

Dr. Yashwanth Venkatraman Naik



📍 #304, S R Emerald Opposite to Deepika's residency, Nagavarapalya, C V Raman Nagar, Bangalore 560093

📞 Mobile: (+91) 9481315137

✉️ naikyashwanthv@gmail.com

Google Scholar

<https://scholar.google.com/citations?user=Lot2x1UAAAAJ&hl=en>

Assistant professor, Department of Physics RV Institute of Technology and Management Chaithanya Layout, 8th Phase, J. P. Nagar, Bengaluru - 560 076, Bangalore

Academic Identity:-

Orcid ID: -0000-0001-7873-7836

Scopus Author ID: -57204756525

Researcher ID: -JPL-4418-2023

Career Goal

To establish a platform for the dissemination and creation of knowledge through teaching and research in Physics at various levels.

Educational Qualifications

May. 2018-June 2024 Doctor of Philosophy in Physics

Tumkur University, Tumkuru, Karnataka, India.

Thesis Title: Synthesis and Characterisation of Polymer based Nanocomposites for Supercapacitor Devices.

Jun 2016-May 2018 Master of Science in Physics, (CGPA: 8.03, First Class with Distinction)

Karnatak University, Pavatenagar, Dharwad - 580 003, Karnataka, India.

Specialization: Atomic and Molecular Physics

Jun 2013-May 2016 Bachelor of Science in Physics, (80.1%, First Class with Distinction)

SDM college Honnavar (Affiliated to KUD)

Jun 2011-May 2013 Higher Secondary Course Certificate, (73.23%, First Class)

SDM college Honnavar, Uttara kannada, Karnataka, India.

Jun 2010-May 2011 Secondary School Leaving Certificate (89.29%, First Class with Distinction)

RES High School, Haldipur, Honnavar, Uttara kannada, Karnataka, India.

Professional Experiences

Sept. 2024 – Till date **Assistant Professor**

Department of Physics, [RV Institute of Technology and Management \(RVITM\)](#), Bangalore – 560 076, Karnataka, India.

Assistant Professor

Sept. 2022 – Sept. 2024

Department of Physics, [Acharya Institute of Graduate Studies \(AIGS\)](#), Bangalore – 560107, Karnataka, India.

Subjects Handled

Subjects handled in UG (BSc and BE) and PG (MSc) Programme in Physics ([Bengaluru City University and VTU](#))

➤ **Theory**

- ❖ Electricity and Magnetism
- ❖ Electronics
- ❖ Classical Mechanics
- ❖ Quantum Mechanics
- ❖ Nuclear and Particle Physics
- ❖ Mathematical methods of Physics
- ❖ Atomic and Molecular Physics
- ❖ LASER and Optical Fibers
- ❖ Quantum Computation
- ❖ Electrical and Thermal conductivity
- ❖ Animation in Physics

➤ **Lab**

- ❖ Elements of Atomic, Molecular Physics and Laser Physics
- ❖ General Physics Laboratory
- ❖ Optics Laboratory
- ❖ Computational Physics

Additional Academic Experiences

- ❖ Full time research scholar, Department of Physics, Tumkur University Tumkur (Nov 2018 – June 2024).
- ❖ Research assistant Prof. C N R Rao Centre for Advanced Materials, Tumkur University, Tumkur 572 103, India, (June 2018- November 2018).
- ❖ **NAAC Coordinator**, Physics Department, Acharya Institute of Graduate Studies, Bengaluru.
- ❖ Bengaluru City University – **PG Board Exam Committee Member**, Acharya Institute of Graduate Studies, Bengaluru.
- ❖ **Intellectual Property Rights (IPR) Coordinator**, Acharya Institute of Graduate Studies, Bengaluru
- ❖ **Anti-Ragging Committee Member**, Acharya Institute of Graduate Studies,

Bengaluru.

- ❖ **ICT-Based Education Committee Coordinator**, Acharya Institute of Graduate Studies, Bengaluru
- ❖ **Outcome Based Education (OBE) Coordinator**, Acharya Institute of Graduate Studies, Bengaluru.
- ❖ **Departmental Internal Assessment Coordinator**, Acharya Institute of Graduate Studies, Bengaluru.
- ❖ **External Examiner** – [Nrupatunga University](#), Bengaluru.
- ❖ **External Practical Lab Examiner** – [GFGC Yalahanka](#), Bengaluru
- ❖ **University Semester Exam paper evaluator**-[Bangalore City University](#)
- ❖ **In charge HOD Physics Department** - Acharya Institute of Graduate Studies, Bengaluru (*May-2024 to September 2024*).

Research Experiences

- ❖ **Guided M.Sc final year project students**, Acharya Institute of Graduate Studies, Bengaluru, Karnataka
- ❖ **Assisted final year MSc projects**: 19 postgraduate and 5 undergraduate students (2020- 2022), Tumkur University, Tumkuru, Karnataka
- ❖ **Student Project Coordinator (SPP)**, Karnataka State Council for Science and Technology (KSCST) – 46th Series, Govt. of Karnataka
- ❖ **Organizing Committee Member – National Science Day**, Acharya Institute of Graduate Studies, Bengaluru, Karnataka (March 2023)
- ❖ **Faculty Coordinator - Event Coordinator**, “Guest Lecture on Affordable and Energy Efficient Electrochromic Energy Storage Devices: An Alternative to Conventional Glass Window”, Dr. Ashtoush Kumar Singh, Scientist C, Centre for Nanoscience and Soft matter, Bangalore – 562 162, Karnataka organized by Department of Physics, Acharya Institute of Graduate Studies, Bangalore – 560 107.
- ❖ **Event Coordinator**, “4-day Paper Hackathon”, 3rd July – 6th July 2023, organized by Acharya Journal Club, Acharya Institutes, Bangalore – 560 107, Karnataka.
- ❖ **Event Coordinator**, “Faculty Development Programme on “Writing, Defense & Implementation of Grant Proposal”, 8th–12th August 2023, organized by Acharya Institutes, Bangalore – 560 107, Karnataka.

Areas of Specialization and Interest

Semiconductors and Polymer Based Materials for Super capacitor Applications.
Synthesis of Nanomaterials & Preparation of working electrode for Energy storage Applications.
Fabrication and analysis of working electrode towards Supercapacitive application.
Doped phosphors for solid state lighting Applications.

Experiences

Synthesis of Nanomaterials by Sol-Gel, Combustion & Hydrothermal Methods for Energy & Environmental Applications.

Synthesis of Undoped and Alkali Earth Metal, Transition Metal Doped Metal oxide Nanoparticles by Combustion Technique for Luminoscent and charge storage applications.

Synthesis of Metal Oxide (ZrO₂, CuO, NiO, MnO₂, TiO₂, Fe₂O₃ etc.) for Supercapacitor Applications

Preparation of Undoped and doped PANI (Polyaniline), and nanocomposite PANI by Doctor Blade, Spin coating, Electrodeposition & Electrospinning techniques.

Instruments Handled	UV- Visible Spectrophotometer, PL Spectrophotometer, FTIR Spectrometer, I-V Keithley Instrument, CH and ZIVE SP1 WonATech, AFM, LCR Meter, CRO,.	
Data Analysis & Interpretation	Structural	– Powder XRD, FTIR and Raman
	Optical	– UV-Visible NIR, UV-DRS and PL
	Morphological	– SEM/FESEM and TEM
	Compositional	– XPS and EDS
	Solar Cell characteristics	– I-V
	Electrical Measurements	– EIS
	Electrochemical analysis	– CV, GCD
	Contact angle Studies	– Wettability Measurement,
	Dielectric	– Dielectric Constant, Loss & AC-Conductivity.
	Thermal	– TGA/DTA Analysis

Conference Presentations

- 1 "Study of facile synthesized conducting polyaniline as a binder free electrode for high performance supercapacitor" in the Virtual international conference on recent advances in chemical and biological sciences (ViRACBS-2020), held at Dayananda sagar college of engineering, Bangalore on 07-09 Dec 2020.) **(Presented).**
- 2 "Synthesis, characterization and optical studies of cation deficient fcc type NiO nanoparticles for electrochemical capacitor applications" in the International Virtual Conference on Materials and Nanotechnology (IVCMN-2021), held at Guru Nanak College of Science, Ballarpur, Dist: Chandrapur on 29-30 april 2021. **(Presented).**
- 3 "Structurally optimized nickel oxide/polyaniline nanocomposites as an efficient electrode material for supercapacitor applications" in the International Conference on Material science and spectroscopy (ICMSS-2021), organised by school of science, Maharshi University of information technology, Lucknow on 22-24 sept 2021 **(Presented).**
- 4 "Supercapacitive electrode performance analysis of facile synthesized α -Fe₂O₃ aerogel and its in-situ formed Polyaniline (Fe@PANI) nanocomposite" in the National Conference on Emerging Trends in Chemical Science Research (NCETCSR-2023), organised by Department of studies and research in chemistry, University college of science, Tumkur University, Tumkuru on 8 march 2023. **(Presented).**
- 5 "Facile Synthesis of MnO₂-Polyaniline Composite: Characterization and Enhanced Performance in Supercapacitor Applications" in the two day international symposium- Science beyond boundary (RASAYANA18), organised by Chirantan Rasayan Sanstha (CRS) from 29-30 Jan 2024 at Christ University Bangalore. **(Presented).**

Publications

1. Influence of Zn²⁺ doping on the lattice defects and photoluminescence studies of Sr₂CeO₄:Eu³⁺ nanophosphor: Applications for data encryption strategies, *Opt. Mater.* 90 (2019) 159–171.
2. Photoluminescence and photocatalytic properties of novel Bi₂O₃:Sm³⁺ nanophosphor, *J. Sci.: Adv. Mater. Devices*, DOI: <https://doi.org/10.1016/j.jsamd.2019.09.001>
3. Photoluminescence of a novel green emitting Bi₂O₃:Tb³⁺ nanophosphors for display, thermal sensor and visualisation of latent fingerprints, *Optik*, 192 (2019) 162956.
4. Photoluminescent and thermoluminescent properties of low temperature synthesized Nd³⁺ doped Mg₂SiO₄ nanophosphors for display and dosimetry applications, *Optik*, DOI: <https://doi.org/10.1016/j.ijleo.2018.11.069>.
5. NUV light-induced visible green emissions of Erbium-doped hierarchical Bi₂Zr₂O₇ structures, *Opt. Mater.* 95 (2019) 109237.
6. Sonochemical synthesis of green emitting Ca₂SiO₄:Er³⁺ nanopowders: Promising applications in optical thermometry and radiation dosimeter, *Opt. Mater.* (2019) 125–135.
7. Phase dependent photoluminescence and thermoluminescence properties of Y₂SiO₅:Sm³⁺ nanophosphors and its advanced forensic applications. (2019) *Optical Materials*, 96, 109282. <https://doi.org/10.1016/j.optmat.2019.109282>.
8. Photoluminescence and photocatalytic properties of novel Bi₂O₃:Sm³⁺ nanophosphor. *Journal of Science: Advanced Materials and Devices*. (2019) <https://doi.org/10.1016/j.jsamd.2019.09.001>.
9. Visible Light Emitting Ln³⁺ Ions (Ln = Eu, Sm, Tb, Dy) in Mg₂SiO₄ Host Lattice. *Luminescent Materials in Display and Biomedical Applications*. (2019) <https://doi.org/10.1201/9780429025334-8>.
10. High surface wetting and conducting NiO/PANI nanocomposites as efficient electrode materials for supercapacitors. *Inorganic Chemistry Communications* 138 (2022) 109275. <https://doi.org/10.1016/j.inoche.2022.109275>.
11. Synthesis and characterization of cotton candy-PANI: Enhanced supercapacitance properties. *Journal of the Indian Chemical Society*, 100 (2023), 100944. <https://doi.org/10.1016/j.jics.2023.100944>.
12. Green combustion synthesis of multifunctional inorganic ZnO: Co²⁺ (1–11 mol%) nanoparticles: Electrochemical and photocatalytic applications. *Inorganica Chimica Acta*, 563, (2024) 121924. <https://doi.org/10.1016/j.ica.2024.121924>
13. Influence of TiO₂ nanoparticles during in-situ polymerization of TiO₂/PANI nanocomposites and its supercapacitor properties, *Journal of Energy Storage* 97, Part B 10 September 2024, 112874. <https://doi.org/10.1016/j.est.2024.112874>.
14. Super capacitive electrode performance analysis of facile synthesized α-Fe₂O₃ aerogel and its nanocomposite with in-situ formed polyaniline (α-Fe₂O₃/PANI) *Journal of Alloys and Compounds* Volume 1004, 5 November 2024, 175820 <https://doi.org/10.1016/j.jallcom.2024.175820>.

Book Chapters

1. Naik, Y. V., & Tejashwini, D. M. (2024). In-Situ Characterization Techniques for Energy Storage Applications. In *Advanced Nanomaterials for Energy Storage Devices* (pp. 111–122). Cham: Springer Nature Switzerland.

2. Naik, Y. V. (2024). Future Perspectives and Emerging Trends in Nanomaterials for Energy Storage. *Advanced Nanomaterials for Energy Storage Devices*, 183-195.
3. Tejashwini, D. M., Deepa, H. M., Deshmukh, V. V., & Naik, Y. V. (2024). Challenges and Opportunities in Nanomaterials for Energy Storage. *Advanced Nanomaterials for Energy Storage Devices*, 165-181.

Technical Proficiency

Operating System Windows Platform and Linux

Languages C & C++

Tools Microsoft Office Suite, VB 6.0, MicroStation, HTML, DHTML & Java Script
Web designing, Origin 8.5, Image J, Cell Calc, CASA XPS.

Soft Skills

Self-reliant
Efficaciously communicative
Dedicative
Team management abilities
Punctual & Knowledge-sharing
Adaptive
Optimistically perseverant
Keenly analytic

Brief Summary of Ph.D Thesis Work

This Ph.D. thesis focuses on the development of advanced polymer-based nanocomposite materials specifically tailored for high-performance supercapacitor applications. By incorporating nanosized metal oxides and carbon-based materials into polyaniline (PANI) matrices using chemical oxidative in situ and interfacial polymerization methods with various dopants, the research aims to overcome the limitations of conventional supercapacitor materials. Comprehensive characterization of the synthesized nanocomposites, including structural, optical, thermal, electrical, morphological, and electrochemical properties, was performed using techniques like SEM, TEM, XRD, and CV. The study reveals that the incorporation of nanomaterials significantly enhances the electrical conductivity and charge storage capacity of PANI, leading to higher specific capacitance and improved cycle stability. The optimized nanocomposite materials demonstrate great potential for use in high-performance supercapacitors, suitable for applications in electric vehicles, portable electronics, and renewable energy systems. The findings contribute to the broader goal of creating sustainable and efficient energy storage solutions, addressing the challenges posed by the intermittent nature of renewable energy sources, and pave the way for future research and development in nanocomposite materials.

Personal Profile

Name	Dr. Yashwanth Venkatraman Naik
Date of Birth, Age	10/07/1995, 29 years
Gender	Male
Nationality	Indian
Religion	Hindu
Marital Status	Single
Languages	Konkani (Natal language), Kannada, English (C2) and Hindi (C2) [CEFR Levels]
Present Address	Soladevanahalli, Bangalore – 560 107, Karnataka.

References

Dr. B S Palakshamurthy, (Thesis Advisor)

Assistant professor in Physics, Tumkur University,
Tumkuru, Karnataka,
India -572103, India.

Contact No.: (+91) 9448987382,
email:palaksha.bspm@gmail.com.

Dr. Dr. Mahadevappa Y.

Kariduraganavar,
Professor, PG Department of Chemistry, Karnatak
University, Dharwad, India -580 003, India.

Contact No.: (+91) 9448590765,
email:mahadevappayk@gmail.com.

Dr. Srinivasa H. T.

Technical Officer C, Soft Condensed Matter, Raman
Research Institute, Bangalore,
Karnataka, India -560 080

(+91) 948083 6194 / 6197;
Email:seena@rri.res.in.

Dr. Ramachandra Naik,

Assistant professor, New Horizons
college of Engineering,
Bangalore, India.

Mob: (+91) 7204408041
Email: rcnaikphysics@gmail.com