



# MAHENDRA ARTS & SCIENCE COLLEGE (Autonomous)

Affiliated to Periyar University, Salem.

Accredited by NAAC with 'A' Grade & Recognized u/s 2(f) and 12(B) of the UGC Act 1956  
Kalippatti - 637 501, Namakkal (Dt), Tamil Nadu.

## DEPARTMENT OF PHYSICS

### Students Undertaking Field Projects/Internships/In-plant Training/Student Projects

Programme : M.Sc. PHYSICS

S.No.	Reg. No.	Name	Field Projects	Internships	In-plant Training	Student Projects
1	19MPH1001	S. MURALI	-	-	-	✓
2	19MPH1003	K. SHARATH	-	-	-	✓
3	19MPH1004	B. DURGA	-	-	-	✓
4	19MPH1005	K. SATHYA	-	-	-	✓

  
Head of the Department

Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Asst. Professor & Head,  
Department of Physics,  
Mahendra Arts & Science College,  
Kalippatti-637 501.

  
Principal

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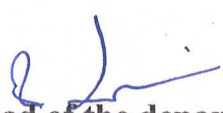
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## DEPARTMENT OF PHYSICS

### List of students completed Project - 2020 - 2021

Programme : M.Sc. PHYSICS

S. No.	Register number	Name of the student	Title of the project
1	19MPH1001	S. MURALI	ESR Studies on Pure and Doped Tungsten Oxide ( $WO_3$ ) Nanomaterials
2	19MPH1003	K. SHARATH	ESR Studies on Allotropic Modifications of Tungsten Oxide ( $WO_3$ ) Nanomaterials
3	19MPH1004	B. DURGA	Tight focusing properties of double ring shaped cylindrically polarized hollow gaussian beam
4	19MPH1005	K. SATHYA	Generation of super long focal depth by using phase modulated higher order radially polarized cosh gaussian beam

  
Head of the department

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**Microwave Assisted Pure and Doped Tungsten Oxide  $WO_3$   
nanoparticles for Superconducting Applications**

*A Project submitted to Mahendra Arts & Science College in partial fulfillment of  
the Requirements for the award of the Degree of*

**MASTER OF SCIENCE IN PHYSICS**

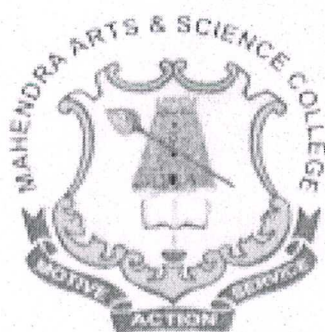
**By**

**S. MURALI**

**Reg. No.19MPH1001**

**Under the guidance of**

**Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Assistant Professor & Head/Physics**



**DEPARTMENT OF PHYSICS**

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**NAMAKKAL – 637 501**

**May – 2021**

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**Kalippatti (PO) - 637 501, Namakkal (DT)**

  
**Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
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Department of Physics,  
Mahendra Arts & Science College,  
Kalipatti-637 501.**

Dr.V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Assistant Professor & Head  
Department of Physics  
Mahendra Arts and Science College (Autonomous)  
Namakkal- 637 501



## CERTIFICATE

I certify that the *project* entitled “Microwave Assisted Pure and Doped Tungsten Oxide  $WO_3$  nanoparticles for Superconducting Applications” Submitted By S. MURALI (Register No.19MPH1001) to Mahendra Arts & Science College in partial fulfillment for the award of degree of Master of Science in Physics is a bonafide research work carried out by her during the period from 2020 to 2021 under my guidance and supervision and it has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship or any other similar titles in this or any other University or Institution of higher learning.

Research Supervisor

Head of the Department

Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Asst. Professor & Head,  
Department of Physics,  
Mahendra Arts & Science College,  
Kalipatti-637 501.

Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Asst. Professor & Head,  
Department of Physics,  
Mahendra Arts & Science College,  
Kalipatti-637 501.

Viva Voce Examination held at MAHENDRA ARTS & SCIENCE COLLEGE,  
Kalippatti.

Internal Examiner

**PRINCIPAL**

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Kalippatti (PO) - 637 501, Namakkal (DT)

Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Asst. Professor & Head,  
Department of Physics,  
Mahendra Arts & Science College,  
Kalipatti-637 501.

Identifying the electrochemical performance of  $Mn_3O_4$   
nanocomposite materials

*A Project submitted to Mahendra Arts & Science College in partial fulfillment of  
the Requirements for the award of the Degree of*

**MASTER OF SCIENCE IN PHYSICS**

By

**K. SHARATH**

**Reg. No.19MPH1003**

**Under the guidance of**

**Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Assistant Professor & Head/Physics**



**DEPARTMENT OF PHYSICS**

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Asst. Professor & Head,  
Department of Physics,  
Mahendra Arts & Science College,  
Kalipatti-637 501.

Dr.V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Assistant Professor & Head  
Department of Physics  
Mahendra Arts and Science College (Autonomous)  
Namakkal- 637 501



## CERTIFICATE

I certify that the project entitled "Identifying the electrochemical performance of  $Mn_3O_4$  nanocomposite materials" Submitted By K. SHARATH (Register No.19MPH1003) to Mahendra Arts & Science College in partial fulfillment for the award of degree of Master of Science in Physics is a bonafide research work carried out by her during the period from 2020 to 2021 under my guidance and supervision and it has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship or any other similar titles in this or any other University or Institution of higher learning.

**Research Supervisor**

Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Asst. Professor & Head,  
Department of Physics,  
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Kalipatti-637 501.

**Head of the Department**

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Asst. Professor & Head,  
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Kalipatti-637 501.

**Viva Voce Examination held at MAHENDRA ARTS & SCIENCE COLLEGE,  
Kalippatti.**

**Internal Examiner**

Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Asst. Professor & Head,  
Department of Physics,  
Mahendra Arts & Science College,  
Kalipatti-637 501.

**PRINCIPAL**  
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Kalipatti (PO) - 637 501, Namakkal (DT)

**FOCUSING PROPERTIES OF CYLINDRICALLY POLARIZED  
VORTEX BEAM**

*A Project submitted to Mahendra Arts and Science College in partial fulfillment of the  
requirements for the award of the Degree of*

**MASTER OF SCIENCE IN PHYSICS**

**By**

**B.DURGA**

**Reg. No.19MPH1004**

**Under the guidance of**

**Dr.K.PRABAKARAN, M.Sc., M.Phil., Ph.D.,  
Assistant Professor in Physics**



**PG & RESEARCH DEPARTMENT OF PHYSICS**

**MAHENDRA ARTS AND SCIENCE COLLEGE (AUTONOMOUS)**

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**MAY– 2021**

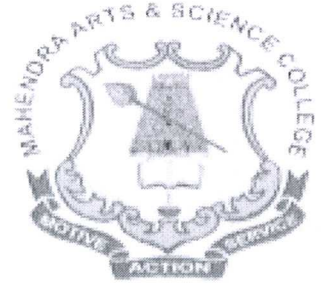
**PRINCIPAL**

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Kalippatti (PO) - 637 501, Namakkal (DT)

  
**Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,**  
Asst. Professor & Head,  
Department of Physics,  
Mahendra Arts & Science College,  
Kalippatti-637 501.

Dr.K.PRABAKARAN, M.Sc., M.Phil., Ph.D.,  
Assistant Professor  
PG & Research Department of Physics  
Mahendra Arts and Science College (Autonomous)  
Namakkal- 637 501



## CERTIFICATE

I certify that the project entitled “ FOCUSING PROPERTIES OF CYLINDRICALLY POLARIZED VORTEX BEAM” submitted by Ms.B.DURGA (Register No.19MPH1004) to Mahendra Arts And Science College in partial fulfillment for the award of degree of Master of Science in Physics is a bonafide research work carried out by her during the period from 2019 to 2021 under my guidance and supervision and it has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship or any other similar titles in this or any other University or Institution of higher learning.

**Research Supervisor**

Dr. K. PRABAKARAN, M.Sc., M.Phil., Ph.D.  
Assistant Professor,  
Department of Physics,  
Mahendra Arts & Science College,  
NAMAKKAL - 637 501

**Head of the Department**

Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Asst. Professor & Head,  
Department of Physics,  
Mahendra Arts & Science College,  
Kalippatti-637 501.

**Viva Voce Examination held at MAHENDRA ARTS & SCIENCE COLLEGE,  
Kalippatti on 24-7-21**

**Internal Examiner**

Dr. K. PRABAKARAN, M.Sc., M.Phil., Ph.D.  
Assistant Professor,  
Department of Physics,  
Mahendra Arts & Science College,  
NAMAKKAL - 637 501

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**CREATION OF SUBWAVELENGTH FOCAL SPOT WITH A LONG  
FOCAL DEPTH GENERATED BY LONGITUDINALLY  
POLARIZED LAGUERRE BESSEL  
GAUSSIAN BEAM**

*A Project submitted to Mahendra Arts and Science College in partial fulfillment of the  
requirements for the award of the Degree of*

**MASTER OF SCIENCE IN PHYSICS**

**By**

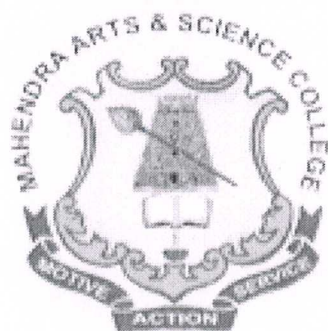
**K.SATHYA**

**Reg. No.19MPH1005**

**Under the guidance of**

**Dr.K.PRABAKARAN, M.Sc., M.Phil., Ph.D.,**

**Assistant Professor in Physics**



**PG & RESEARCH DEPARTMENT OF PHYSICS**

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**MAY– 2021**

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Asst. Professor & Head,  
Department of Physics,  
Mahendra Arts & Science College,  
Kalipatti-637 501.

Dr.K.PRABAKARAN, M.Sc., M.Phil., Ph.D.,  
Assistant Professor  
PG & Research Department of Physics  
Mahendra Arts and Science College (Autonomous)  
Namakkal- 637 501



## CERTIFICATE

I certify that the project entitled "CREATION OF SUBWAVELENGTH FOCAL SPOT WITH A LONG FOCAL DEPTH GENERATED BY LONGITUDINALLY POLARIZED LAGUERRE BESSEL GAUSSIAN BEAM" submitted by Ms.K.SATHYA (Register No.19MPH1005) to Mahendra Arts And Science College in partial fulfillment for the award of degree of Master of Science in Physics is a bonafide research work carried out by her during the period from 2019 to 2021 under my guidance and supervision and it has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship or any other similar titles in this or any other University or Institution of higher learning.

**Research Supervisor**

Dr. K. PRABAKARAN, M.Sc., M.Phil., Ph.D.  
Assistant Professor,  
Department of Physics,  
Mahendra Arts & Science College,  
NAMAKKAL - 637 501

**Head of the Department**

Dr. V. HARIHARAN, M.Sc., M.Phil., Ph.D.,  
Asst. Professor & Head,  
Department of Physics,  
Mahendra Arts & Science College,  
Kalipatti-637 501.

**Viva Voce Examination held at MAHENDRA ARTS & SCIENCE  
COLLEGE, Kalippatti on 24-7-2021**

**Internal Examiner**

Dr. K. PRABAKARAN, M.Sc., M.Phil., Ph.D.  
Assistant Professor,  
Department of Physics,  
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