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Skype id: Muthuvel Phy

Curriculum vitae

Dr. Arumugam Muthuvel., M.Sc., M.Phil., Ph.D., (Post Doc).,
121, Mela Street, Kanakkara Pattu,
Uthama Sola Managalam (Post),
Chidambaram (Tk),
Cuddalore (Dis),
Tamil Nadu-608002, India.

Scopus: https://www.scopus.com/authid/detail.uri?authorId=9943035600
Google scholar: https://scholar.google.com/citations?user=yxCl6lcAAAAJ&hl=en

Objective

Intend to build a career with leading corporate of hi – tech environment with dedicated people, willing to work as a key player in challenging and creative environment. To do a challenging work in the field of Catalyst, CO_2 conversion, 2D materials, Sensors, Cancer Therapy, Bio-nanotechnology and Electrochemistry.

Education Contour

February 2023 – Present [6-Month Program]	**Postdoctoral Fellowship,** Department of Physics Faculty of Science and Technology, Universitas Airlangga, Indonesia.
April 2017 – February 2022	**Ph.D., Physics,** Bharathidasan University, Tiruchirappalli, Tamil Nadu, India [Commented]
August 2012 – July 2014	**M.Phil., Physics,** Annamalai University, Annamalai Nagar, Tamil Nadu, India. [7.13 out of 10.0 OGPA]
June 2010 – May 2012	**M.Sc., Physics,** Thiruvalluvar University, Vellore, Tamil Nadu, India. [7.10 out of 10.0 OGPA]
June 2007- April 2010	**B.Sc., Physics,** Thiruvalluvar University, Vellore, Tamil Nadu, India. [5.90 out of 10.0 OGPA]

Carrier

January 2022 – Present	**Assistant Professor in Physics,** Theivanai Ammal College for Women (A), Villupuram, Tamil Nadu - 605602, India
January 2014 – December 2016	**Assistant Professor in Physics**, Thiruvalluvar arts and science college, Kurichipati, Tamil Nadu, India.

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Doctoral Scrutiny

Postdoctoral Fellowship Title **:** 'Synthesis and characterization of MWCTs/TiO_2/chitosan nanocomposites for the photocatalyst degradation of organic dyes'

Research supervisor **: Dr. Herri Trilaksana,** Department of Physics**,** Faculty of Science and Technology, Universitas Airlangga, Indonesia.

Ph.D., Thesis Title **:** 'Green synthesis of metal oxide nanoparticles using *Solanum nigrum* leaf extract and their characterization and application'

Research Supervisor **: Dr. M. Jothibas**, Assistant Professor, Department of Physics, T.B.M.L. College (Affiliated to Bharathidasan University), Porayar, Tamil Nadu, India.

Google scholar link: https://scholar.google.com/citations?user=YmsYL7kAAAAJ&hl=en

M.Phil., Thesis Title **:** 'Biosynthesis of gold nanoparticles using *Solanum nigrum* leaf extract and screening their free radical scavenging and antibacterial properties'

Research Supervisor **: Dr. N. Krishnakumar**, Associated Professor, Department of Physics, Annamalai University, Annamalai Nagar, Tamil Nadu, India.

Publication/Presentation

Total publication (Scopus/SCI/SCIE) : 29

Total Citation, i10-index, : 538*, 11,

Web of Science Researcher ID: AAK-4606-2021

*Scopus data base 10th on March 2023

List of selected publication (*Corresponding author)

List of Publication – 2023

1. M. Jothibas, S. Suganya, **A. Muthuvel**, E. Paulson, *The effects of Ag-ions on the physiochemical characteristics and visible-light catalytic activity of ZnS nanoparticles*, *Inorganic Chemistry Communications*, 150 (2023), 110511.

2. Mathivanan, Agalya, M. Jothibas, Soorya Srinivasan, and **A. Muthuvel**. *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, no. 3 (2023): 166.

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List of Publication – 2022

3. M. Manimaran, **A. Muthuvel***, and Nejla Mahjoub Said. *Microwave-assisted green synthesis of SnO_2 nanoparticles and their photocatalytic degradation and antibacterial activities*, *Nanotechnology for Environmental Engineering* (2022): 1-11.
4. A. Venkatesan, **A. Muthuvel***, V. Mohana, N. Mahendran, Nabil Al-Zaqri, Ahmed Boshaala, Ismail Warad, *Synthesis, characterization and magnetic properties of Mg^{2+} doped green pigment Cobalt aluminate nanoparticles*, *Journal of Materials Science: Materials in Electronics*, 2022, 33(27), 21246–21257.
5. G. Kamarajan, D. Benny Anburaj, V. Porkalai, **A. Muthuvel**, G. Nedunchezhian, *Green synthesis of ZnO nanoparticles using Acalypha indica leaf extract and their photocatalyst degradation and antibacterial activity*, *Journal of the Indian Chemical Society*, 2022, 99 (10), 100695.
6. G. Kamarajan, D. Benny Anburaj, V. Porkalai, **A. Muthuvel**, G. Nedunchezhian, N. Mahendran, *Green synthesis of ZnO nanoparticles and their photocatalyst degradation and antibacterial activity*, *Journal of Water and Environmental Nanotechnology*, 2022, 7(2), 180–193
7. N. Al-Zaqri, K. Umamakeshvari, V. Mohana, **A. Muthuvel***, and A. Boshaala, *Green synthesis of nickel oxide nanoparticles and its photocatalytic degradation and antibacterial activity*, *Journal of Materials Science: Materials in Electronics*. 2022, 33(15), 11864–11880.
8. M. Jothibas, M. Sankar, **A. Muthuvel**, S. Srinivasan, and M. Elayaraja, *Enhanced sunlight irradiated photocatalytic activity of Sn doped CdS nanoparticles for the degradation of organic pollutants*, *Inorganic Chemistry Communications*. 2022, 136:109149.
9. P. Jamila Jayanthi, I. K. Punithavathy, S. J. Jeyakumar, T. Elavazhagan, **A. Muthuvel**, and M. Jothibas, *Influence of temperature on the structural, optical, morphological and antibacterial properties of biosynthesized silver nanoparticles*, *Nanotechnology for Environmental Engineering*, 2022, 7(3), 883–891.
10. N. Mahendran, S. Johnson Jeyakumar., M. Jothibas., M. Ponnar., **A. Muthuvel**, *Synthesis, characterization of undoped and copper-doped hafnium oxide nanoparticles by sol–gel method*, *Journal of Materials Science: Materials in Electronics*. 2022, 33(13), 10439–10449.
11. M. Jothibas, K. Bharanidharan, E. Paulson, M. Elayaraja, B. Arun Kumar, **A. Muthuvel**, *Effect of co-dopant proportion on the structural, optical and magnetic properties of pristine NiO nanoparticles synthesized by Sol–gel method*, *Journal of Materials Science: Materials in Electronics*. 2022,33:907-919
12. N. Mahendran, B. Anand, M. Rajarajan, **A. Muthuvel**, V.Mohana, *Green synthesis, characterization and antimicrobial activities of silver nanoparticles using Cissus quadarangularis leaf extract*, *Materials Today: Proceedings*. 2022,49:2620-2623.

List of Publication – 2021

13. Nabil Al-Zaqri, **A. Muthuvel***, M. Jothibas, Ali Alsalme, Fahad A Alharthi, V. Mohana, *Biosynthesis of zirconium oxide nanoparticles using Wrightia tinctoria leaf extract: characterization, photocatalytic degradation and antibacterial activities,* *Inorganic Chemistry Communications*. 2021,127:108507
14. **A. Muthuvel*,** Nejla Mahjoub Said, M. Jothibas, K. Gurushankar, V. Mohana, *Microwave assisted green synthesis of nanoscaled titanium oxide: photocatalyst, antibacterial and antioxidant properties,* *Journal of Materials Science: Materials in Electronics*. 2021,32:23522-23539
15. J. Vasudevan., S. Johnson Jeyakumar., B. Arunkumar., M. Jothibas., **A. Muthuvel**., S. Vijayalakshmi, *Optical and magnetic investigation of Cu doped ZnO nanoparticles synthesized by solid state method,* *Materials Today: Proceedings*. 2021,48:438-442
16. K. Gurushankar S. Rajasekaran, **A. Muthuvel**, Karthik Kannan, K. Chinnaiah, Vivek Maik, M. Gohulkumar, *Synthesis and Characterization of Undoped and Mn-Doped Copper Oxide Nanoparticles,* *Macromolecular Symposia*. 2021,400:2100122
17. K. Chinnaiah, T. Thivashanthi, , Asadollah Asadi, , **A. Muthuvel**, Karthik kannan, M. Gohulkumar, Vivek maik, K. Gurushankar, *Recent Advantages and Applications of Various Biosynthesized Greener Silver Nanoparticles,* *Asian Journal of Chemistry*. 2021,33:2871-2884.

List of Publication – 2020

18. **A. Muthuvel**, M. Jothibas, C. Manoharan. *Synthesis of copper oxide nanoparticles by chemical and biogenic methods: photocatalytic degradation and in vitro antioxidant activity*. *Nanotechnology for Environmental Engineering*. 2020,5:14
19. **A. Muthuvel**, M. Jothibas, C. Manoharan. *Effect of chemically synthesis compared to biosynthesized ZnO-NPs using Solanum nigrum leaf extract and their photocatalytic, antibacterial and in-vitro antioxidant activity.* *Journal of Environmental Chemical Engineering*. 2020, 8:103705
20. **A. Muthuvel**, M. Jothibas, V. Mohana, C. Manoharan. *Green synthesis of cerium oxide nanoparticles using Calotropis procera flower extract and their photocatalytic degradation and antibacterial activity.* *Inorganic Chemistry Communications*. 2020,119:108086
21. **A. Muthuvel**, M. Jothibas, C. Manoharan, S.J. Jayakumar. *Synthesis of CeO_2-NPs by chemical and biological methods and their photocatalytic, antibacterial and in vitro antioxidant activity*. *Research on Chemical Intermediates*. 2020,46:2705-2729
22. M. Sankar, M. Jothibas, **A. Muthuvel**, A. Rajeshwari, S.Johnson Jeyakumar, *Structural, optical and Photocatalytic degradation of organic dyes by sol gel prepared Ni doped CdS nanoparticles,* *Surfaces and Interfaces*. 2020,21:100775
23. M. Satheshkumar, B. Anand, **A. Muthuvel**, M. Rajarajan, V. Mohana, A. Sundaramanickam, *Enhanced photocatalytic dye degradation and antibacterial activity of biosynthesized ZnO-NPs using curry leaves extract with coconut water,* *Nanotechnology for Environmental Engineering*. 2020,5:29

24. M. Elayaraja, I. Kartharinal Punithavathy, M. Jothibas, **A. Muthuvel**, S. Johnson Jeyakumar, *Effect of rare-earth metal ion Ce^{3+} on the structural, optical and photocatalytic properties of CdO nanoparticles*, *Nanotechnology for Environmental Engineering*. 2020,5:29
25. M. Sankar., M. Jothibas., **A. Muthuvel**., B. Arun Kumar, *Structural, Optical, Electrical and Photocatalytic Degradation Properties of Cadmium Sulfide Nanopaticles by Sol Gel Methods*, *Asian Journal of Chemistry*. 2020,9:2347-2355
26. S. Johnson Jeyakumar, J. Vasudevan, B. Arunkumar, M. Jothibas, A. Rajeswari, R. Sathiskumar, **A. Muthuvel**, *Structural, optical and magnetic behavior of Sn doped ZnO nanoparticles prepared by solid state method*, *Materials Today: Proceedings*. 2020,48:371-376.

List of Publication – 2019

27. M.Jothibas, **A.Muthuvel**, K.Senthilkannan, V. Mohana, *Structural, optical and photocatatic activity of Ag doped ZnO nanoparticles obtained by sol-gel method*, *AIP Conference Proceedings*. 2019,2162:020151
28. N. Mahendran, S. Johnson Jeyakumar, M.Jothibas, **A.Muthuvel**, *Structural, Morphological, Optical and Photoluminescence Properties of Hafnium Oxide Nanoparticles Synthesized by Sol-Gel Method*, *Asian journal of chemistry*. 2019,31:453-459
29. **A. Muthuvel**, K. Adavallan, K. Balamurugan, N. Krishnakumar. *Biosynthesis of gold nanoparticles using Solanum nigrum leaf extract and screening their free radical scavenging and antibacterial properties*. *Biomedicine & Preventive Nutrition*. 2014 4(2):325–32.

Paper presented National / International conference

1. International conference on smart & sustainable development in multidisciplinary research, Theivanai Ammal College for Women (A), Villupuram, India, 9 – 10th March 2023.
2. International conference on recent trends in chemistry, Dr.R.K. Shanmugam college of arts and science, Kallakurichi, India, 10th January 2019
3. National conference on frontiers in nanoscience 2018, Annamalai University, Tamil Nadu, India, 04-05th October 2018.
4. International conference on application-oriented materials in science & Technology, E.G.S. Pillay arts and science college, Nagapattinam, India, 10-15th September 2018.
5. India-UK Joint International conference on Advanced nanomaterials for energy, environmental and healthcare applications, K.S.R. College of Arts and science for women, Namakkal, India, 31st August and 1st September 2018.
6. International conference on recent trends in applied science and technology, Periyar University, Salem, India, 23-25th August 2018.
7. International conferences on new materials & arid land, ST. Joseph's college of arts and science (Autonomous), Cuddalore, India, 15-16th March 2018.

8. 3rd National conference on recent trends in Nano materials and thin films research, A.V.V.M. Sri Pushpam College, Tamil Nadu, India, 9-11th February 2018
9. National conference on phytomedicine research and challenges, Annamalai University, Tamil Nadu, India, 30th March 2013.

Workshop / Seminars participated

1. National seminar on Recent advanced materials and applications organized by department of physics, Annamalai university, Tamil Nadu, India, 6th February 2019
2. National level workshop on Solar power & photovoltaic cells organized by Department of physics, E.G.S. Pillay arts and science college, Nagapattinam, India, 10th September 2018
3. International seminar on recent advances in material science in Department of physics, Idhaya college of Women, Kuppakonam, Tamil Nadu, India, 12th September 2018.
4. Workshop on peer review publications in Department physics, Annamalai University, Tamil Nadu, India, 22-23 December 2017.

Training Visits

January 2018 – May 2018 Training visitor, **Prof. C. Manoharan,** Annamalai University, Annamalai Nagar, Tamil Nadu, India.

Awards and Distinctions

2018 Best poster presentation Award, A.V.V.M. Sri Pushpam College, Tamil Nadu, India.

2018 Best oral presentation Award, Periyar University, Salem, India.

2018 Assist World Records**,** Largest Human Raindrop Formation (Save Rain Water)

Professional Skills

- **7 years** of research experience in the field of synthesis of nanocomposites, photocatalyst, bio-nanotechnology and biochemistry
- Strong research background in nanotechnological, biotechnological and microbiological techniques
- Green synthesis of metal nanoparticles using natural sources
- X-ray Diffraction analysis (XRD), FT-IR and FT-Raman analysis, UV-vis spectroscopy, Scanning Electron Microscope (SEM), Transmission Electron Microscope (TEM), Energy Dispersive X-ray Analysis (EDX), Dynamic Light Scattering (DLS), Zeta potential (ZP) and Atomic Force Microscopy (AFM)
- Designing eco-friendly nanocatalysts
- Extensive experience in the synthesis, purification and characterization of metal and metal oxide compounds
- Experienced in handling of moisture sensitive and air sensitive organic regents and chemicals
- I specialize in handling dyes like methyl blue, methyl organic, RhB and methyl red, etc.,

- The Photocatalytic process is one that I have a lot of experience with: Effects of dosage catalyst, pH, time and kinetic study, etc
- Biological activities such as Antimicrobial, antioxidant, antifouling and anticancer, etc.,
- Microbiology: Techniques involved in isolation, preservation and characterization of microbes - bacteria, fungi and actinobacteria from water, soil, plants and animals.
- Preparation of microbiology laboratory for certification and maintenance of microbiology laboratory in good operating condition
- Immobilization of enzymes and CO_2 conversion
- In addition, I create nanocomposites for applications such as super capacitors, gas sensors, and magnetic materials
- Ability to lead a team and work collaboratively with a group
- Completion of work easily and ability to solve problems at work
- Experienced in writing scientific manuscripts, project proposals, book proposals, and reports
- Acted as Research and Development Coordinator for the College.
- Acted as Internal Board of studies member for UG and PG Courses.
- Acted as Department national seminar (recent trends smart materials & physics in our daily life), Coordinator for the College.
- Number of scholar working under my guidance **M.Sc -13 (completed**)

Instruments Exposures

- FT-IR Spectrophotometer (Perkin-Elmer),
- UV-Visible Spectrophotometer (Shimadzu)
- X-ray diffraction analysis

Software Application

- Chem Draw,
- Origin 19b.0,
- E-draw max 9.1,
- X-pert highscore,
- Adobe Photoshop CC., ete.,

Reviewer of the Journal (Selected Journal)

- Journal Environmental Chemical Enringing
- Journal Materials Science and Materials in Electronics
- The European Physical Journal Plus
- Journal of Cluster Science
- Inorganic Chemistry Communication
- Biomass Conversion and Biorefinery
- Nanotechnology for Environmental Enringing., etc.,

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Foreign Collaboration Established

- Yes, utilized and published the articles
  - **Nabil Al- Zaqri**, Department of Chemistry, College of Science, King Saud University, P. O. Box 2455, Riyadh 11451, Saudi Arabia
  - **Nejla Mahjoub Said**, Department of Physics, College of Science, King Khalid University, Abha, 61413, Saudi Arabia
  - **K. Gurushankar**, Higher Medical and Biological School, South Ural State University, Chelyabinsk, Russia, 454080

Personal Detail

Name	: Arumugam Muthuvel
Date of birth	: 22 May 1989
Father Name	: Arumugam
Gender	: Male
Nationality,	: Indian
Marital status	: Married
Passport number	: T6235227
Languages	: English and Tamil
Communication address	: S/o V.Arumugam, 121, Mela Street, Kanakkara pattu, Uthama Sola Mangalam, Chidambaram-608002, Tamil Nadu, India

References

Dr. M. Jothibas,
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