

Areas of Research Interest:

1.	Nanostructured materials, Functional nanocomposites, Polymer Composites
2.	Energy storage devices, Electrochemical Applications, Hybrid Systems

Patent Publications:

Official Journal of Patent Office

1.	Gowtham G K , Vinayakprasanna N Hegde, Manju V V, Hemaraju B C, Pradeep T M, and Thejas Urs G (2022). A Nanostructured Unidirectionally Conducting Polymer (Indian patent No.202241064809 A). Intellectual Property India. (Applicant: Dr. Thejas Urs G)
2.	Ananda H T, Thejas Urs G, Charan Kumar H C, Harsha. M, Sushma M, Gowtham G K (2022) A Method of Electrochemical Deposition of Nanostructured Conducting Polymer Coating on Metallic Nanostructures (Indian patent No. 202241067215 A) Intellectual Property India. (Applicant: Dr. Gowtham G. K & Dr. Thejas Urs G)

Research Publications:

a) International Journals

1.	Rajasekhar, K. R., Sagar, M. D., Raghavendra, R. B., Reddy, S., & Gowtham, G. K* . (2025). CuO/NiO/MWCNT-modified electrode for simultaneous neurotransmitter detection and energy storage for self-powered biosensors. <i>Journal of Solid State Electrochemistry</i> , 1–13.
2.	Anagawadi, R. B., Mahanthesh, K. R., Rajasekhar, K. R., & Gowtham, G. K . (2025). Electrochemical investigation of calcium zirconium titanium oxide multiwalled carbon nanotubes nanocomposites: A simultaneous voltammetric analysis of L-Dopa, uric acid and L-ascorbic acid. <i>Topics in Catalysis</i> , 1–12.
3.	Rajasekhar, K. R., Prasanna Kumar, S. P., Lakshmi, T. H., Geetha, H. S., & Gowtham, G. K* . (2025). Structural and electrochemical studies of modified GO and rGO for sensing and energy applications. <i>International Journal of Modern Physics B</i> , 39(18), 2550160.
4.	Gowtham G K* , Hanumanthappa, S., & Rudrappa, S. (2025). Studies on nonlinear optically active polymer composites. <i>AIP Conference Proceedings</i> , 3198(1), 020151.
5.	Gowtham, G. K. , & Urs, T. G. (2025). Structure dependent optical and conductive properties of HPMC: CoCl ₂ composites: A functional data analysis study. <i>AIP Advances</i> , 15(1).
6.	Gowtham, G. K* , Somashekarappa, H., & Somashekar, R. (2024). Third-order nonlinearity and functional data analysis of ADP-doped PVA/PVP polymer composites. <i>International Journal of Modern Physics B</i> , 38(18), 2450231.
7.	Gowtham, G. K* , Urs, G. T., Raghavendra, S., Mahadevaiah, D., Somashekarappa, H., & Somashekar, R. (2022). Investigation on optical switching behaviour of regenerated and non-regenerated silk by nanosecond Z-scan technique. <i>Physica Scripta</i> , 96(12), 125873.
8.	Gowtham, G. K. , Somashekarappa, H., Bharath, K., & Somashekar, R. (2021). Measure of polymer performance based on correlated physical parameters. <i>Journal of Applied Polymer Science</i> , 138(29), 50705.
9.	Kurrey, N. K., Gowtham, G. K. , & Somashekar, R. (2019). Laser-ablation-synthesized nanoparticles and animal cell lines studies. <i>Journal of biosciences</i> , 44(6), 1-8.

10.	Madhuri, S. R., Namitha, N. S., Urs, M. K., Gowtham, G. K. , Urs, T. G., & Somashekar, R. (2018). Modelling of X-ray patterns using Fourier transforms: application to nanomaterials. <i>Indian Journal of Physics</i> , 92(12), 1525-1532.
11.	Hegde, D. V., Bhavanishankar, M. C., Kariyappa, G. G. , Urs, T. G., Basavaraju, N. M., Dasaiah, M., & Rudrappa, S. (2018). Studies on physical properties of wine palm and Roselle natural fibers. <i>Journal of Natural Fibers</i> , 1-11.
12.	Urs, T. G., Gowtham, G. K. , Nandaprakash, M. B., Mahadevaiah, D., Sangappa, Y., & Somashekar, R. (2017). Determination of force constant and refractive index of a semiconducting polymer composite using UV/visible spectroscopy: a new approach. <i>Indian Journal of Physics</i> , 91(1), 53-56.
13.	Gowtham, G. K. , Hegde, V. N., Meshk, S., Sukrutha, S. K., & Somashekar, R. (2015). Synthesis and characterization of carbon soot particles doped HPMC polymer composites. <i>Journal of Research Updates in Polymer Science</i> , 4(2), 62.

b) International Conference

1.	G. K. Gowtham , Thejas G. Urs, H. Somashekarappa, R. Somashekar: <i>Structural dependence of nonlinear optical properties in ADP: PVA/PVP polymer composites</i> . IUCr'17 Hyderabad, India; 12/2017, DOI:10.1107/S2053273317086338
2.	G. K. Gowtham , Thejas G. Urs, D. Mahadevaiah, K. Byrappa, R. Somashekar: <i>Imaging of crystallite shapes in various silk forms using PXRD</i> . IUCr'17 Hyderabad, India; 12/2017, DOI:10.1107/S2053273317086399
3.	Thejas Gopal Krishne Urs, G. K. Gowtham , R. Somashekar, H. Somashekarappa: <i>Structure–property relation in HPMC:CoCl₂ 2 polymer composites using functional data analysis</i> . IUCr'17 Hyderabad, India; 12/2017, DOI:10.1107/S2053273317086351

c) National Conference

1.	Gowtham, G. K. , Somashekarappa, H., & Somashekar, R. (2023 December), Studies on Nonlinear Optically Active Polymer Composites, . In <i>American Institute of Physics Conference Series</i> (Vol. -, No. -, p. -) DAE SSPS
2.	Gowtham, G. K. , Thejas Urs, G., Somashekarappa, H., & Somashekar, R. (2020, November). Preparation and crystal structure of carbon soot: A new approach. In <i>American Institute of Physics Conference Series</i> (Vol. 2265, No. 1, p. 030164), DAE SSPS
3.	Gowtham, G. K. , Somashekarappa, H., Raman Namboodiri, C. K., & Somashekar, R. (2018, April). Setting up Z-scan experiment to study nonlinear optical properties of polymer composites: Characterization of ADP doped PVA/PVP polymer films. In <i>AIP Conference Proceedings</i> (Vol. 1942, No. 1, p. 060024). AIP Publishing, DAE SSPS
4.	Hemalatha, K., Mahadevaiah, Gowtham, G. K. , Urs, G. T., Somashekarappa, H., & Somashekar, R. (2016, May). Microstructural and electrical properties of PVA/PVP polymer blend films doped with cupric sulphate. In <i>AIP Conference Proceedings</i> (Vol. 1731, No. 1, p. 070007). AIP Publishing, DAE SSPS

Conference/ Workshops/Trainings attended/organized:***International/National Conferences:***

1. 11th International Conference on Materials for Advanced Technologies (IUMRS-ICAM & ICMAT): 2023
2. 67th DAE Solid State Physics Symposium (20–24 December 2023, GITAM, Vishakapatnam, India)
3. 64th DAE Solid State Physics Symposium (18–22 December 2019, IIT Jodhpur, Rajasthan, India)
4. 10th International Conference on Materials for Advanced Technologies (ICMAT): 2019
5. 62nd DAE Solid State Physics Symposium (26–30 December 2017, BAARC Mumbai, India)
6. 24th Congress & General Assembly of the International Union of Crystallography (IUCr): 2017
7. International Conference on Advanced Materials and Technology – ICMAT 2016
8. 60th DAE Solid State Physics Symposium 2015 (21–25 December 2015, Amity University, Uttar Pradesh, India)
9. International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP): 2015

Workshops/Seminars/Symposium Attended:

1. UGC sponsored Refresher Course in Physics, Sambalpur University from 16th Sept 2021 to 29th Sept
2. 4-week Orientation program for Faculty in Universities of Higher education from June 26th – July 24th, 2020.
3. 24th Congress & General Assembly of the International Union of Crystallography (IUCr) X-ray absorption spectroscopy workshop.
4. “Quantum Mechanics - Basics to Advanced” organized by Regional Institute of Education (NCERT) Mysore, 28-30 Jan 2016.

Seminars organized:

1. National webinar on ‘Ultrafast Optics’ on 29th June, 2021.
2. National webinar on ‘Arduino Microcontroller, Coding, I/O Interfacing and Circuit Simulation’ on 27th June, 2021.
3. National webinar on ‘Sensors’ on 16th June, 2021
4. ‘Celebration of National Science day and Inauguration of Physics forum – SPECTRUM’ in association with IQAC, Davangere University on 23rd March, 2021.
5. International webinar on ‘ICT Initiatives and Flipped Learning’ on 28th August, 2020.
6. National webinar – Short term course on ‘Basic Electronics’ during 06 – 12 July, 2020.
7. National webinar on ‘Raman Effect and its applications’ on 25th June, 2020.
8. National webinar on ‘Super Capacitors’ and ‘Flexible OLEDs – The Future of lighting and Display Technology’ on 18th and 20th June, 2020.
9. National webinar on ‘Biological effects of ionizing radiation, and ‘Biological bases of radiation protection, on 12th and 17th June, 2020.
10. ‘Celebration of National Science day’ in association with IQAC, Davangere University on 28th February, 2020.

Workshops Organized:

1. One-day workshop on PEOs, POs and COs in an Outcome-based education environment on 15-12-2020.
2. One-day workshop for college teachers on FRONTIERS OF PHYSICAL SCIENCES at Davangere University on 03-02-2020.

Achievements/Awards / Abroad visit / Professional Membership

1. 11th International Conference on Materials for Advanced Technologies (IUMRS-ICAM & ICMAT): 2023 held from 26th to 30th June 2023
2. 10th International Conference on Materials for Advanced Technologies (ICMAT): 2019 held from 23rd – 28th June 2019.
3. IUCr Best Poster Award – 2017

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