



**Mr. K. BABU** M.Sc., (Physics)., M.Phil., (Ph.D)

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## 1. Career Objective

To become a successful professional in research and teaching in Physical Sciences, work innovatively, and stay competitive with emerging trends.

## 2. Educational Qualifications

- **Currently Pursuing - Ph.D. in Physics (Part-Time)**  
K.S. Rangasamy College of Arts and Science (Autonomous), Tiruchengode  
Affiliated to Periyar University, Salem
- **M.Phil. in Physics (Full-Time)**  
Government Arts College (Autonomous), Karur  
Affiliated to Bharathidasan University, Tiruchirappalli  
**CGPA: 9.08 | Year: 2015**
- **M.Sc. in Physics**  
K.S. Rangasamy College of Arts and Science (Autonomous), Tiruchengode  
Affiliated to Periyar University, Salem  
**CGPA: 8.60 | Year: 2014**
- **B.Sc. in Physics**  
K.S. Rangasamy College of Arts and Science (Autonomous), Tiruchengode  
Affiliated to Periyar University, Salem  
**CGPA: 8.74 | Year: 2012**
- **H.S.C. (State Board)**  
Government Boys Higher Secondary School, Sivagiri  
**Percentage: 74.5% | Year: 2009**
- **S.S.L.C. (State Board)**  
Government Boys Higher Secondary School, Sivagiri  
**Percentage: 78.6% | Year: 2007**

## 3. Teaching Experience

- **Assistant Professor and Head – Department of Physics**  
**K.S.R. College of Arts and Science for Women, Tiruchengode, Tamil Nadu**  
*May 02, 2025 – Present (4 Months and 6 days)*
- **Assistant Professor – Department of Physics**  
**K.S.R. College of Arts and Science for Women, Tiruchengode, Tamil Nadu**  
*June 1, 2016 – April 30, 2025 Present (8 years and 10 Months)*

- **Assistant Professor – Department of Physics**

**Vidhya Mandhir Institute of Technology**, Ingur, Chennimalai, Erode, Tamil Nadu

August 5, 2015 – May 31, 2016 (*9 months and 26 days*)

**Total Teaching Experience: Approximately 10 years**

#### 4. Grand Received as a Principal Investigation

Title of the Projects	Amount & Investigator	Scheme	Period	Status	Funding Agency
Efficient Detection of Ammonia Gas using V-Doped ZnO/Reduced Graphene Oxide Nanocomposites with Industrial Enhancement (Ref. No.: PS-15/2024-2025)	Rs. 7500/- & <b>Principal Investigator</b>	Student Project Scheme	3 Months	Completed	TNSCST

#### 5. Online Certificate Courses & Skill Development Programme

- Successfully completed an online course on “Basics of Remote Sensing, Geographical Information System, and Global Navigation Satellite System” conducted by the **Indian Institute of Remote Sensing (IIRS)** from 17th August 2020 to 20th November 2020 (Total duration: 84 hours).
- Successfully completed an online course on “Geospatial Inputs for Enabling Master Plan Formulation” conducted by the **Indian Institute of Remote Sensing (IIRS)** from 27th July 2020 to 31st July 2020.
- Successfully completed the Skill Development Training Programme on “Electrochemical Biosensor: Design and Application”, conducted by **CSIR–Central Electrochemical Research Institute (CECRI), Karaikudi**, from 5th July 2021 to 9th July 2021.
- Completed the **NPTEL Online Certification Programme** in the topic “**Solar Photovoltaic Applications**” with **Elite Grade** in **November 2024**.
- Completed the **NPTEL Online Certification Programme** on “**Structural Analysis of Nanomaterials**” during **July–August 2019**.
- Completed the **NPTEL-AICTE Online Faculty Development Programme** in the course “**Structural Analysis of Nanomaterials**” during **July–August 2019**.

## 6. UGC – Malaviya Mission Teacher Training Programme

- UGC-Sponsored Online Short Term Programme in Environment & Sustainable Development  
*Bharathidasan University, Tiruchirappali.*  
Completed from 10.12.2024 to 16.12.2024 with Grade 'A'
- UGC-Sponsored Online Short Term Programme in Research Methodology in Sciences  
*Bharathiar University, Coimbatore (On going – 05.08.2025 to 12.08.2025)*

## 7. Online Coursera Programme

List of the following courses are completed during May- June 2024

- Ethics, Technology, and Engineering
- Materials Science: 10 Things Every Engineer Should Know
- Quantum Mechanics
- Communication in the 21st Century Workplace
- Electrodynamics: Analysis of Electric Fields
- How Things Work: An Introduction to Physics

## 8. Awards

- Awarded **Best Library User** for the month of February 2024 by Rabindranath Tagore Library, K.S.R. College of Arts and Science for Women, Tiruchengode.
- Secured **First Rank in the M.Phil. Degree Examination** during the academic year 2014–2015.
- Secured **School First Mark in Biology** in the 12th Standard Board Examination.

## 9. Detail of Patent

S.No	Title of the Invention	Inventors	Journal No	Publishe don
01	<b>Portable 3D Printer for the development of nanofiber</b>	G. Suresh Kumar, K. Lalithambigai, K. Babu, S. Surendhiran, S. Ranjith Priyan	51/2023	21/12/2023

## 10. Journal Publication

S. No	Names of Authors	Title of Paper	Name of Journal	Year, Volume & Page No	Impact Factor (As per SJR 2023)
01	<b><u>Babu K. *,</u></b> Umamaheswari N. and MonishaB.	Chemical and Green Synthesis, Characterization, Electrical and Antimicrobial Activity of ZrO <sub>2</sub> Nanoparticles	Journal of Chemistry and Environment	Vol. 28 (11) November (2024)	0.9

02	<b><u>K. Babu</u><sup>1*</sup></b> , S. Shobana <sup>1</sup> , Y. A. Syed Khadar <sup>1</sup> and M. Haris <sup>2</sup>	Biosynthesis of Iron Oxide nanoparticles from Catharanthus roseus plant leaves and its Antibacterial Activity	Journal of Functional Materials and Biomolecules	Vol.3 (2) (2019) pp 338 – 341.	-
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## 10. Book Publications

S. No	Author (s) Name	Book/Chapter	Title of the Book/ Chapter	Publishers with ISBN/ ISSN	Year
01	<b><u>K. Babu</u><sup>a,*</sup></b> , V. Harini <sup>a</sup> , S. Jayasri <sup>a</sup> , P. Pachamuthu <sup>b</sup>	Recent Innovation in Science and Technology for Sustainability	Environmental Sustainability: Carbon-Based Nanomaterials for Bio-medical Applications	<i>EroGanic Publications</i> , <b>ISBN: 978-81- 19824-57-1, PP – 70-84</b>	2025

## 11. Conference Proceedings with ISBN

- **Presented and published a conference proceeding (ISBN 978-81-971000-3-1)** titled *“Enhancing Gas Sensor Performance of ZnO Nanoparticles: The Impact of Surfactants”* at the International Conference on Smart NextGen Nanomaterials for Sustainable Development of Energy and Environment – An Interdisciplinary Approach (ICSSE-2024), Department of Physics, Dr. NGP College of Arts and Science (Autonomous), Coimbatore (15–16 October 2024).
- **Presented and published a conference proceeding (ISBN 978-81-971000-3-1)** titled *“Synthesis of Reduced Graphene Oxide Combined with Zinc Oxide and Its Enhanced Properties by the Hydrothermal Method”* at ICSSE-2024, Dr. NGP College, Coimbatore (15–16 October 2024).
- **Presented and published a conference proceeding (ISBN 978-81-977004-2-2)** titled *“Investigation on the Microwave-Assisted Growth of V-Doped ZnO Nanorods and Their Performance in Electrochemical Sensors”* at the International Conference on Innovations in Materials Science (ICIMS-2024), Department of Physics, Aditanar College of Arts and Science, Tiruchendur (2 August 2024).
- **Presented and published a conference proceeding (ISBN 978-81-977004-2-2)** titled *“Investigations on Sensor Performance of Novel V-Doped ZnO–rGO Nanoparticles Prepared via Hydrothermal Method for Electrochemical Sensor Applications”* at ICIMS-2024, Aditanar College, Tiruchendur (2 August 2024).
- **Presented a paper and published conference proceeding (ISBN-978-81-96-29894-0-8)** titled *“Liquefied Petroleum Gas (LPG) Sensing Performances of Different Surfactants on the Morphology of ZnO Nanoparticles”* at the International Conference on Futuristic and Sustainable Materials for Energy and

Environmental Technologies (ICFSMEET-2k24), organized by Department of Physics, Vivekanandha Arts and Science College for Women, Sankakiri held on 15<sup>th</sup> February 2024.

## 12. Presented in International/National Conferences

- **Presented and published** an abstract titled *“Influence of Surfactant on Morphology and LPG Gas Detection of ZnO Nanoparticles”* at the International Conference on Advanced Materials and Technologies (AMT-2025) & Indo-Japan Workshop on Machine Learning for Advanced Crystal Growth Technology (MALCGT-2025), organized by the SSN Research Centre, Department of Physics, SSN College of Engineering, Chennai, and Nagoya University, Japan (7–9 January 2025).
- **Presented and published** an abstract titled *“Investigations on the Microwave-Assisted Growth of V-Doped ZnO Nanorods and Their Performance”* at the International Conference on Innovative Horizons in Material Research: Growth, Characterization, and Applications (ICIHMR-2024), organized by the Department of Physics, SRMIST Ramapuram Campus, in association with the Indian Association of Crystal Growth & Elavenil Science Association (20–21 December 2024).
- **Participated** in the 3rd International Electronic Conference on Processes, organized by MDPI, USA (29–31 May 2024).
- **Participated** in the *“International Virtual Conference on Emerging Technologies in Materials Science (ICETM-2024)”*, organized by the PG & Research Centre in Physics in collaboration with the Consultancy Cell, Jayaraj Annapackiam College for Women (Autonomous), Theni (22 February 2024).
- **Presented** a paper at the *“International Conference on Multidisciplinary Aspects in Chemistry (ICMAC-2023)”*, organized by the Department of Chemistry, Sri Ramakrishna College of Arts and Science, Coimbatore (9–10 February 2023).
- **Participated** in the *International Online Conference “Functional Nanomaterials and Nanodevices (ICFNN-2023)”*, organized by the Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam (26 October 2023).
- **Presented** at the *“International Conference on Recent Innovations in Materials Science and Spectroscopy (ICRIMS-2023)”*, organized by the PG & Research Department of Physics, Jamal Mohamed College (Autonomous), Chennai (21 January 2023).
- **Presented** a paper at the *“International Conference on Functional Materials and Nanotechnology (ICFMN-2K22)”*, organized by the Department of Physics, Nehru Institute of Technology, Coimbatore (20–21 July 2022).
- **Presented** a paper titled *“Evaluation of Chemical and Biological Activities of ZrO<sub>2</sub> Nanoparticles”* at the International Virtual Conference on Advanced Research Trends in Material Science and Nanomaterials (IVCARTMSN-2022), held at Selvamm Arts and Science College (Autonomous), Namakkal (24 May 2022).

- **Presented** a paper titled *“Green Synthesis of Iron Oxide Nanoparticles from Catharanthus roseus Leaves”* at the International Conference on Emerging Materials and Modeling (ICEMM-2019), held at K.S. Rangasamy College of Arts and Science (Autonomous), Tiruchengode (7–9 January 2019).
- **Presented** *“Structural and Optical Properties of Cr<sub>2</sub>O<sub>3</sub>/TiO<sub>2</sub>/GO Nanoparticles”* at the International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2018), held at K.S.R. College of Arts and Science for Women, Tiruchengode (31 August–1 September 2018).
- **Presented** *“Enhancing Optical and Structural Properties of Cr<sub>2</sub>O<sub>3</sub> Nanoparticles by the Precipitation Method”* at the One-Day Research Conference on Advancing Materials Research (AMR-2017), organized by the Department of Physics, Mahendra Arts and Science College, Tiruchengode (21 August 2017).
- **Presented** *“Green Synthesis and Characterization of Chromium Oxide Nanoparticles from Mukiamaderaspatana Leaf Extract for Solar Cell Applications”* at the National Conference on Computational and Experimental Physics of Functional Materials (NCCEPFM-2016), organized by the Department of Physics, K.S.R. College of Arts and Science for Women, Tiruchengode (16–17 December 2016).
- **Presented** *“Synthesis and Characterization of Cr<sub>2</sub>O<sub>3</sub>/TiO<sub>2</sub> Doped with Graphene Oxide”* at the National-Level Seminar on Advances in Material Science, organized by the Department of Physics, Jairam’s Arts and Science College, Karur (15 October 2016).
- **Presented** *“Nanotechnology in Displays”* at the International Seminar on Multifunctional Nanomaterials and Nanocomposites (NCMNN-2013), held at Bharathiar University, Coimbatore (25–26 February 2013).
- **Presented** *“Bio-Medical Instrumentation”* at the International Seminar AURORA 2KX1, held at Navarasam Arts & Science College for Women, Arachalur (18 August 2011).
- Displayed a working model at ADCOM Science Exhibition, held at K.S.R. Rangasamy College of Arts & Science (Autonomous), Tiruchengode (15–18 March 2010)

### 13. List of Conference/Seminar Organized

- Served as a **committee member** for the Three-Day International Conference *“TNSCST-Sponsored International Conference on Nanotechnology and Materials Science (NANO-25),”* organized by the Department of Chemistry, K.S.R. College of Arts and Science for Women, Tiruchengode, Namakkal (5–7 February 2025).
- Served as an **organizing committee member** for the One-Day Workshop on *“Nuclear Technologies for Better Quality of Life,”* sponsored by the Department of Atomic Energy, Government of India, held at K.S.R. College of Arts & Science for Women, Tiruchengode, Namakkal (27 February 2020).

- Served as an **organizing committee member** for the One-Day Lecture and Outreach Workshop on the “Annular Solar Eclipse 2019,” held at the Department of Physics, K.S.R. College of Arts & Science for Women, Tiruchengode, Namakkal (9 December 2019).
- Served as an **organizing committee member** for the Two-Days International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2018), held at K.S.R. College of Arts and Science for Women, Tiruchengode (31 August–1 September 2018).
- Served as **Organizing Secretary** for the National Seminar on Global Space Technology (NSGST-17), held at K.S.R. College of Arts and Science for Women, Tiruchengode (10 October 2017).
- Served as an **organizing committee member** for the DST-SERB–sponsored Two-Days National Conference on Computational and Experimental Physics of Functional Materials (NCCEPFM-2016), held at K.S.R. College of Arts and Science for Women, Tiruchengode (16–17 December 2016).

#### 14. As a Research Guide/Mentor

S. No	Name of the student	Programme	Title of the thesis	Status	Year
01	Ms. S. JAYASRI	M.Sc.,	Synthesis and characterization of IBA stabilized ZnO and modified rGO/ZnO nanostructures	Completed	2025
02	Ms. V. HARINI	M.Sc.,	Investigations on Structural, Optical, and Morphological Analysis of rGO/ZnO Nanoparticles using PVP by Hydrothermal Method	Completed	2025
03	Ms. C. SOWMIYA	M.Sc.,	Effect of V Doping on Structural, Morphological, and LPG Sensing Properties of ZnO Nanoparticles	Completed	2024
04	Ms. B. VIMALA	M.Sc.,	Investigations on Structural, Optical, and Electric properties of Sn doped ZnO Nanoparticles Synthesized by Co-Precipitation Method	Completed	2024
05	Ms. D. GOPIKA	M.Sc.,	Morphological variation of ZnO nanostructures for Gas sensor Applications	Completed	2023
06	Ms. C. KIRUTIGA	M.Sc.,	Facile synthesis of ZnO using Sodium Dodecyl sulfate as a surfactant assisted by Hydrothermal Method	Completed	2023
07	Ms. S. MANASIKA	M.Sc.,	Synthesis and Characterization of ZrO <sub>2</sub> using Green and Chemical Methods	Completed	2022
08	Mrs. S. A. SRI BRINDHA	M.Sc.,	Evaluation of Chemical and Bio synthesis of ZrO <sub>2</sub> Nanoparticles	Completed	2022

## 15. Institutional/Departmental Level Roles

### Institution Level

- **Vice President**, Institution's Innovation Council (IIC) – Vice President  
*2023 – Present*
- **Convener**, Institution's Innovation Council (IIC) – *Convener*  
*2022 – 2023*
- **IIC Member**, 2020-2021
- **Innovation Ambassador**, IIC (Foundation Level) 2019-2020
- **Member**, QS Gauge Ranking Committee – *Criterion 6: Entrepreneur Development*  
*2023 – Present*
- **Member**, Research & Development Cell
- **Social Media Coordinator**, Institution Level

### Department Level

- Coordinator, **Research & Development Cell**
- Member, **Board of Studies (BOS) – as Alumni Representative**
- Coordinator, **Student Projects Reviewer Committee**
- ISO Coordinator

## 16. Produced 100 % Results

Achieved 100% results in all the handled subjects till date from the date of joining as faculty in the Department of Physics, K.S.R College of Arts and Science for Women, Tiruchengode-637215. The subjects are as follows:

UG Programme	PG Programme
<ul style="list-style-type: none"><li>• Properties of Matter and Sound</li><li>• Optics</li><li>• Electricity and Magnetism</li><li>• Solid State Physics</li><li>• Mathematical Physics and Numerical Methods</li><li>• Quantum Mechanics and Relativity</li><li>• Mechanics</li><li>• Thermal Physics</li><li>• Bio Medical Instrumentation</li><li>• Nuclear Physics</li><li>• Core and Allied Practical's</li></ul>	<ul style="list-style-type: none"><li>• Mathematical Physics</li><li>• Quantum Mechanics I &amp; II</li><li>• Electromagnetic Theory and Plasma Physics</li><li>• Energy Physics</li><li>• Solar Physics</li><li>• Semiconductor Devices</li><li>• Classical Mechanics</li><li>• General Physics and Electronics Lab</li><li>• Spectroscopy</li><li>• Physics of Nanoscience and Nanotechnology</li><li>• Advanced Laser Physics</li></ul>



## 17. Faculty Development Programme (FDP)

- **Faculty Development Programme (FDP)** on “Innovative Teaching and Learning Pedagogy,” organized by IQAC, K.S.R. College of Arts and Science for Women, Tiruchengode – **11–18 June 2024**.
- **Five-day FDP** on “Recent Trends in Advanced Functional Materials,” organized by the Department of Physics, Velammal College of Engineering and Technology, Madurai – **25–28 March and 1 April 2024**.
- **One-week National-Level FDP (Online)** under the DBT-Star Status Scheme on “Development of Materials Characterization Techniques and Their Future Prospects,” organized by the Department of Physics, Sri G.V.G. Visalakshi College for Women, Udumalpet, Tamil Nadu – **18–22 November 2023**.
- **Five-day FDP** on “Advanced Materials for Energy Applications,” organized by the Department of Physics and Centre for Nanoscience and Nanotechnology (IRC), Sathyabama Institute of Science and Technology, Chennai – **9–13 October 2023**.
- **Seven-day FDP** on “Modern Pedagogical Tools for Effective Teaching,” organized by IQAC, K.S.R. College of Arts and Science for Women, Tiruchengode, Namakkal, Tamil Nadu – **21–29 July 2022**.
- **Six-day International FDP (Online)** on “Recent Trends in Applied Physics,” organized by the Department of Physics, Easwari Engineering College (Autonomous), Chennai – **25–27 July 2022**.
- **Two-day Faculty Training Programme in Physics**, held at Bharathiyar Arts and Science College for Women, Deviyakurichi, Attur, Salem – **15–16 November 2018**.

## 18. External Question paper setter

1. Ayya Nadar Janaki Ammal College (Autonomous), Sivakasi
2. Nandha Arts and Science College (Autonomous), Erode

## 19. Lifetime membership

- Breaker through science society, Chennai
- Astronomy Club, Tiruchengode

## 20. Professional Websites

Google Scholar	: <a href="https://scholar.google.co.in/citations?user=OLj1VtMAAAAJ&amp;hl=en">https://scholar.google.co.in/citations?user=OLj1VtMAAAAJ&amp;hl=en</a>
ORCID	: <a href="https://orcid.org/0000-0002-2505-2136">https://orcid.org/0000-0002-2505-2136</a>
SCOPUS	: <a href="https://www.scopus.com/authid/detail.uri?authorId=59386889600">https://www.scopus.com/authid/detail.uri?authorId=59386889600</a>
IRINS	: <a href="https://vidwan.inflibnet.ac.in/profile/282704">https://vidwan.inflibnet.ac.in/profile/282704</a>

## 21. Computer Proficiency

- Linux, Windows, FORTRAN, Origin software.

## 22. Leadership Qualities

- Acted as *Class Representative* at the school and college level.

### Personal Details

- Father's Name : Mr. R.V. Rangasamy
- Mother's Name : Mrs. K. Jothimani
- Date of Birth : 13.05.1992
- Gender : Male
- Status : Married
- Permanent Address : 51, Amman Kovil (PO), Sivagiri (Via), Erode – DT- 638109.

### Reference

**Dr. G. Suresh Kumar., M.Sc., M.Phil., Ph.D**

Assistant Professor

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PSG College of Arts and Science (Autonomous),

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### Declaration

I hereby declare that the above-provided details are true to the best of my knowledge.

Sincerely Yours,

**K. BABU**