaiashnavi (01fe18bee091), student of VII Semester, Department of EEE, KLE Technological University, Hubballi for the partial fulfillment of the Research Experience for Undergraduates assigned for VII semester, BE in Electrical & Electronics Engineering. The project report has been approved as it satisfies the academic requirements specified by the University.



Signature of the Guide

(Dr. S B. Karajgi)  
(Ms. Aditi Kadam)



Signature of the H.O.D

(Dr. A. B. Raju)

.....

Signature of the Registrar

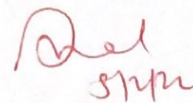
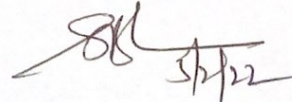
(Dr. N. H. Ayachit)

Name of Examiner

1. Dr. S.B.K. Karajgi

2. Dr. Anant Nark

Signature with Date



# Nanoparticles infused di-electric fluids for power transformer applications

Aishwarya Yallappa Baddi

Guide: Dr. N R Banapurmath, Dr. A M Sajjan

School of Mechanical Engineering | aishwaryabaddi95@gmail.com



## Problem statement

Synthesis of Nanoparticles infused di-electric fluids for power transformer applications.

## Objectives

- ✓ **Synthesization and characterization** of nanofluids for transformer applications.
- ✓ Investigate the stability of prepared nanofluids by **UV spectroscopy**.
- ✓ Study of interaction between non-edible oils of **Honge and Cotton seed** with **NPs** using **FTIR**.
- ✓ Evaluate **dielectric properties** of prepared nanofluids.
- ✓ Evaluate **thermal properties** of prepared nanofluids.

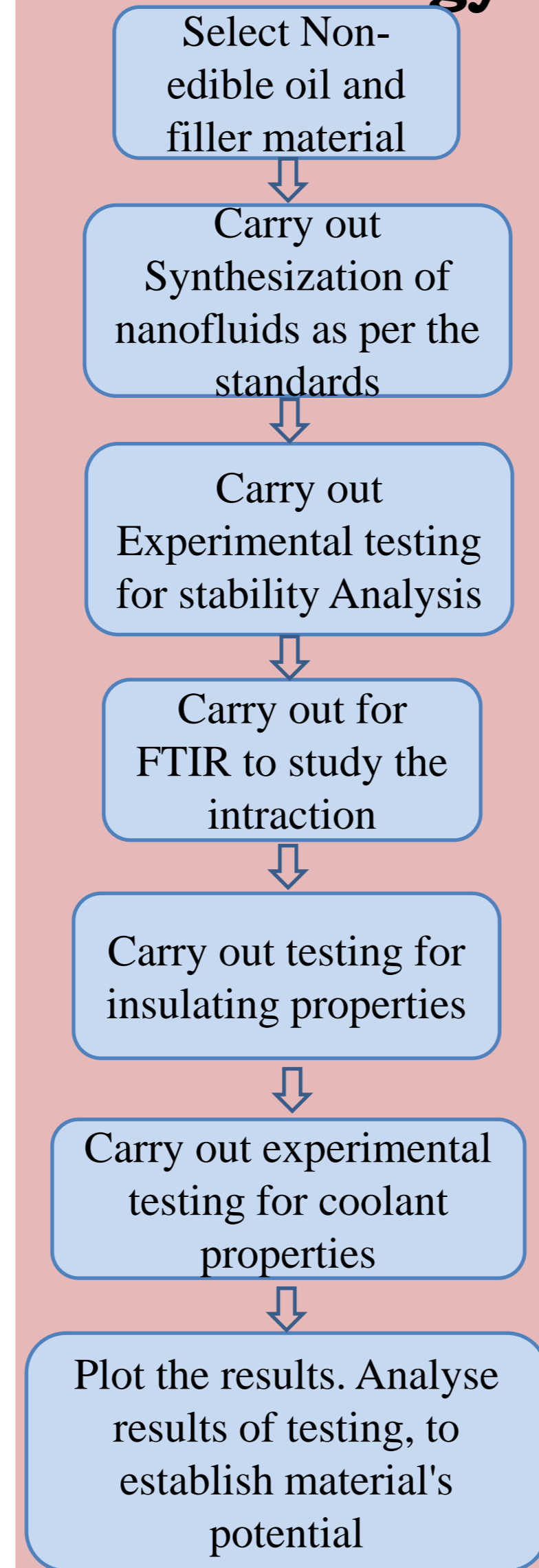
## Contributions

- ✓ Honge oil and Cotton seed oil infused with Graphene Amine (GA) and Graphene (GNPs) nanoplatelets as the transformer oil as alternative replacement for commercial transformer oil application.

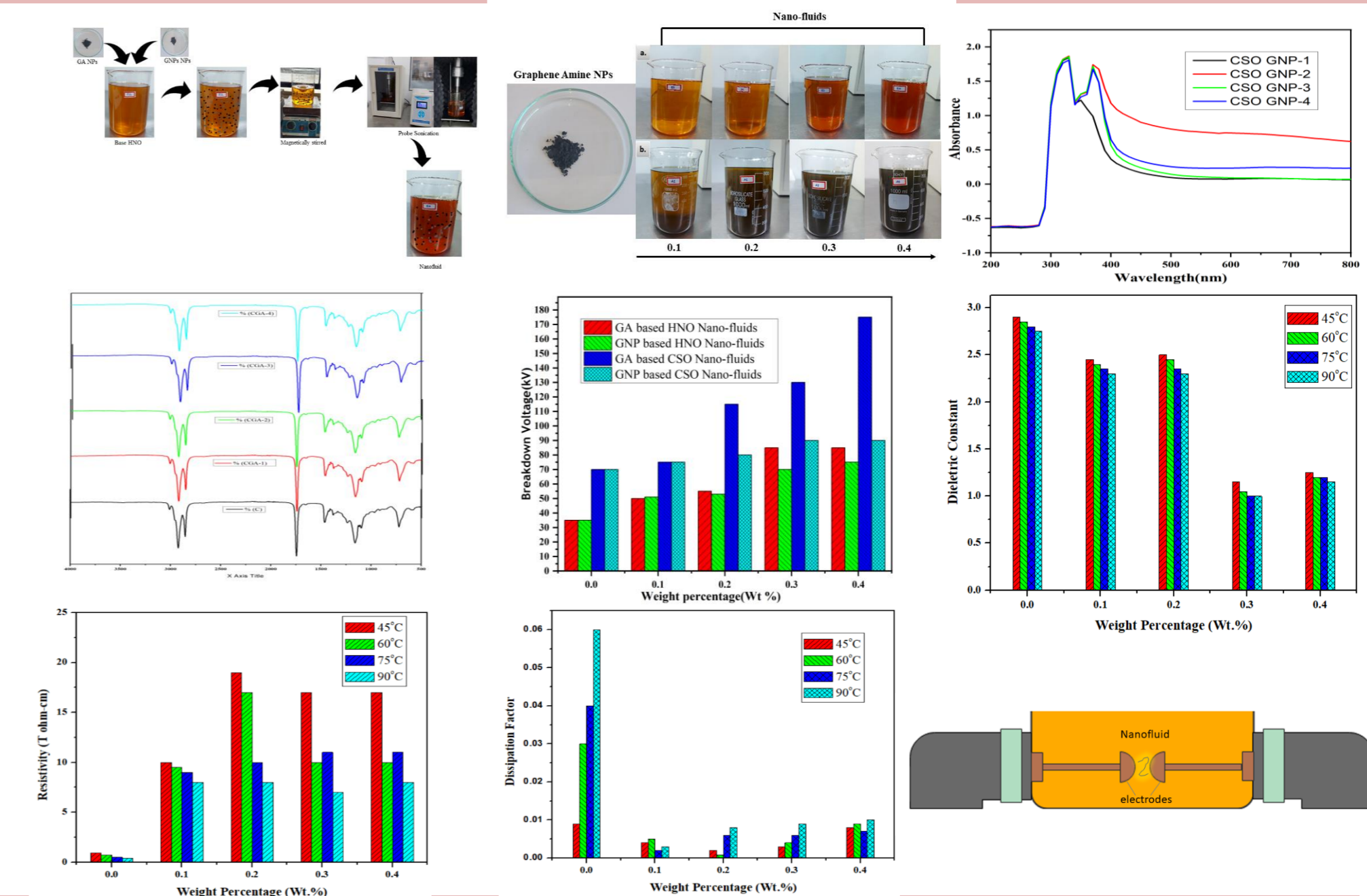
## Research plan

- Synthesis of Nanofluids with Honge oil and Cotton seed oil with 1 litre infused with GA and GNPs at different weight percentage of 0.1 to 0.4 wt. % concentration.
- Characterisation studies such as FTIR, UV-Vis Spectroscopy, Dielectric constant, Resistivity, Breakdown Voltage, Dissipation Factor for prepared Nanofluid, Flash point, Specific Heat .

## Methodology



## Results



## Conclusions

- ✓ Among the all tested samples CSO based nanofluids have shown the on average more than 75% of stability.
- ✓ The AC BDV has been enhanced by about 48.57%. at GA based CSO weight percentage of 0.04 wt.% comparing to all other nano-fluids. The dielectric constant indicated a slight increase against weight percentage of GA and GNPs nanosheets up to 0.02 wt.%, followed by a remarkable decrease at 0.03 wt.% and 0.04 wt.%. The resistivity has been increased and the dissipation factor has been decreased against weight percentage of GA and GNPs nanosheets up to 0.02 wt.%. Nanofluids behaved as smart fluids capable of dissipating more heat at higher temperatures, where the highest enhancement at 65 °C was 36.4% compared to 15.8% at 35 °C.

## Publications

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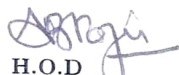
This is to certify that research on "*Multi-Machine Power System: Voltage and Transient Stability*" is a bonafide work carried out by the student *Mr. Bimayak Chanda*, in partial fulfilment of the award of Degree of Bachelor of Engineering in Electrical and Electronics during the year 2021 - 22. The research thesis has been approved as it satisfies the academic requirement concerning the research work prescribed for the above said program.

  
Guide

(Dr.A.B.Raju)

  
Co-Guide

(Prof.Minal Salunke)

  
H.O.D

(Dr.A.B.Raju)

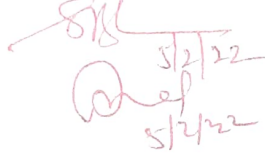
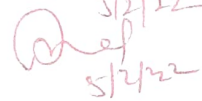
Registrar

(Dr.N.H.Ayachit)

**Name of Examiners**

1. Dr. S.B. Karajin
2. Dr. Anant Naik

**Signature**

  
5/2/22  
  
5/2/22