

Faculty Profile



Dr. M. Agalya, M.Sc., Ph.D

Assistant Professor (OG), Department of Physics

HIGHLIGHTS:

- Number of Journal Publications: **14**
- H-Index: **6**

PROFESSIONAL LINKS:

- Scopus ID: **58486825500**
- Scopus Link: [Scopus - Author details](#)
- Google Scholar ID: [Dr. AGALYA MATHIVANAN - Google Scholar](#)
- AICTE Faculty ID: 1- 449224973662

PROFESSIONAL BACKGROUND:

- Teaching Experience till date: 1 years 5 month

AREA OF SPECIALIZATION:

- Nanomaterials & Nanotechnology
- Electrochemical Energy Storage (Supercapacitors & Battery Materials)

- Gas Sensing Materials
- Photocatalysis & Dye Degradation
- Transition Binary Metal Oxide Nanostructures
- Electrochemical Materials for Environmental Applications

SELECTED PUBLICATIONS

1. Jothibas, M., Arunkumar, B., Padmarajan, A. D., Anandan, K., Stanly, R. S., **Agalya Mathivanan**, & Piriyaadharsini, R. (2025). Eco-friendly synthesis of CuO nanoparticles using charcoal extract: Sustainable approach and mechanistic study of RhB dye degradation. *Nanotechnology for Environmental Engineering*, 11(1). <https://doi.org/10.1007/s41204-025-00504-x>
2. Karthik, G., Kamalakannan, S., Ravichandran, K., Selvam, S. P., **Agalya Mathivanan**, Venkatachalapathy, V. S. K., & Naveen kumar, T. R. (2026). Unveiling the functional potential of Cr₂MnAl Heusler alloy: A combined experimental and theoretical approach. *Solid State Sciences*, 174, 108205. <https://doi.org/10.1016/j.solidstatesciences.2025.108205> [Impact Factor: 3.6]
3. Anandan, K., Jothibas, M., **Agalya Mathivanan**, Emerson, P., & Manikandan, A. (2026). Fabrication of ZnCo₂O₄ on reduced graphene sheets driven by tunable molar ratios for high-capacitance applications. *Vacuum*, 245, 114941. <https://doi.org/10.1016/j.vacuum.2025.114941> [Impact Factor: 4.3]
4. Jothibas, M., **Agalya Mathivanan**, & Srinivasan, S. (2025). Interfacial contact in CuCo₂O₄ hybrid nanocomposite and its role in improved electrochemical charge retention. *Inorganic Chemistry Communications*, 173, 113878. <https://doi.org/10.1016/j.inoche.2024.113878> [Impact Factor: 5.9]
5. Jothibas, M., David, P. A., Srinivasan, S., Emerson, P., & **Agalya Mathivanan**. (2025). A study on the facile synthesis of Cu-influenced organic framework and their characteristic properties. *Journal of Molecular Structure*, 1320, 139429. <https://doi.org/10.1016/j.molstruc.2024.139429> [Impact Factor: 4.9]
6. Selvam, S. P., Kamalakannan, S., **Agalya Mathivanan**, & Cho, S. (2025). Engineering Pt Single-Atom Doped SeS₂Ti₃ CNT MXene with Molecularly Imprinted Polymer for Precision Pancreatic Cancer Diagnostics: DFT and Molecular Dynamics Perspectives. *Small Methods*, 9(12). Portico. <https://doi.org/10.1002/smtd.202500475> [Impact Factor: 8.7]

7. **Agalya Mathivanan**, Jothibas, M., & Nesakumar, N. (2024). Synthesis and characterization of ZnCo_2O_4 nanocomposites with enhanced electrochemical features for supercapacitor applications. *Surfaces and Interfaces*, 49, 104443. <https://doi.org/10.1016/j.surfin.2024.104443>.
[Impact Factor: 6.0]
8. Jothibas, M., Paulson, E., **Agalya Mathivanan**, Srinivasan, S., & Kannan, K. S. (2023). Biomolecules influences on the physiochemical characteristics of ZnO nanoparticles and its enhanced photocatalysis under solar irradiation. *Nanotechnology for Environmental Engineering*, 8(2), 511–533. <https://doi.org/10.1007/s41204-023-00310-3>
9. Jothibas, M., **Agalya Mathivanan**, & Srinivasan, S. (2023). Investigation of molar concentration and its effects in escalated charge storage mechanism on cobalt oxide nanoparticles. *Materials Today: Proceedings*. <https://doi.org/10.1016/j.matpr.2023.02.111>
10. **Agalya Mathivanan**, Jothibas, M., Srinivasan, S., & Muthuvel, A. (2023). Facile hydrothermal synthesis of NiCo_2O_4 nanocomposites for n-butanol gas detection at low-working temperature. *Journal of Materials Science: Materials in Electronics*, 34(3). <https://doi.org/10.1007/s10854-022-09669-6> [Impact Factor: 3.2]
11. Balamurugan, S., Kamaraj, S., Kamalakannan, S., **Agalya Mathivanan**, Hochlaf, M., Navaneethan, M., Kim, S., & Kang, J. (2026). Defect-engineered hexagonal hierarchical porous carbon cathodes for high-performance sodium-ion hybrid capacitors: Combined experimental and theoretical insights. *Journal of Energy Storage*, 180(Part C), 124082. <https://doi.org/10.1016/j.est.2026.124082> [Impact Factor: 10.7]
12. **Agalya Mathivanan**, S Sathees Kumar, G. Kavitha, A Machine Learning Framework for Electrochemical Response Curve Reconstruction: Methodology Development and Validation Using ZnCo_2O_4 Supercapacitor Electrodes, *Journal of Energy Storage* (Under Review) [Impact Factor: 10.7]
13. G. Kavitha, **Agalya Mathivanan**, Agricultural Waste-Derived Functional Materials for Circular and Smart Sustainable Fashion Applications, **Polymeric and composite materials** (Under Review) [Impact Factor: 3.5]
14. **Agalya Mathivanan**, G. Kavitha, S. Premkumar, Engineering Graphitic Carbon Nitride by Optimized Calcination: From Structural Evolution to Enhanced Photocatalytic Activity, **Optical Materials**, (Under Review) [Impact Factor:4.3]

PATENTS PUBLISHED/GRANTED:

- NANOSTRUCTURE FABRICATION AND PATTERNING DEVICE, **508208-001**
(Submitted)

BOOK CHAPTERS PUBLISHED:

- Kumar, N. T. R., **Agalya Mathivanan** , Kumar, T. K., & Sekar, K. Catalyst Design Strategies: Doping, Defect Engineering, and Morphology Control. Chapter 4. 4th coming CRC press (Talyor and Francis) **(Submitted)**

HONORS AND AWARDS:

- University Rank Holder (M.Sc Physics) Awarded for outstanding academic performance; secured [15]th rank, [Bharathidasan University], **[2018-2020]**

TITLE OF THE Ph.D. THESIS:

- “An Investigation On The Physiocheical Properties Of Synthesized Metal Composited Cobalt Oxide Binary Nanocomposites And Their Effective Energy Storage Capacity”

CONFERENCES/SEMINARS/WORKSHOPS ATTENDED:

- Presented in the International conference on applications-oriented materials in science and technology (**3rd ICAOMSAT 2022**) which is entitles “Investigating gas sensing behaviour properties of n butanol for NiCo₂O₄ nanocomposites”
- Presented in the International conference on newer materials for energy and environmental applications (**NCNM 2022**) which is entitles “Hydrothermal synthesis of NiCo₂O₄ nanocomposites behaviour properties of n butanol”
- Presented in the International conference on Advanced functional materials (**ICAFM 2023**) which is entitles “Effective and fascinating energy retention capacities in ZnCo₂O₄ nanocomposites synthesized by hydrothermal method.
- Presented in the International conference on Smart & Sustainable development in multidisciplinary research (SCI – VISION 2050) “Effective and fascinating energy retention capacities in CuCo₂O₄nanocomposites synthesized by hydrothermal method” **(2023).**

- Presented in the National conference on Recent advancement in chemical sciences (**RACS – 2023**) “synthesis and Characterization of ZnCo_2O_4 nanocomposites with enhanced electrochemical features for super capacitors”
- Presented in the International conference on 5th International workshop on advanced functional nanomaterials (**IWAN – 5, 2023**) “Effective and fascinating energy retention capacities in ZnCo_2O_4 nanocomposites synthesized by hydrothermal method”
- Presented in the International conference on Recent advancements in spectroscopy (**ICRAS – 2023**) “Effective and fascinating energy retention capacities in CuCo_2O_4 nanocomposites synthesized by hydrothermal method”.
- Presented in the State level workshop on intellectual property rights (IPR), Quality research and publications (**IQAC – 2024**).
- Presented in the International conference 7th International conference on recent trends in applied science and technology (**ICRTAST – 2024**) “Effective and fascinating energy retention capacities in CuCo_2O_4 nanocomposites synthesized by hydrothermal method”
- Presented in the International conference on Emerging trends in materials science (**ICETMS – 2024**) “Effective and fascinating energy retention capacities in CuCo_2O_4 nanocomposites synthesized by hydrothermal method”.

REVIEWER OF JOURNALS

- Ionics
- Journal of Inorganic and Organometallic Polymers and Materials
- Applied Physics A
- Chemical Papers
- Discover Nano
- Journal of Materials Science: Materials in Electronics

SPECIAL SESSIONS DELIVERED:

- Resource Person, Add-on Course on Cell Phone Technology & Computer Applications, T.B.M.L. College, Porayar (Affiliated to Annamalai University), September 2023. Recognized with a Certificate of Appreciation for delivering expert lectures to students. Contributed to the P.G. & Research Department of Physics academic training program.