



P. SHAKKTHIVEL

PROFESSOR

Contact

Address : Department of Nanoscience and Technology
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Date of Birth : 14-05-1974

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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: 12_Years

Research Experience: 16Years

Additional Responsibilities

1. Chief Warden for Alagappa University Hostels
2. Carrier Guidance cell

3. Personality development cell
4. Board of studies member in NanoScience and Technology
5. Board of studies member in NanoScience and Technology Specialization in Chemistry
6. M.Phil and Ph.D., selection committee Member
7. Departmental Research Committee Member
8. Anti-ragging committee member
9. Departmental Purchase committee member

Areas of Research

Li-ion Batteries and Supercapacitor

Magnetic Nanoparticles & Targeted drug Delivery

Modified electrodes & Bio-molecule diagnosis

Research Supervision / Guidance

Program of Study		Completed	Ongoing
Research	Ph.D.	4	4
	M.Phil.	7	1
Project	PG	7	1
	UG / Others	2	-

Publications

International		National		Others
Journals	Conferences	Journals	Conferences	Books / Chapters / Monographs / Manuals
52	30	7	27	01

Cumulative Impact Factor (as per JCR) : 200
h-index : 10
i10 index : 11
Total Citations : 586

Funded Research Projects

Completed Projects

S. No	Agency	Period		Project Title	Budget (Rs. In lakhs)
		From	To		
1	DST, New Delhi	2009	2012	Nanoparticle cathode.....Li-Ion cells	19.96
2	UGC, New Delhi	2010	2013	Novel Heterogeneous.... From vegetable Oils	8.41
3	AURF, Karaikudi	2009	2010	Synthesis of Magnetic..... Characterization	0.64

Ongoing Projects

S. No	Agency	Period		Project Title	Budget (Rs. In lakhs)
		From	To		
1	DST, SERB, New Dehi	2015	2018	Novel conducting C layer embedded...- electric vehicle Applications	23.65

Distinctive Achievements / Awards

1. Dongguk University Foreign Professor Fellow- 2015
2. Brain Korea 21 fellowship - 2007
3. Taiwan National Science Council Post Doc.felloship-2006.
4. Taiwan National Science Council Visiting Scientist fellowship- 2005
5. Murdoch University Visiting Scientist fellowship – 2002

Events organized in leading roles

Number of Seminars / Conferences / Workshops / Events organized: 7

1. National Seminar on “ Nanomaterials for Specialized Applications” at Alagappa University, Karaikudi on 24-25, January 2017.
2. “Board of studies was organized with the **Italian Scientist and Professors** August 2013 at the Department of NanoScience and Technology, Alagappa University, Karaikudi, INDIA.

3. Seminar on Nanomaterials for Energy and BioSensor Applications presented by Professor "S.M.Chen Feb. 2013 at the Department of NanoScience and Technology, Alagappa University, Karaikudi, INDIA"
4. Special Seminar on "TEM Utility was organized December - 2012 at the Department of NanoScience and Technology, Alagappa University, Karaikudi, INDIA"
5. International Conference on Advancement of Nanoscience and Nanotechnology (ICOANN – 2010) March 1-3, 2010, Department of Nanoscience and Technology, Alagappa University, Karaikudi, INDIA.
6. "National Symposium on Importance of Nanoscience and Technology" (INST '09) March 14 & 15, 2009, Department of Nanoscience and Technology, Alagappa University, Karaikudi, INDIA.
7. "International Colloquium on Emerging Biotechnologies in Agriculture, Animal health and Productivity" (ICEB 09) February 22-27, 2009, Department of NanoScience and Technology, Jointly organized with School of Biotechnology Alagappa University, Karaikudi, INDIA.
8. "National Seminar on Application Oriented Nanomaterials" (**NANOMAT-2005**) March 10-11, 2005, Department of Industrial Chemistry, Alagappa University, Karaikudi, INDIA.

Events Participated

Conferences / Seminars / Workshops: 47

1. 11th International Symposium on Advances in Electrochemical Science and Technology, (iSAEST -11) held on Dec. 8-10, 2016 at Chennai, INDIA.
 Paper Presented
 "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"
2. 5th international conference "Sustainable utilization of tropical plant biomass: Bioproducts, Biocatalyst and Biorefinery (SutB4) held on Nov 17&18, 2016, Coimbatore.
 Paper Presented
 "La/Sr titanate solid base heterogeneous catalyst catalyzed Palm Oil transesterification"
3. First Symposium on Advanced Functional Materials: Energy Conversion and Storage (FUNMAT-2016) held on May 26 - 28, 2016 at CSIR-CERI, Karaikudi, India
 Paper presented

“Precise preparation of high performance $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ nanocubes for energy storage applications”

4. The Korean Society of Industrial and Engineering Chemistry (KSIEC) held on 2-4, May 2016 at Yeosu, S Korea.

Paper presented

“Conductive layer encapsulated LMO/xG Cathodes for high power Li-ion batteries”

5. International Conference on Frontier Areas in Chemical Technologies – 2016 (FACTs-2016) held on 21-23, March 2016, Alagappa University, INDIA.

Papers Presented

“Manganese dioxide Nanoparticles for Electrochemical Energy Storage and Conversion Applications”

“In situ Synthesis of Macroporous Fe_2O_3 Fiber Nanomaterials by Cellulose Fibers for Electrocatalytic Oxidation of Dopamine”

“Improvement of Bagasse based Paper Critical Properties using CaCO_3 Nanofillers”

6. Special Lecture on “Progress and Challenges in Next Generation Energy Storage Materials” at Department of Energy Engineering at UNIST, Ulsan, South Korea on Feb.18th 2016.

7. International Conference on Nanotechnology (NANO- 2015) held on 7-10 December 2015 at KSR College , Thiruchengode, India

Paper Presented

“Synthesis and Characterization of Graphene Coated $\text{LiMn}_{1.5}\text{Ni}_{0.5-x}\text{Bi}_x\text{O}_4$ Nanocomposites for Li-ion battery”

“Electrochemical Properties of Cu - Doped and Carbon Coated LiFePO_4 Cathode Materials for Li-Ion Batteries”

“Fabrication of Ru Doped SnO_2 /Graphene Nanosheets Hybrid Nanocomposites Based Biosensor for the Selective Electrochemical Detection of Dopamine”

“Microwave-Assisted $\text{NiFe}_{1.95}\text{Mn}_{0.05}\text{O}_4$ Magnetic Nanoparticle Characterization For Supercapacitor Application”

8. International Conference on Recent Advancements in Materials (ICRAM-2015) held on 16-17th October, 2015 at Anna University, Thiruchirappalli, India.

Paper Presented

“Fabrication of Ru doped SnO₂/Graphene nanosheets hybrid nanocomposites modified electrode non-enzymatic glucose sensor”

“Structural and Electrochemical Characteristics of graphene oxide coated LiNi_{0.45}Bi_{0.05}Mn_{1.5}O₄ cathode for lithium ion battery”

9. National conference on Advanced Functional Materials held at SRM University, Chennai, during 8th & 9th May, 2015.

Paper Presented

“Microwave Assisted NiMn₂O₄ nanoparticle Synthesis and Their Structural Properties”

10. ALU Physics dept workshop – March 2014

11. International Workshop on “Frontier Areas in Chemical Technologies – 2014 (FACTs-2014)” held at Alagappa University, Karaikudi, during 21st & 22nd February 2014.

12. International Conference on “Recent trends in Textile and Electrochemical Sciences (RATES -2013) in Alagappa University, Karaikudi, Tamil Nadu, on 21-23 March, 2013.

Paper presented

“Synthesis and Characterization of Graphene Nanosheets”

“New combustion route synthesis of ZnO nanocatalyst and its characterization for Biodiesel Application”

“Transesterification of Palmolein oil to Biodiesel using Ba/Ti/Na Nanocomposite catalysts”

“Synthesis of CaO-La₂O₃ Metal Oxide Nanocatalyst for Bio-Diesel Application”

“Nanoflakes of Mn₃O₄ synthesis by Novel Precipitation Method and their Characterization”

“Development of Lithium Ion battery using a new cathode material”

“Anti-cancer drug Loading and release study of 3-APTES coated Fe_3O_4 Nanoparticles”

“Dual transition metal ions doped LiMn_2O_4 as cathode material for lithium ions batteries”

13. National Conference on “Recent Application of Nanomaterials in Chemistry and Environmental research” in Kongu Engineering College, Perundurai, Tamil Nadu, on July 20 & 21, 2012.

Paper presented

“Electrochemical and Thermal properties of Tungsten doped LiMn_2O_4 cathode materials”

“3-Aminopropyl triethoxysilane Coated Fe_3O_4 - Magnetite Nanoparticle Synthesis, Characterization and Its Binding Ability on Curcumin Anticancer Drug”

“Mixed metal oxide MgO - CaO Heterogeneous nanocatalyst Synthesis and Characterization for Biodiesel Application”

“Structural and Thermal behavior of LiMnFeO_4 cathode materials for Li-ion batteries”

14. “220th ECS meeting & Electrochemical Energy Summit in Boston” held at Massachusetts, USA on Oct. 9-14, 2011.

Paper presented

“Effect of Molybdenum on the Electrochemical and Thermal properties of LiMn_2O_4 cathode materials”

15. National Conference on Recent trends in Synthesis (RTGS -2011), held at Alagappa University, karaikudi on August 5-6, 2011.

Papers presented

“Nanomagnetite 3-aminopropyl triethoxysilane coated Fe_3O_4 particle synthesis, characterization and its binding ability on curcumin anticancer drug”

“Electrochemical and Thermal properties of Molybdenum doped LiMn_2O_4 cathode materials”

16. 9th International symposium on “Advances in Electrochemical Science and Technology” held at Hotel Green Park, Chennai, December 2-4, 2010.

17. "International Seminar on Application of Confocal Microscopic Techniques in Animal Health Management" held at **Alagappa University, Karaikudi** March 29-30, 2010

Paper Presented

"Application of Confocal Microscopy in Sensing the Magnetically Binded Drug Delivery"

18. International Conference on "Materials for the Millennium" held at **Cochin University of Science and Technology, Kochi, January 11-13, 2010.**

Paper Presented

"Magnetic Nanoparticle Synthesis through Sol-gel Technique and their Characteristics"

19. National workshop on "Theory and Practice of X-Ray Diffraction Techniques (TPXRDT-2009)" held at **Alagappa University, Karaikudi, July 13 - 17.**

20. International Colloquium on "Emerging Biotechnologies in Agriculture, Animal Health and Productivity" (ICEB '09) held at **Alagappa University, Karaikudi, February 22 -27, 2009.**

21. "National Symposium of on Importance of Nanoscience and Technology (INST '09)" held at **Alagappa University, Karaikudi, March 14 -15, 2009.**

22. National Seminar on "The Role of Genomics and Bioinformatics in Animal Health and Management (NSGB '09)" held at **Alagappa University, Karaikudi, March 25 -26, 2009.**

Paper presented

"Magnetic Nanoparticles for the Detection of Cancer"

23. National Seminar on "Recent Trends in Molecular Modelling and Drug Design" (NaSMoID '09) held at **Alagappa University, Karaikudi, March 18 -19, 2009.**

24. National Workshop on "Crystal Growth and Characterization" (NWCGC - 2009) held at **Alagappa University, Karaikudi, March 16, 2009.**

25. National Seminar on “Advancements in Bioelectronics and Biosensors” (NSABB '09) held at **Alagappa University, Karaikudi, March 19-20, 2009.**

26. National workshop on “Green Process Techniques for Industrial Application (GREPTIA 2009)” held at **Alagappa University, Karaikudi, March 20 -21, 2009.**

27. International Conference on “Electrochemical Power Systems” (ICEPS 2008) held at **Thiruvananthapuram, Kerela, November 26 – 28, 2008.**

Paper presented

“Development of Cuprous Chloride Cathode for Manganese Reserved Batteries”

28. “14th International Congress on Catalysis (14th ICC-2008)” held at COEX Centre, **Seoul, South Korea, July 13-18, 2008.**

Paper presented

“Sol-gel derived P_2O_5 - ZrO_2 - TiO_2 - SiO_2 Proton conducting glass for Fuel cell Application”

“Alloy catalyst for hydrolysis of chemical hydrides (e.g.sodium borohydride, ammonia-borane”

29. “213th Electrochemical Society meeting” held at **Phoenix, Arozona, United States of America May 2008.**

Paper presented

“Ti doped Lithium Nickelate cathode nanomaterial for Lithium ion cells”

“Characterization of Pulse Plating with Au for improving the Micro-DMFC current collectors”

30. “4th International Fuel Cell Expo 2008” held at **Tokyo, Japan March 2008.**

31. “European Fuel cells and Technology” held at **Rome December 2007.**

Paper presented

“Improvement of micro-DMFC current collectors by Au pulse electroplating”

32. "Carbon Saves the Earth (CSE 2007) – Carbon Materials for Energy Devices and Environmental Protection" held at Kyushu University in Kasuga city and Beppuwan Royal Hotel in **Beppu city, Japan, 5-7 Nov. 2007.**

Paper presented

"Commercialization efforts of hydrogen energy in Korea"

33. "The Korean Institute of Chemical Engineers, Autumn meeting" held at **KAIST, Daejeon, South, Korea, Oct.26&27, 2007.**

Paper presented

"Investigation of metal alloy and metal alloy suspension catalyst for hydrogen release from NaBH_4 for PEMFC application"

34. "International Conference on Biophysical Organic and Inorganic Chemistry", held at Bharath University, Chennai on Aug. 26-30, 2007.

Paper presented

"Synthesis and Evaluation of $\text{LiCo}_{1-x}\text{Bi}_x\text{O}_2$ Nanoparticles as cathode

materials for Lithium rechargeable batteries"

35. "The 11th Korea-Japan Symposium on catalysis" held at **Yonsei Unviesity, Seoul, South Korea, May 21-23, 2007.**

36. "The Korean Electrochemical Society Meeting (spring)" held at **Chonbuk National University, Jeonju, South Korea, April 12-13, 2007**

37. "Instronics -2007" Symposia held at **RMK Engineering College, Kavaraipettai, Chennai, Feb, 2007.**

38. "National Conference on Nanomaterials & Applications" held at **Amity Institute of Nanotechnology, Noida, May 27-28 2005.**

Papers presented

"Synthesis of $\text{LiCo}_{1-x}\text{Bi}_x\text{O}_2$ nanoparticle cathode materials for lithium rechargeable batteries"

39. "National Conference on Application Oriented Nanomaterials (NANOMAT-2005)" held at **Alagappa University, Karaikudi, March 10 – 11, 2005.**

Paper presented

“Electrochemical behaviour of Nanoparticle size LiTiO_2 for Lithium secondary batteries”

40. “Tenth National congress on Corrosion Control” at **Madurai National corrosion Council of India (NCCI), September 6 – 8, 2000.**

Paper presented

“Evaluation of corrosion inhibition properties of 1, 2 N -diphosphonomethyl amino diethanoic acid in cooling water for mild steel”

41. “National Seminar on environmental awareness, education and management for sustainable rural development” (NSERD) held at **Sri Venkateswara University – Tirupati,(AP), Aug 24 – 26, 2000.**

Paper presented

“Drinking water resources Management in a rural habitation of Sivaganga district, Tamil Nadu, India”.

42. “Ninth National convention of Electrochemists” held at **SVRCET, Surat, SAEST, India, Nov 26 – 27, 1999.**

Paper presented

“Role of Poly (Maleic anhydride – co – Methacrylic Acid) as Antiscalant in CaCO_3 and CaSO_4 brines”

43. National Seminar on recent trends in material science, **Alagappa University, Karaikudi, May 3, 1999.**

Paper presented

“Corrosion inhibition properties of *Andrographis paniculata* extract on mild steel in acidic media”

44. "Sixth International Symposium on Advances in Electrochemical Science and Technology" held at Hotel Trident, **Chennai SAEST, India, Nov 26 - 28, 1998.**

Papers presented

i) "Inhibition of mild steel corrosion by extracts of Pongamia Glabra and Annona Squamosa in Acidic Media" and

ii) "Studies on the condensation products of cyclohexyl amine with anisaldehyde and furfuraldehyde as acidizing inhibitors"

45. National Seminar on Emerging Trends in Electrochemical, Textile and Polymer Industries held at **Alagappa University, Karaikudi, April 22 - 23, 1996.**

46. Symposium on Mathematical Applications in Chemistry, **Alagappa University, Karaikudi, April 7, 1996.**

47. "Workshop on stellar structure and evolution" held at **St. Berchman's college, Changanassery, Kerala, Inter University Centre for Astronomy and Astrophysics, Pune UGC, October 3 - 6, 2000.**

Other Training Programs

1. **ECS - India Section** Lecture Series on Advances in Lithium Batteries by **Professor Jean -Marie Tarascon** held at **Indian Institute of Science, Bangalore 560012** on July 25-29, 2011.

2. **Faculty Development Programme** in Entrepreneurship Development Sponsored by DST, India organized by ni-msme, Govt, of India, Hyderabad between 05-04-2011 and 19-04-2011.

Overseas Exposure / Visits

1. Australia

2. Japan

3. Malaysia

4. Singapore

5. South Korea

6. Taiwan

7. United States of America

Membership in

Professional Bodies

1. National Association for Corrosion Engineers
2. Electrochemical Chemical Society
3. Society for Advancement in Electrochemical Sci. & Technology
4. European Desalination Society
5. Indian Science Congress Association

Advisory Board

Tamilnadu News print & Papers Limited-Karur

Academic Bodies (such as Board of Studies etc.,)

Career Guidance, Advice and Counselling students, Personality development, Important days celebration in the University, Popular lectures, Board of studies member, M.Phil and Ph.D., selection committee, Research Committee, Library Committee, Purchase committee, Anti-ragging committee, Question setting to other university, Doctoral committee to other university, Membership in Professional bodies, Ph.D evaluation member, Research paper reviewer,

Resource persons in various capacities

Number of Invited / Special Lectures delivered: 25

1. Invited talk on “Novel Nanomaterials for Specialized Applications” in the National Workshop on “ Materials Chemistry for Future Industrial Development (MATCH FIND – 2017) at Alagappa University, held on 6 & 7 January 2107.

2. Special Lecture on “Progress and Challenges in Next Generation Energy Storage Materials” at Department of Energy Engineering at **UNIST, Ulsan**, South Korea on Feb.18th 2016
3. Visiting as Foreign Research Professor at Department of Safety Engineering, **Dongguk University**, Gyeongju, Republic of Korea from 1.9.2015-31.8.2016.
4. External Examiner for the Public Viva-Voce to the candidate Mr. I.Arockiaraj on 1st April 2015 at National College, Trichy, Bharathidasan University Affiliation.
5. External Examiner for the Public viva-voce to the candidate “Mr.S. Pitchaimuthu,” on 11th Dec. 2014 at ANJA College, Sivakasi, MK University Affiliation.
6. Special Lecture on “Application of Graphene in Energy Storage Devices” at Polymer Chemistry and Electronics Lab at **POSTECH, Pohang** South Korea on Nov.21st 2014.
7. Guest Lecture on “Nanotechnology” at “Creation of Scientific Awareness Among Rural Farmers, Self Help Group Members and Students” on 25th July 2014 at SeethaLakshmi Achi College for Women, Pallathur.
8. External Examiner of the public viva-voce for the candidate “Mr.G.K. Ayyadurai” on 25th February 2014 at Khadir Mohideen College, Adirampattinam.
9. Inaugural address “Recent developments on nanoscience in the inaugural function of Chemistry Association” at Seethalakshmi Achi College for Women, Pallathur, 09.10.2013.
10. Special address “Graphene Based Materials for Energy and Biomolecule Sensing, **National Taipei University of Technology**, June 2013.
11. Invited speaker – Graphene for Energy storage Devices- Interantional Exchange and Cooperation Programme of Taiwan and Chemical Sensors Association in Taiwan – at **Nationl Yunlin University** of Science and Techmology, Yunlin, Taiwan on 17.05.2013.

12. Guest Speaker - Application of nanomaterials for energy storage devices and Biomedicine- **at VEL TECH University, Chennai** on 18th March 2013.
13. Special lecture delivered at Kundrakudi, in “Indiya Munettrathil Indraya Ilaingar in pangu” on 14 March 2012 conducted by **CSIR-CECRI, NSS**.
14. Invited Speaker: “Water-Soluble polymers for cooling water systems” at Fourth Conference On recent Advances in Polymer technology, at **Jalgaon, Maharastra** on 2-3/03/2012.
15. Guest lecture: “Electromagnetic waves Irradiation for Technological Applications” at National level Conference on “Application of Irradiation Techniques in Science, Engineering and Medicine Fields – 2012 at **Kamaraj College of Engineering and Technology, Viruthunagar** on 29/02/2012
16. Special Lecture: “Role of Magnetic Particles in Nanomedicine” at National Conference, on “Recent Scenario on Biological Innovations” **VVV College of Arts and Science, Viruthunagar** on 1/02/2012
17. Key note address: “Applications of Nanomaterials” at National Seminar on Recent Trends in Nano Technology, **at Kamaraj College Of Engineering and Technology, Viruthunagar** on 11/03/2011.
18. DOTE & TNSCTE Sponsored Staff Development Programme On “New Trent in Nano Science And Technology” held at Alagappa Engineering College, karaikudi, October 5, 2010.
Paper Presented

“Magnetic Nanomaterial for Drug Delivery Application
19. Invited lecture delivered at Kundrakudi, in “Indiya Munettrathil Indraya Ilaingar in pangu” on 27 Jan 2011 conducted by CECRI, NSS
.
20. Short term training course “perspectives in Nanoscience and Nanobiotechnology (KU-PNSNBT, 2010)” held at Karunya University, Coimbatore, 29th Nov-10th Dec, 2010.
Paper presented

“Surface Modified Magnetic Nanoparticles in the Field of Biotechnology”
21. DOTE & TNSCTE Sponsored Staff Development Programme On “New Trent in Nano Science And Technology” held at Alagappa Engineering College, karaikudi, October 5, 2010.
Paper Presented

“Magnetic Nanomaterial for Drug Delivery Application

22. Synthesis of Biodiesel from Azadirachta Indica and Hevea Brasiliensis Through Homogeneous catalyst Transesterification Process delivered in National Conference on Alternative Energy Sources and Applications held at SriRam Engineering College, Perumalpattu, Chennai on 22nd April, 2010.
23. Invited lecture “Electrode Materials for Fuel Cell Applications” delivered in “National Conference on Emerging Materials” at **NBKR Science & Arts College, Vidhya Nagar, Andhra Pradesh** in “on July 18 & 19th 2009.
24. Invited lecture “Application of Cathode Nanomaterials for Lithium-ion Cells” delivered in LectureSeries at **Lady Doak College, Madurai** on 25.03.09
25. Guest Lecture “Application of Nanomaterials in the Emerging Technological Field” delivered in “**Chemistry Association Celebration**” at **National College, Trichy** on 22.08.08

Others

1. No. of PhD Thesis evaluated : 10
2. No. of PhD Public Viva Voce Examination conducted : 06

Recent Publications

1. “Facile biosurfactant assisted biocompatible α -Fe₂O₃ nanorods and nanospheres synthesis, magneto physicochemical characteristics and their enhanced biomolecules sensing ability” **Shakkthivel Piraman**, Sasikala Sundar, Ramalakshmi Mariappan, and Kim Min, RSC Advances, 2016,6, 77133-77142
2. “Novel CaCO₃-Polymer Nanocomposite Fillers for the improvement of Bagasse based Papers” **Shakkthivel Piraman**, Maruthaiya Karupaiyah, Ramalakshmi Mariappan, Srinivasan Alagar, Kim Min, TAPPI Journal (Accepted June 2016)
3. “Nanospheres and nanoleaves of γ -Fe₂O₃ architecturing for magnetic and biomolecule sensing applications” **Shakkthivel Piraman**, Sasikala Sundar, Ramalakshmi Mariappan, Young Yun Kim, Kim Min, Sensors and Actuators B – Chemical, B 234 (2016) 396-394.
4. “Improvement of Bagasse based Paper Properties using Definite Size Effect of CaCO₃ Nanofillers” Maruthaiya Karupaiyah, Sasikala Sundar, Ramalakshmi

Mariappan, Rajesh Madhuvilakku, Manisankar Paramasivam, **Shakkthivel Piraman**
"International Journal of Scientific Research, 5, 3 (2016) 16-18.

5. "Greener saponin induced morphologically controlled various polymorphs of nanostructured iron oxide materials for biosensor applications" Sasikala Sundar and Shakkthivel Piraman, **RSC Advances**, 5 (2015) 74408-74415
6. "The electrochemical synthesis of Pt particles on ZrO₂-ERGO modified electrodes with high electrocatalytic performance for methanol oxidation" A.T.Ezhil Vilian, S M Chen and **Shakkthivel Pirman**, *New Journal of Chemistry*, 39 (2015) 953-961.
7. "A promising photoelectrochemical sensor based on a ZnO particle decorated N-doped reduced graphene oxide modified electrode for simultaneous determination of catechol and hydroquinone" A. T. Ezhil Vilian, Muniyandi Rajkumar, Shen-Ming Chen, Chi-Chang Hu and **Shakkthivel Piraman**, *RSC Adv.*, 4 (2014) 48522-48534.
8. "Effect of substrate temperature on indium tin oxide (ITO) thin films deposited by jet nebulizer spray pyrolysis and solar cell application" S.Maikannu, M. Kashif, N. sethupathy. V.S. Vidhya **Shakkthivel Piraman**, A. Ayeshamariam, M. Bououdina, Naser M. Ahamed, M. Jayachandran. *Materials Science in Semiconductor Processing*, 27 (2014)562-568.
9. "Preparation of characterizations of ITO thin flims with different Sn concentration by Jet Nebuliser technique" S. Marikkannu, A. Ayesha mariyam, V.S. Vidhya, N. Sethupathy and **Shakkthivel Piraman**, *Journal on Photonics and Spintronics*, vol. 3, 2 (2014) 8572-8580.
10. "Studies on Jet Nebulizer pyrolysed Indium Oxide Thin flims" S. Marikkannu, M. Kashif, A. Ayesha Mariyam, N. Sethupathy, V.S. Vidhya, **S. Piraman** and M.Jeyachandran, *Journal of Ovonic Research*, Vol. 10, 4 (2014) 115-125.
11. "Mn₃O₄ Nanoparticle Synthesis Via Ionic Liquid –Assisted Route" Ramalakshmi Mariappan, Min Kim and **Shakkthivel Piraman**, *J Superconductivity and Novel Magnetism*, Vo.27 (2014)2595-2598.
12. "Electrochemical preparation of Yttrium hexacyanoferrate on reduced grapheme oxide and its application to analgesic drug sensor" Balamurugan Devadas, Huai-Tse Yeh, Shen-Ming Chen and **Shakkthivel Piraman**, *Electroanalysis*, 26 (2014) 1712-1720
13. "Synthesis and characterization of amine modified magnetite nanoparticles as carriers of Curcumin-anticancer drug" Sasikala Sundar, Ramalakshmi Mariappan and **Shakkthivel Piraman**, *Powder Technology*, 26 (2014) 321-328.
14. "A low temperature synthesis of activated carbon from the bio waste for the simultaneous electrochemical detection of hydroquinone and catechol" Rajesh

Madhu, Shen-Ming Chen, Selvakumar Palanisamy and **Shakkthivel Piraman**, *J of Electroanalytical Chemistry*, 727 (2014) 84-90.

15. "Electrochemical behavior of $\text{LiMn}_{2-x-y}\text{Ti}_x\text{Fe}_y\text{O}_4$ as cathode material for lithium ion Batteries" Suganya J, Ramalakshmi M, Sasikala S and **Shakkthivel P**, *J of Electroanalytical Chemistry*, Vol.720-721, 15 (2014), 58-63.
16. "Transesterification of Palm Oil Catalyzed by Fresh water Bivalve Mollusk (Margaritifera Falcata) Shell as heterogeneous catalyst" Rajesh Madhuvillaku, Ramalakshmi Mariappan, Suganya Jeyapal, Sasikala Sundar , **Shakkthivel Piraman**, *Industrial and Engineering Chemistry Research*, Vol.49, No.52, (2013), 17407.
17. "Biodiesel Synthesis by TiO_2 -ZnO mixed oxide nanocatalyst catalyzed Palm Oil transesterification process" Rajesh Madhuvillaku and **Shakkthivel Piraman**, *Bioresource Technology*" Vol.150, (2013) 55.
18. "Effect of temperature on indium tin oxide ITO thin flim deposited by Jet nebulizer spray pyrolysis" S. Marikkannu, N. Sethupathy, V.S. Vidhya and **Shakkthivel Piraman**, *Journal of Applied Sciences Research*, 9 (10) : 5541-5547, 2013.
19. "Novel method of Room Temperature Ionic Liquid Assisted Fe_3O_4 Nanocubes and Nanoflakes Synthesis" Ramalakshmi M, **Shakkthivel P**, M.Sundrarajan, S.M.Chen *Materials Research Bulletin*, Vol. 48, No.8, (2013) 2758.
20. "Dopant depends on morphological and electrochemical characteristics of $\text{LiMn}_{2-x}\text{Mo}_x\text{O}_4$ cathode nanoparticles" Suganya J, Ramalakshmi M and **Shakkthivel P**, *Journal of Solid State Electrochemistry*, Vol. 17, (2013) 2157.
21. "Nanospheres of Fe_3O_4 synthesis through sol-gel technique and their structural and magnetic characterization" Sasikala Sundar, **Shakkthivel Piraman**, *Indian journal of Applied Research*, Vol.3, No.7 (2013) 123.