



**SHAKKTHIVEL Piraman**  
Senior Professor and Head

### Contact

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### Academic Qualifications: M.Sc., Ph.D.

**M.Sc., Ph.D.,** - Earned in Electrochemistry from Alagappa University, India (2001).  
(PG- Highest credit holder in the University)

**B.Sc.,** - Earned in Chemistry from Madurai Kamaraj University, India (1995)

### Teaching Experience: 28 Years

Designation	Institution	Department	Duration
Senior Professor	Alagappa University, Karaikudi	Nanoscience and Technology	June 2024 to Till Date
Professor	Alagappa University, Karaikudi	Nanoscience and Technology	June 2014 to May 2024
Associate Professor	Alagappa University, Karaikudi	Nanoscience and Technology	June 2011 to May 2014
Reader	Alagappa University, Karaikudi	Nanoscience and Technology	June 2008 to May 2011
Assistant Professor	RMK Engineering	Chemistry	Dec. 2006 to May 2007

	College, India		
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### Research Experience: 28 Years

Position	Institution / University	Duration
Visiting Professor	Ming Chi University of Technology, Taiwan	August 2018
Foreign Research Professor	Dongguk University, South Korea	Sep. 2015 - Aug. 2016
Researcher	Yonsei University, South Korea	May 2008 – May 2011
Post Doctoral Fellow	Tamkang University, Taiwan	March 2007- May 2008
Visiting Scientist	National Taipei University of Technology, Taiwan	July 2005 – Oct. 2005
Visiting Research Scientist	Murdoch University, Australia	June 2002 – Jan. 2003

### Administrative Responsibility

S.No	Position	University Bodies	Period	
			From	To
1	Chief Superintendent – Conduct of examination	Alagappa University, Karaikudi	2016	2017
2	Controller of Examination	Alagappa University, Karaikudi	21.12.2017	02.10.2018
3	Chief Warden	Alagappa University Hostels, Karaikudi	Dec. 2016	Dec. 2017
4	Environmental Club Coordinator	Alagappa University, Karaikudi	Two Years	
5	Coordinator of Tamil Nadu scheme viz Waste treatment technology for sustainable and Eco-friendly environment	Alagappa University, Karaikudi	06.11.2023	Till Date
6	Head of the Department – Nanoscience and	Alagappa University	June 2024 onwards	

	Technology		
7	Senate Member	Alagappa University	Since 2024
8	Standing Committee Member	Alagappa University	Since 2024
9	Chair Person	School of Chemical Sciences, Alagappa University	2025 onwards

### Areas of Research

- ❖ Li-ion Batteries and Li-Sulfur Batteries
- ❖ Advanced and Flexible Supercapacitor
- ❖ Magnetic Nanoparticles & Targeted drug Delivery
- ❖ Modified electrodes & Bio-molecule diagnose

### Research Supervision / Guidance

Program of Study		Completed	Ongoing
Research	PDF	02	-
	Ph.D.	09	05
	M.Phil.	06	-
Project	M.Tech.	02	-
	M.Sc.	50	04

### Patents:

S.No	Title of Patent	Authors	Type	Status
1	An Electrochemically Active material and Implementations Thereof	Prof. P. Shakkthivel and Dr. A. Srinivasan	Indian Patent	Granted

**Funded Research Project Details:****Ongoing:**

<b>S.No</b>	<b>Agency</b>	<b>Period</b>	<b>Project Title</b>	<b>Budget (Rs. in Laksh)</b>
1	CMRG – Tamil Nadu	2025 - 2028	Co-free MOF derived Li-rich Cathodes and Protective Layer coated Carbon Anodes for the Holistic Development of Solid-State Li-ion Batteries	25.24

**Completed:**

<b>S.No</b>	<b>Agency</b>	<b>Period</b>	<b>Project Title</b>	<b>Budget (Rs. in Laksh)</b>
1	RUSA2.0 (EIR)	2023 - 2024	Developing Holistic Infrastructure of High voltage solid state li-ion battery for electric mobility application.	20.00
2	RUSA2.0 (EIR)	2023 - 2024	A Compact Flow Capacitor Analysis Using Gel Electrolyte for future Energy Storage Devices.	14.50
3	RUSA2.0 (EIR)	2023 - 2024	Novel MnO <sub>2</sub> -S Mesoporous Hetero nanostructure for High Power Density Li-S Battery Development	2.00

4	RUSA 2.0 (EIR)	2023 - 2024	Nanostructured Cobalt free Transition Metal Oxide (NMA) Electrode for High Voltage Li-ion battery	2.00
5	TANSICHE	2023 - 2024	Porous Nano materials for Sensors, Magnetic and Energy storage and Conversion Application	50.58
6	RUSA 2.0 (TBRP 2 <sup>nd</sup> Installment)	2022 - 2023	Advanced Nano materials for Energy and Environmental Application	10.00
7	RUSA 2.0 (TBRP 1 <sup>st</sup> Installment)	2018 - 2020	Advanced Nanomaterials for Sustainable Energy and Sensor Applications	4.00
8	DST -SERB	2015 - 2018	Novel conducting C layer embedded LMO hollow nano-spheres assembly for hybrid electrical vehicle applications	23.26
9	UGC, New Delhi	2010 - 2013	Novel Heterogeneous.... From vegetable Oils	8.41
10	DST, New Delhi	2009 - 2012	Nanoparticle cathode.....Li-Ion cells	19.96
11	AURF, Karaikudi	2009 - 2010	Synthesis of Magnetic..... Characterization	0.64

## Publications

International		National		Others
Journals	Conferences	Journals	Conferences	Books / Chapters / Monographs / Manuals
<b>70</b>	<b>75</b>	<b>7</b>	<b>38</b>	<b>04</b>

❖ Cumulative Impact Factor (as per JCR)	: 301.5
❖ h-index	: 25
❖ i10 index	: 46
❖ Total Citations	: 2349

### Recent Publications

1. Ganesan, M., Alagar, S., Jeong, S. M., & Piraman, S. "Fluorine Induced Oxygen Vacancy created MnV LDH Nanoflower Cathode for Planar hybrid supercapacitors", *ACS Applied Nano Materials*; 2025, 8 (29), 14531-14546. (I.F: 5.5).
2. Amith, S. L., & Piraman, S. (2025). Effect of synthesis technique on the formation of surface-active reduced graphene oxide (rGO) wrapped SnS<sub>2</sub> nanosphere modified electrode: A comparative study on CO sensing behaviours. *Surfaces and Interfaces*, 72, 106944. (I.F: 6.3)
3. Richard, Y. A., Lincy, S. A., Lo, A., Koventhan, C., Dharuman, V., & Piraman, S. (2024). Electrochemical investigation of an antipyretic drug in plant extracts and environmental samples at the O-MWCNT/CuO nanostructure modified glassy carbon electrode. *Environmental Science Nano*, 12 (1), 909 – 923. (I.F: 5.1)
4. M Ganesan, S Alagar, V Bagchi, S Piraman, "Surface oxygen engineered ZnCo<sub>2</sub>O<sub>4</sub> planar hybrid supercapacitor electrode for high energy applications", *Journal of Energy Storage*, (2024) 98, 2024, 112954. <https://doi.org/10.1016/j.est.2024.112954>. (I.F: 9.8)
5. Srinivasan Alagar, Chelladurai Karuppiyah, Sang Mun Jeong, Ramalakshmi Mariappan, Shakkthivel Piraman, Chun-Chen Yang, "Synergistic control of cohesive and adhesive forces in anchored porous CoMn<sub>2</sub>O<sub>4</sub> for superior reversible lithium-ion storage and high energy-power density", *Journal of Energy Storage*, 88, 2024, 111378. (I.F: 9.8)
6. Yesurajan Allwin Richard, Sebastinbaskar Aniu Lincy, Shakkthivel Piraman and Venkataraman Dharuman; "Ca-MOF-Polymer Modified Thin-Film Electrode for Detection of Toxic Cadmium (Cd<sup>2+</sup>) in Biofluid and Environmental Fluid", 2024 *J. Electrochem. Soc.* 171, 027517. (I.F: 3.3)
7. Karthika Lakshmi Servarayan, Govindan Krishnamoorthy, Ellairaja Sundaram, Masiyappan Karuppusamy, Marudhamuthu Murugan, Shakkthivel Piraman, Vairathevar Sivasamy Vasantha; "Optical Immunosensor for the Detection of *Listeria monocytogenes* in Food Matrixes"; *ACS omega*, 2023, 8, 18, 15979–15989. (I.F: 4.3)
8. Yesurajan Allwin Richard, Sebastinbaskar Aniu Lincy, Shakkthivel

- Piraman and Venkataraman Dharuman; “Label-free electrochemical detection of cancer biomarkers DNA and anti-p53 at tin oxide quantum dot-gold-DNA nanoparticle modified electrode”; *Bioelectrochemistry*, Volume 150, April 2023, 108371. (I.F: 4.5)
9. Strategic Design of Lithium-Rich Hierarchical  $\text{Li}_{1.2}\text{Mn}_{0.54}\text{Ni}_{0.13}\text{Co}_{0.13}\text{O}_2$  Microcubes as High-Capacity Cathodes for Lithium-Ion Batteries Srinivasan Alagar, Muthukumar Ganesan, Chelladurai Karupiah, Chun-Chen Yang, Vivek Bagchi, and Shakkthivel Piraman *ACS Applied Energy Materials* 2023 6 (2), 622-635. (I.F: 5.5).
  10. Synthesis of novel FeM (Co, Ni, Cu & Zn)/PDMS for magnetic actuators thin film fabrication by greener route, Nagamani Selvakumaran, Marimuthu Gowsalya, Karuppasamy Gurunathan, Piraman Shakkthivel, *Journal of Magnetism and Magnetic Materials*, Volume 52, 2022, 169139, doi.org/10.1016/j.jmmm.2022.169139. (IF- 3.1)
  11. Metal-organic frameworks derived spinel  $\text{NiCo}_2\text{O}_4$ /graphene nanosheets composite as a bi-functional cathode for high energy density  $\text{Li-O}_2$  battery applications Raja Palani, Chelladurai Karupiah, Chun-Chen Yang, Shakkthivel Piraman, *International Journal of Hydrogen Energy*, Volume 46, Issue 27, 2021, Pages 14288-14300. (IF- 7.14)
  12. Improving structural and thermal stability of  $\text{LiNi}_{0.8}\text{Co}_{0.15}\text{Al}_{0.05}\text{O}_2$  by a fast-ionic-conductive  $\text{LiAlSiO}_4$  surface coating for Li-ion batteries,” Manojkumar Seenivasan, Chun– Chen Yang, She-huang Wu, Ying-Jeng Jame Li, Wen-Chen Chien, Shakkthivel Piraman, Shingjiang Jessie Lue, *Electrochimica Acta*, Volume 387, 2021, 138620, doi.org/10.1016/j.electacta.2021.138620 (IF- 7.3)
  13. Graphene Nanosheet-Wrapped Mesoporous  $\text{La}_{0.8}\text{Ce}_{0.2}\text{Fe}_{0.5}\text{Mn}_{0.5}\text{O}_3$  Perovskite Oxide Composite for Improved Oxygen Reaction Electro-Kinetics and  $\text{Li-O}_2$  Battery Application Karupiah C, Wei CN, Karikalan N, Wu ZH, Thirumalraj B, Hsu LF, Alagar S, Piraman S, Hung TF, Li YJ, Yang CC. *Nanomaterials* (Basel). (IF- 5.7) 2021 Apr 16;11(4):1025.
  14. Solid-State Ball-Milling of  $\text{Co}_3\text{O}_4$  Nano/Microspheres and Carbon Black Endorsed  $\text{LaMnO}_3$  Perovskite Catalyst for Bifunctional Oxygen Electrocatalysis. Karupiah, C.; Thirumalraj, B.; Alagar, S.; Piraman, S.; Li, Y.-J.J.; Yang, C.-C. *Catalysts* (IF- 4.5) 2021, 11, 76.
  15. “Ultra-stable  $\text{Mn}_{1-x}\text{Ni}_x\text{CO}_3$  nano/sub-microspheres positive electrodes for high-performance solid-state asymmetric supercapacitors” Srinivasan Alagar, Rajesh Madhuvilakku, Shakkthivel Piraman, *Scientific Reports* 10, 8871 (2020). (IF- 3.9)
  16. “Temperature Controlled Synthesis of Li- and Mn-Rich  $\text{Li}_{1.2}\text{Mn}_{0.54}\text{Ni}_{0.13}\text{Co}_{0.13}\text{O}_2$  Hollow Nano/sub-microspheres Electrodes for High Performance Lithium Ion Battery”

- Srinivasan Alagar, Chelladurai Karuppiyah, Rajesh Madhuvilakku, Shakkthivel Piraman, and Chun-Chen Yang *ACS Omega* (IF-4.3) 2019 4 (23), 20285-20296. DOI: 10.1021/acsomega.9b0276
17. “Nano-architected porous  $Mn_2O_3$  spheres/cubes vs rGO for asymmetric supercapacitors applications in novel solid-state electrolyte” Srinivasan Alagar, Rajesh Madhuvilakku, Ramalakshmi Mariappan, Shakkthivel Piraman, *Journal of Power Source*, Nov. 2019. (IF-7.9),
  18. “Glassy carbon electrodes modified with reduced graphene oxide-MoS<sub>2</sub>-poly (3, 4-ethylene dioxythiophene) nanocomposites for the non-enzymatic detection of nitrite in water and milk” Rajesh Madhuvilakku Srinivasan Alagar Ramalakshmi Mariappan Shakkthivel Piraman, *Analytica Chimica Acta*, 2019 DOI: 10.1016/j.aca.2019.09.043 (IF-6.0)
  19. “One-dimensional NiFe<sub>2</sub>O<sub>4</sub> nanorods modified with sulfur-rich spherical carbon nanoparticles for simultaneous voltammetric determination of ascorbic acid, dopamine and uric acid” Rajesh Madhuvilakku, Shakkthivel Piraman; *Microchimica Acta*, 186, 7, 2019, 434. (IF: 5.3)
  20. Sensitive and selective non-enzymatic detection of glucose by monodispersed NiO @ S-doped hollow carbon sphere hybrid nanostructures, Rajesh Madhuvilakku, Ramalakshmi Mariappan, Srinivasan Alagar, Shakkthivel Piraman, *Analytica Chimica Acta*, 1042, 2018, 93-108. (IF: 6.0)

### Books / Chapter written

- ❖ “Natural Products based Soft Materials in Electrochemical Biosensors for Cancer Biomarkers” Shunmuga Nathan, Wan Ismail, P Shakkthivel, V S Vasantha\*; *Natural Products based Soft Materials in Electrochemical Biosensors for Cancer Biomarkers*; Wiley Scrivener
- ❖ Sensors and Nanotechnology based diagnostics in the field of Mycobacteriology”; Mohanraj T, Shunmuga Nathan S, Shakkthivel P, Vasantha VS\*; *Diagnosis of Mycobacterium*; Springer Nature; ISBN : 978-981-99-5623-4.
- ❖ “Synthesis, characterization and Application of Biocompatible Magnetic Nanoparticles”, Shakkthivel Piraman, S. Sasikala; *Biocompatible Nanomaterials Synthesis, Characterization and Applications*; Nova Science Publisher Inc., New York, 2011.

**International Conference Paper Presented/Chairperson:**

<b>S. No</b>	<b>Title of the Lecture /Paper</b>	<b>Name of Invited Lecture/ Seminar/ Conference</b>	<b>Organizer</b>	<b>Date</b>
1	Defect Engineering induced electronic redistributed bimetallic layered double hydroxide nanosheets for high energy supercapacitor application	International Conference on Frontier areas in chemical technologies -2024	Department of Industrial chemistry, Alagappa University	22 – 23, March, 2024
2	Green Synthesis and Characterization of Iron Oxide Nanoparticles by Blue Clitoria Ternates Leaves Extracts	International Conference on Frontier areas in chemical technologies -2024	Department of Industrial chemistry, Alagappa University	22 – 23, March, 2024
3	Synergistic effect of TMDCS/ g-C <sub>3</sub> N <sub>4</sub> nanocomposites materials for supercapacitor application	International Conference on Frontier areas in chemical technologies -2024	Department of Industrial chemistry, Alagappa University	22 – 23, March, 2024
4	Chairperson	International Conference on Frontier areas in chemical technologies -2024	Department of Industrial chemistry, Alagappa University	22 – 23, March, 2024
5	Chairperson	2 <sup>nd</sup> International Conference on Advanced nanomaterials for energy and environmental applications	Alagappa University	9-11, Feb, 2023
6	Nanostructured Cobalt Free Transition Metal Oxide Based Electrode	2 <sup>nd</sup> International Conference on Advanced	Alagappa University	9-11, Feb, 2023

	Materials Designing For High Voltage Li Ion Battery	nanomaterials for energy and environmental applications		
7	Electrochemically CeO <sub>2</sub> Decorated Pani Matrix Nanocomposite For Ascorbic Acid Determination	2 <sup>nd</sup> International Conference on Advanced nanomaterials for energy and environmental applications	Alagappa University	9-11, Feb, 2023
8	Transition metal oxide ZnO core/MnO <sub>2</sub> shell structures for high energy density supercapacitors and application	2 <sup>nd</sup> International Conference on Advanced nanomaterials for energy and environmental applications	Alagappa University	9-11, Feb, 2023
9	Carbon Smeared Spinel ZnCo <sub>2</sub> O <sub>4</sub> electrode for High Energy Planar Hybrid Micro supercapacitor	2 <sup>nd</sup> International Conference on Advanced nanomaterials for energy and environmental applications	Alagappa University	9-11, Feb, 2023
10	A Porous Metal Oxide Materials For Trapping The Polysulfide Dissolution In Li-S Batteries	2 <sup>nd</sup> International Conference on Advanced nanomaterials for energy and environmental applications	Alagappa University	9-11, Feb, 2023
11	Novel mesoporous structured MnO <sub>2</sub> -S heteronanostructure for high power density Li-S battery development	2 <sup>nd</sup> International Conference on Advanced nanomaterials for energy and environmental applications	Alagappa University	9-11, Feb, 2023

12	An Electrochemical platform for the selective detection of Ascorbic acid utilizing a Glassy carbon electrode modified with manganese oxide/MWCNT Nanocomposite	2 <sup>nd</sup> International Conference on Advanced nanomaterials for energy and environmental applications	Alagappa University	9-11, Feb, 2023
13	Surface modification of MnV-Layered Double Hydroxide nanosheets coupled with MXene electrode for Flexible Hybrid Supercapacitor	International Conference on Frontier areas in chemical technologies -2022	Department of Industrial chemistry, Alagappa University	16 – 18, Feb, 2023
14	Effect of 2D Tungsten Diselenide Coating on NAM/LNMO Cathode Materials for Li-Ion Battery	International Conference on Frontier areas in chemical technologies -2022	Department of Industrial chemistry, Alagappa University	16 – 18, Feb, 2023
15	Chairperson	International Workshop on Functional materials for sensor and energy applications	Alagappa University	10-11, Nov, 2022
16	Lithium and Manganese rich porous $\text{Li}_{1.2}\text{Mn}_{0.54}\text{Ni}_{0.13}\text{Co}_{0.13}\text{O}_2$ microcubes high-capacity cathodes for Li-ion batteries	Two days International Virtual Conference on Renewable Energy Science and Technology (ICREST-2020)	Dept. of Energy Science, Alagappa University, Karaikud	28-29 Sep. 2020
17	A facile hydrothermal synthesis of $\text{ZnCo}_2\text{O}_4$ -BN composite microflowers for high-performance supercapacitor applications	Two days International Virtual Conference on Renewable Energy Science and Technology (ICREST-2020)	Dept. of Energy Science, Alagappa University, Karaikud	28-29 Sep. 2020
18	Synthesis of Porous $\text{Co}_3\text{O}_4$ - $\text{Mn}_2\text{O}_3$ composite spheres electrode for high performance	Two days International Virtual Conference on	Dept. of Energy Science, Alagappa University, Karaikud	28-29 Sep. 2020

	supercapacitors	Renewable Energy Science and Technology (ICREST-2020)		
19	Resource person	International Conference on New Vistas in Material Science	Dept. of Nano Science & Technology, Alagappa University Karaikudi	12 <sup>th</sup> Sept. 2019
20	Chairperson	Third International Conference on Advanced Materials	Mahatma Gandhi university, Kerala	9-11, Aug, 2019
21	Hollow and Porous microspheres of CoMn <sub>2</sub> O <sub>4</sub> as next generation electrode materials for high-performance lithium-ion batteries	Third International Conference on Advanced Materials 2019	Mahatma Gandhi Universtiy, Kottayam, Kerala	9-11 August 2019
22	A Novel electrochemical dopamine sensor based on Hierarchical MoS <sub>2</sub> wrapped CuMn <sub>2</sub> O <sub>4</sub> nanocomposite modified gold electrode	International Conference on Frontier areas in chemical technologies -2019	Department of Industrial chemistry, Alagappa University	25-26, July, 2019
23	Hydrothermal synthesis of NiMn <sub>2</sub> S <sub>4</sub> Nanosheets arrays for High-performance of supercapacitor applications	International Conference on Frontier areas in chemical technologies -2024	Department of Industrial chemistry, Alagappa University	25-26, July, 2019
24	Chairperson	International Conference on Applied Nanoscience and Nanotechnology (ICANN- 2019),	Department of Nanoscience and Nanotechnology, Alagappa University Karaikudi.	18 & 19 March 2019
25	Graphene-Bi <sub>2</sub> O <sub>3</sub> -WO <sub>3</sub> nanocomposites photo-catalyst for the degradation of rose bengal and methylene blue dyes	International Conference on Applied Nanoscience and Nanotechnology (ICANN- 2019),	Department of Nanoscience and Nanotechnology, Alagappa University Karaikudi.	18 & 19 March 2019

26	Precise Preparation of Porous Li-rich Hierarchical Cubes for $\text{Li}_{1.2}\text{Mn}_{0.54}\text{Ni}_{0.13}\text{Co}_{0.13}\text{O}_2$ High Performance Li ion Battery Applications	International Conference on Applied Nanoscience and Nanotechnology (ICANN- 2019),	Department of Nanoscience and Nanotechnology, Alagappa University Karaikudi.	18 & 19 March 2019
27	Development of L-Dopa Electrochemical Sensor based on Graphitic Carbon Nitrite decorated $\text{WO}_3$ Nanoparticles Modified Gold Electrode	International Conference on Applied Nanoscience and Nanotechnology (ICANN- 2019),	Department of Nanoscience and Nanotechnology, Alagappa University Karaikudi.	18 & 19 March 2019
28	Highly Sensitive Dopamine Sensor based on $\text{MnCu}_2\text{O}_4$ microspheres decorated with $\text{MoS}_2$ nanosheets	International Conference on Applied Nanoscience and Nanotechnology (ICANN- 2019),	Department of Nanoscience and Nanotechnology, Alagappa University Karaikudi.	18 & 19 March 2019
29	A Facile Binder Free Hydrothermal synthesis of $\text{NiMn}_2\text{S}_4$ Nano sheet arrays for High-Performance of Supercapacitor Applications	International Conference on Applied Nanoscience and Nanotechnology (ICANN- 2019),	Department of Nanoscience and Nanotechnology, Alagappa University Karaikudi.	18 & 19 March 2019
30	Synthesis of Carbon Spheres Supported $\text{NiMn}_2\text{O}_4$ Hollow Spheres Electrode for High Performance Supercapacitors	International Conference on Applied Nanoscience and Nanotechnology (ICANN- 2019),	Department of Nanoscience and Nanotechnology, Alagappa University Karaikudi.	18 & 19 March 2019
31	Fabrication of Electrochemical Theophylline Sensor based on Nickel Hexacyanoferrate / Curcumin hybrids modified Glassy Carbon Electrode	International Conference on Applied Nanoscience and Nanotechnology (ICANN- 2019),	Department of Nanoscience and Nanotechnology, Alagappa University Karaikudi.	18 & 19 March 2019
32	Synthesis of $\text{Mn}_2\text{O}_3$ nanomaterials for high-performance asymmetric supercapacitor applications	International Conference on Frontier areas in chemical technologies -2017	Department of Industrial chemistry, Alagappa University	06-08, July, 2017

33	Chairperson	Two days international conference on Renewable Energy science and Technology	Alagappa University	10-11, March, 2017
34	Design and Development of Glucose sensor based on a Novel Nanocomposite Electrode	Two days international conference on Renewable Energy science and Technology	Alagappa University	10-11, March, 2017
35	Hierarchically Layered $\text{Li}_{1.2}\text{Ni}_{0.2}\text{Mn}_{0.6}\text{O}_2$ for High-capacity aqueous rechargeable Li-ion battery applications	Two days international conference on Renewable Energy science and Technology	Alagappa University	10-11, March, 2017
36	Synthesis of and characterization of $\text{LiNi}_{0.23}\text{Co}_{0.23}\text{Mn}_{0.54}\text{O}_2$ cathode materials for high performance Li-ion battery applications	Two days international conference on Renewable Energy science and Technology	Alagappa University	10-11, March, 2017
37	Kinetically Controlled synthesis of Ni doped $\text{MnCO}_3$ nanospheres as High Performance Supercapacitor Applications	Two days international conference on Renewable Energy science and Technology	Alagappa University	10-11, March, 2017
38	Porous nanorods-like $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ wrapped graphene nano-ribbon composite for high performance Li-Ion battery	11 <sup>th</sup> International Symposium on Advances in Electrochemical Science and Technology, (iSAEST -11)	Chennai, INDIA	Dec. 8-10, 2016
39	La/Sr titanate solid base heterogeneous catalyst	5 <sup>th</sup> international conference	Coimbatore	Nov 17&18,

	catalyzed Palm Oil transesterification	“Sustainable utilization of tropical plant biomass: Bioproducts, Biocatalyst and Biorefinary (SutB4) held on,		2016
40	In situ Synthesis of Macroporous Fe <sub>2</sub> O <sub>3</sub> Fiber Nanomaterials by Cellulose Fibers for Electrocatalytic Oxidation of Dopamine	International Conference on Frontier Areas in Chemical Technologies – 2016 (FACTs-2016)	Alagappa Unviersity	21-23, March 2016
41	Manganese dioxide Nanoparticles for Electrochemical Energy Storage and Conversion Applications	International Conference on Frontier Areas in Chemical Technologies – 2016 (FACTs-2016)	Alagappa Unviersity	21-23, March 2016
42	Improvement of Bagasse based Paper Critical Properties using CaCO <sub>3</sub> Nanofillers	International Conference on Frontier Areas in Chemical Technologies – 2016 (FACTs-2016)	Alagappa Unviersity	21-23, March 2016
43	Fabrication of Ru Doped SnO <sub>2</sub> /Graphene Nanosheets Hybrid Nanocomposites Based Biosensor for the Selective Electrochemical Detection of Dopamine	International Conference on Nanotechnology (NANO- 2015) held on 7-10 <sup>th</sup> December 2015	KSR College, Thiruchengode, India	7-10, December 2015
44	Synthesis and Characterization of Graphene Coated LiMn <sub>1.5</sub> Ni <sub>0.5-x</sub> BixO <sub>4</sub> Nanocomposites for Li-ion battery	International Conference on Nanotechnology (NANO- 2015) held on 7-10 December 2015	KSR College, Thiruchengode, India	7-10, December 2015
45	Microwave-Assisted NiFe <sub>1.95</sub> Mn <sub>0.05</sub> O <sub>4</sub> Magnetic	International Conference on	KSR College, Thiruchengode, India	7-10, December

	Nanoparticle Characterization For Supercapacitor Application	Nanotechnology (NANO- 2015) held on 7-10 <sup>th</sup> December 2015		er 2015
46	Electrochemical Properties of Cu - Doped and Carbon Coated LiFePO <sub>4</sub> Cathode Materials for Li-Ion Batteries	International Conference on Nanotechnology (NANO- 2015) held on 7-10 <sup>th</sup> December 2015	KSR College, Thiruchengode, India	7-10, December 2015
47	Structural and Electrochemical Characteristics of graphene oxide coated LiNi <sub>0.45</sub> Bi <sub>0.05</sub> Mn <sub>1.5</sub> O <sub>4</sub> cathode for lithium-ion battery	International Conference on Recent Advancements in Materials (ICRAM-2015)	Anna University, Thiruchirappalli, India	16-17 <sup>th</sup> October, 2015
48	Chair person	International Workshop on Advanced Materials - 2014	Alagappa University	20-21, March, 2014
49	Anti-cancer drug Loading and release study of 3-APTES coated Fe <sub>3</sub> O <sub>4</sub> Nanoparticles	International Conference on "Recent trends in Textile and Electrochemical Sciences (RATES - 2013)	Alagappa University Karaikudi	21-23 March, 2013
50	Cathodic Electrodeposition of titanium dioxide thin film and their application to dye sensitized solar cells	International Conference on "Recent trends in Textile and Electrochemical Sciences (RATES - 2013)	Alagappa University Karaikudi	21-23 March, 2013
51	Development of Lithium-Ion battery using a new cathode material	International Conference on "Recent trends in Textile and Electrochemical	Alagappa University Karaikudi	21-23 March, 2013

		Sciences (RATES - 2013)		
52	Development of Nanostructured Hybrid materials for energy applications	International Conference on "Recent trends in Textile and Electrochemical Sciences (RATES - 2013)	Alagappa University Karaikudi	21-23 March, 2013
53	Dual transition metal ions doped LiMn <sub>2</sub> O <sub>4</sub> as cathode material for lithium ions batteries	International Conference on "Recent trends in Textile and Electrochemical Sciences (RATES - 2013)	Alagappa University Karaikudi	21-23 March, 2013
54	Transesterification of Palmolein oil to Biodiesel using Ba/Ti/Na Nanocomposite catalysts	International Conference on "Recent trends in Textile and Electrochemical Sciences (RATES - 2013)	Alagappa University Karaikudi	21-23 March, 2013
55	Nanoflakes of Mn <sub>3</sub> O <sub>4</sub> synthesis by Novel Precipitation Method and their Characterization	International Conference on "Recent trends in Textile and Electrochemical Sciences (RATES - 2013)	Alagappa University Karaikudi	21-23 March, 2013
56	New combustion route synthesis of ZnO nanocatalyst and its characterization for Biodiesel Application	International Conference on "Recent trends in Textile and Electrochemical Sciences (RATES - 2013)	Alagappa University Karaikudi	21-23 March, 2013
57	Synthesis and Characterization of Graphene Nanosheets	International Conference on	Alagappa University Karaikudi	21-23 March,

		“Recent trends in Textile and Electrochemical Sciences (RATES - 2013)		2013
58	Synthesis of CaO-La <sub>2</sub> O <sub>3</sub> Metal Oxide Nanocatalyst for Bio-Diesel Application	International Conference on “Recent trends in Textile and Electrochemical Sciences (RATES - 2013)	Alagappa University Karaikudi	21-23 March, 2013
59	Studies on the synthesis of magnetite nanoparticles in hydrophilic ionic liquid	International Conference on Advanced Materials and Applications	Kalasalingam University	4-5, March, 2011
60	Magnetic Nano particle Synthesis through Sol-gel Technique and their Characteristics	International Conference on “Materials for the Millennium” held at Cochin University of Science and Technology	Kochi	January 11-13, 2010
61	Application of Confocal Microscopy in Sensing the Magnetically Binded Drug Delivery	International Seminar on Application of Confocal Microscopic Techniques in Animal Health Management	Alagappa University	29-30, March, 2010
62	Development of Cuprous Chloride Cathode for Manganese Reserved Batteries	International Conference on “Electrochemical Power Systems” (ICEPS 2008)	Thiruvananthapuram Kerela	November 26 – 28, 2008
63	Inhibition of mild steel corrosion by extracts of Pongamia Glabra and Annona Squamosa in Acidic Media	Sixth International Symposium on Advances in Electrochemical Science and Technology	Chennai	26 – 28, Nov, 1998

64	Studies on the condensation products of cyclohexyl amine with anisaldehyde and furfuraldehyde as acidizing inhibitors	Sixth International Symposium on Advances in Electrochemical Science and Technology	Chennai	26 – 28, Nov, 1998
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**National Conference Paper Presented/Chairperson:**

No.	Title of the Lecture /Paper	Name of Invited Lecture/ Seminar/ Conference	Organizer	Date
1	Anion intercalated MnV-LDH novel electrode material for high energy planar supercapacitor	Society for advancement of electrochemical science and technology	CECRI- Karaikudi	04-05 January,2024
2	Chaired Session	Two-Days Regional workshop on “Nanomaterials Driven advances in chemical and biosensor	Department of Bioelectronics and Biosensors, Alagappa Univeristy	04-05, April,2024
3	Low temperature hydrothermal synthesis of spinel ZnMn <sub>2</sub> O <sub>4</sub> nanoflowers for supercapacitor applications	Society for advancement of electrochemical science and technology	CECRI- Karaikudi	26-27, Aug, 2022
4	Facile 2D/2D hierarchical MnNi-LDH/WS <sub>2</sub> heterostructure for high performance supercapacitor application	Society for advancement of electrochemical science and technology	CECRI- Karaikudi	26-27, Aug, 2022
5	Invited Talk–Nanomaterials Design for Next Generation Energy Storage Devices	Advanced Materials: Processing and Characterization AMPC-2017	NIT Trichy	27-28 February, 2017
6	Electrochemical Performance of Li <sub>1.2</sub> Mn <sub>0.6</sub> Ni <sub>0.2</sub> O <sub>2</sub> and N-GNS based full cell aqueous rechargeable Li- ion battery”	Advanced Materials: Processing and Characterization AMPC-2017	NIT Trichy	27-28 February, 2017
7	One-Pot Synthesis of Dendrites-Like Fe <sub>3</sub> O <sub>4</sub> -reduced	Advanced Materials: Processing and Characterization AMPC-	NIT Trichy	27-28 February, 2017

	Graphene Oxide nanocomposites for Supercapacitor Applications	2017		
8	Paper Presented	Biosensor in Agricultural, Environmental and medical science	Department of Bioelectronics and Biosensors, Alagappa Univeristy	13 <sup>th</sup> -14 <sup>th</sup> March, 2017
9	Microwave Assisted NiMn <sub>2</sub> O <sub>4</sub> Nanoparticle Synthesis and Their Structural Properties	National conference on Advanced Functional Materials-2015	Department of Physics, SRM University	8th & 9th May, 2015
10	Invited Talk	Application of nanomaterials for biomedical and energy storage devices	Department of Chemistry, Vel Tech University-Chennai	18 <sup>th</sup> March, 2013
11	Electrochemical and Thermal properties of Tungsten doped LiMn <sub>2</sub> O <sub>4</sub> cathode materials	Recent Application of Nanomaterials in Chemistry and Environmental research	Department of Chemistry, Kongu Engineering College, Perundurai, Tamil Nadu.	July 20 & 21, 2012.
12	Mixed metal oxide MgO - CaO Heterogeneous nanocatalyst Synthesis and Characterization for Biodiesel Application	Recent Application of Nanomaterials in Chemistry and Environmental research	Department of Chemistry, Kongu Engineering College, Perundurai, Tamil Nadu.	July 20 & 21, 2012.
13	3-Aminopropyltriethoxysilane Coated Fe <sub>3</sub> O <sub>4</sub> -Magnetite Nanoparticle Synthesis, Characterization and Its Binding Ability on Curcumin Anticancer Drug	Recent Application of Nanomaterials in Chemistry and Environmental research	Department of Chemistry, Kongu Engineering College, Perundurai, Tamil Nadu.	July 20 & 21, 2012.
14	Structural and Thermal behavior of LiMnFeO <sub>4</sub> cathode materials for Li-ion batteries	Recent Application of Nanomaterials in Chemistry and Environmental research	Department of Chemistry, Kongu Engineering College, Perundurai, Tamil Nadu.	July 20 & 21, 2012.
15	Paper Presented	Recent Advancement in Nanomaterials For Sensor Applications NANOSE-12	Department of Bioelectronics and Biosensors, Alagappa Univeristy	8 <sup>th</sup> -9 <sup>th</sup> March, 2012
16	Invited Talk- Water-Soluble	Recent Advances in	Jalgaon, Maharastra	2 <sup>nd</sup> -3 <sup>rd</sup> March,

	polymers for cooling water systems	Polymer technology.		2012.
17	Invited Talk – Electromagnetic waves irradiation for the technological Application	AITSEM 2K12	Department of Polymer Technology, Kamaraj College of Engineering and Technology, Virudhunagar.	29 <sup>th</sup> February, 2012
18	Nanomagnetite 3-aminoprpyl triethoxysilane coated Fe <sub>3</sub> O <sub>4</sub> particle synthesis, characterization and its binding ability on curcumin anticancer drug	Recent trends in Green Synthesis ( RTGS -2011)	Department of Industrial Chemistry, Alagappa University	05-06 August, 2011
19	Electrochemical and Thermal properties of Molybdenum doped LiMn <sub>2</sub> O <sub>4</sub> cathode materials	Recent trends in Green Synthesis ( RTGS -2011)	Department of Industrial Chemistry, Alagappa University	05-06 August, 2011
20	Invited Talk	Perspectives in Nanoscience and nanobiotechnology (KU-PNSNBT,2010)	Karunya Institute of Technology and Sciences	29 <sup>th</sup> November - 10 <sup>th</sup> December, 2010
21	Presented Paper	Alternate Energy Resource And Application	Department of Chemistry Sriram Engineering College.	22 <sup>nd</sup> -23 <sup>rd</sup> April, 2010
22	SnO <sub>2</sub> Thin Films By Pulsed Laser Deposition (PLD) Technique	National Conference on Recent Trends in Advanced Energy Materials	Department of Physics, Alagappa university	10-11 march, 2010
23	Electrode Materials for Fuel Cell Applications	National Conference on Emerging Materials	NBKR Science & Arts College Vidhya Nagar, Andhra Pradesh	18-19, July,2009
24	Nanomaterials electrode for Fuel Cell Applications	National Conference on Emerging Materials	NBKR Science & Arts College Vidhya Nagar, Andhra Pradesh	18-19, July,2009

25	Electrochemical behaviour of Nanoparticle size LiTiO <sub>2</sub> for Lithium secondary batteries	National Conference on application Oriented Nanomaterials	Department of Industrial Chemistry, Alagappa University	10-11 March, 2005
26	Synthesis of LiCo <sub>1-x</sub> Bi <sub>x</sub> O <sub>2</sub> nanoparticle cathode materials for lithium rechargeable batteries	National Conference on nanomaterials & application	Amity Institute of nanotechnology Noida	27 <sup>th</sup> – 28 <sup>th</sup> May, 2005
27	Evaluation of Corrosion Inhibition Properties of Ethyl 1,2 N-Diphospono methyl Amino Diethanoic acid in Cooling Water For Mild Steel.	Tenth National Congress On Corrosion Control	CECRI Karaikudi	6-8 september, 2000
28	Drinking water resources Management in a rural habitation of Sivaganga district, Tamil Nadu, India	Environmental Awareness, Education management for sustainable	Dept. of Environmental Sciences, Sri Venakteswara University, Tripati	24-26 August, 2000
29	Role of Poly (Maleic anhydride – co – Methacrylic Acid) as Antiscalant in CaCO <sub>3</sub> and CaSO <sub>4</sub> brines	Ninth National convention of Electrochemists	SVRCET, Surat	Nov 26 – 27, 1999
30	Corrosion inhibition properties of Andrographspaniculatta extract on mild steel in acidic media	National Seminar on recent trends in material science	Dept of Physics, Alagappa University, Karaikudi	May 3, 1999.

### Invited Lectures:

S.No	Title of the Lecture	Name of the Lecture	Organizer, Country	Date
1	Nanomaterials designing strategy for specialized application	Invited Talk	Seethalakshmi Achi College for women, Pallathur, India	Mar, 2025
2	Advancing Li-rich Layered Oxides for Next-Generation Li-ion Batteries: Structural Design and Stability	Invited Talk	Crescent Institute of Science and Technology, India	Sep, 2024

	Improvements.			
3	Alagappa University Celebrates Themed Nobel Excellence Talks (ACT-NExT) -2023	Invited Talk	Dept of Industrial Chemistry, Alagappa University, Karaikudi	29 <sup>th</sup> Feb, 2024
4	Alagappa University Celebrates Themed Nobel Excellence Talks (ACT-NExT) -2023	Invited Talk	Dept of Physics, Alagappa University, Karaikudi	19 <sup>th</sup> Jan, 2024
5	Nano structured materials for energy storage	Invited talk	Department of Chemistry, SVN college, Madurai, India	18th November 2022
6	Nobel prize for Novel Energy Storage Devices Act Next: Nobel Prize in Physics	Special Lecture	Department of Physics, Alagappa University, Karaikudi.	28 <sup>th</sup> August 2020
7	Magnetic Nanoparticles for drug delivery Applications	Invited talk	Bharathidasan University, Thiruchirappalli, INDIA	20-21 February 2020
8	Nanomaterials for specialized applications	Resource Person Lecture	Dept of Chemistry, Seetha Lakshmi Achi College for Women, Pallathur, India	12 <sup>th</sup> September 2019
9	Hollow and Porous microspheres of CoMn <sub>2</sub> O <sub>4</sub> as next generation electrode materials for high-performance lithium-ion batteries	Invited Talk	Centre for Nanoscience and Nanotechnology, Mahatma Gandhi Universtiy, Kottayam, Kerala, India.	9-11 August 2019
10	“Magnetic nanostructures for specialized application	Invited Lecture	Mepco Schlenk Engineering	29 March 2019

			College, Sivakasi, India.	
11	Nanotechnology concepts and applications in medicine and energy technology	Key Note Speaker	M. R. Govt. Arts college, Mannargudi, India.	4 <sup>th</sup> October, 2017
12	Nanomedicine” at “In-service Training Programme for Secondary Grade Science Teachers	Resource Person Lecture	SeethaLakshmi Achi College for Women, Pallathur	Sep, 2017
13	Nanomaterials Design and Characterization for Next Generation Energy Storage Devices	Invited Talk	NIT Trichy, India	27&28 <sup>th</sup> Feb. 2017
14	Novel Nanomaterials for Specialized Applications	Invited talk	Alagappa University, India	6 & 7 January 2017
15	Progress and Challenges in Next Generation Energy Storage Materials	Special Lecture	Department of Energy Engineering at UNIST, Ulsan, South Korea	18.02.2016
16	Application of Graphene in Energy Storage Devices	Special Lecture	Polymer Chemistry and Electronics Lab at POSTECH, Pohang South Korea	21.11.2014
17	Nanotechnology” at “Creation of Scientific Awareness Among Rural Farmers, Self Help Group Members and Students	Guest Lecture	SeethaLakshmi Achi College for Women, Pallathur.	25 <sup>th</sup> July 2014

18	Recent developments on nanoscience in the inaugural function of Chemistry Association	Inaugural address	Seethalakshmi Achi College for Women, Pallathur, India	Oct, 2013
19	Recent trends of Graphene in Sensor Devices	Association of Chemical Sensors in Taiwan	National Taipei University of Technology,	June 2013
20	Graphene for Energy storage Devices	Invited Talk	National Yunlin University of Science and Technology, Yunlin, Taiwan	17.05.2013.

### Events organized in leading roles

S.No.	Name of the Event	Position	Period		Sponsor /Funding agency
			From	To	
1	Skill Training Workshop on Nanomaterials Synthesis-Skill Applications in Energy, Environment and Health	Organizing Secretary	15 <sup>th</sup> Oct, 2025	17 <sup>th</sup> Oct, 2025	RUSA 2.0 (EIR)
2	National Seminar on Nanomaterials for Sustainable Energy and Environmental Applications	Convener and Organizing Secretary	27 <sup>th</sup> March, 2025		Alagappa University
3	2 <sup>nd</sup> International Conference on Advanced Nanomaterials for Energy and Environmental Applications (ICANEE-2023)	Co-Convener	9 <sup>th</sup> Feb. 2023	11 <sup>th</sup> Feb.2023	DST and Alagappa University
4	International virtual conference on Advanced Nanomaterials for Energy and Environmental Applications (ICANEE-2020)	Co-Convener	16 <sup>th</sup> Sept. 2020	18 <sup>th</sup> Sept. 2020	DST, Alagappa University
5	Two days International	Co-Convener	18 <sup>th</sup> Mar.	19 <sup>th</sup> Mar.	Alagappa University

	Conference on Applied Nanoscience & Nanotechnology (ICANN- 2019)		2019	2019	
6	International Conference on Applied Nanoscience and Nanotechnology	Co-Convener	26 <sup>th</sup> Feb. 2018	27 <sup>th</sup> Feb. 2018	Alagappa University
7	National Seminar on “Nanomaterials for Specialized Applications	Organizing member	24 <sup>th</sup> Jan. 2017	25 <sup>th</sup> Jan. 2017	Alagappa University
8	Italian Scientist and Professors	Organizing member	August. 2013		Alagappa University
9	Seminar on Nanomaterials for Energy and BioSensor Applications presented by Professor S.M.Chen	Organizing member	Feb. 2013		Alagappa University
10	Special Seminar on “TEM” Utility	Organizing member	December - 2012		Alagappa University
11	International Conference on Advancement of Nanoscience and Nanotechnology (ICOANN – 2010)	Organizing member	1 <sup>st</sup> March. 2010	3 <sup>rd</sup> March. 2010	DST & Alagappa University
12	National Symposium on Importance of Nanoscience and Technology” (INST '09)	Organizing member	14 <sup>th</sup> March 2009	15 <sup>th</sup> March 2009	Alagappa University
13	International Colloquium on Emerging Biotechnologies in Agriculture, Animal health and Productivity” (ICEB 09)	Alagappa University	22 <sup>nd</sup> Feb. 2009	27 <sup>th</sup> Feb. 2009	Alagappa University
14	National Seminar on Application Oriented Nanomaterials”	Organizing	10 <sup>th</sup> March 2005	11 <sup>th</sup> March	Alagappa University

	(NANOMAT-2005)	member		2005	
15	Graduation Day - Science and Education	Organizing member		2018	Alagappa University
16	Graduation Day – Arts and Management (University Departments)	Organizing member		2018	Alagappa University
17	Certificate Redressal Mela	Organizing member		2018	Alagappa University

### Distinctive Achievements/Awards

- ❖ Outstanding Academic & Research Excellence Appreciation Certificate for Projects and Patents– 2021-2023– Alagappa University
- ❖ Certificate of Appreciation– TBRP– Quality Enhancement in Teaching and Research– 2021– Alagappa University
- ❖ Vallal Alagappan Research Recognition Award– 2020– Alagappa University
- ❖ Certificate of Honor and Appreciation – 2018 – Ming Chi University of Technology
- ❖ Letter of Appreciation for Chief Warden for the Academic Excellence– 2018– Alagappa University
- ❖ Letter of Appreciation for Controller of Examination for the Administrative Contribution– 2018– Alagappa University
- ❖ Visiting Professor – Ming Chi University of Technology, Taiwan, 2018
- ❖ Foreign research Professor Fellowship -2015-2016, Dongguk University, S Korea.
- ❖ Brain Korea 21 fellowship, South Korea – 2007
- ❖ National Science Council Post Doc. fellowship, Taiwan -2006.
- ❖ National Science Council Visiting Scientist fellowship, Taiwan - 2005
- ❖ Murdoch University Visiting Scientist fellowship, Australia – 2002

### Overseas Exposure / Visits

- ❖ Australia
- ❖ Japan
- ❖ Malaysia
- ❖ Singapore
- ❖ South Korea
- ❖ Taiwan
- ❖ United States of America

### Other Administrative Responsibilities



S. No.	Year /Period	Name of the BoS / Administrative Committee /Academic Committee	Role played as (Chairperson/ Convener/Member)
1	2013 - 2014	M.Sc., Nanoscience and Technology	Member
2	2013 - 2014	M.Phil., Nanoscience and Technology	Member
3	2019 - 2020	M.Sc., Nanoscience and Technology	Member
4	2019 - 2020	M.Sc., Chemistry (Specialization in Nanoscience and Technology)	Member
5	2022- 2023	M.Sc., Nanoscience and Technology	Member
6	2025 -2026	M.Sc., Polymer Chemistry	
7	2008 – Till Date	Departmental Purchase committee	Member
8	2008 –Till Date	Departmental Research committee	Member
9	2008 –Till Date	Departmental Doctoral committee	Member
10	2014 –Till Date	Academic audit	Member
11	2014 –Till Date	Inspection Team – Collaborative Programme	Member
12	2011 –Till Date	Stock Verification	Member
13	2017	Conduct of Convocation – Reception Committee	Member
14	2017	Conduct of Convocation – Memento Purchase Committee	Member
15	2022	Teachers Day Celebration – Gift Purchase Committee	Member
16	2018	Graduation Day – Degree certificates distribution	COE

### Membership in Professional Bodies

- ❖ National Association for Corrosion Engineers
- ❖ Electrochemical Chemical Society
- ❖ Society for Advancement in Electrochemical Sci. & Technology
- ❖ European Desalination Society

❖ Indian Science Congress Association

## **Advisory Board**

❖ Tamil Nadu News print & Papers Limited-Karur