

# P. KALYANI

Assistant Professor & Head(i/c)



Department of CHEMISTRY

Directorate of Distance Education

Mobile No: 8870413618

Email: mkuddechemist@gmail.com

**Educational Qualifications** : M.Sc., (Analytical Chem.); Ph.D., (Industrial Chem.)

**Professional Experience** : 14 years

## TEACHING SUBJECT SPECIALIZATION/COURSE HANDLING

### CHEMISTRY

- B.Sc. Chemistry
- M.Sc. Chemistry
- M. Phil. Chemistry

## RESEARCH SPECIALIZATION

- Electrochemistry
- Development of materials (for electrocatalysts, electrodes for lithium batteries, fuel cells, supercapacitors, sensors)
- Development and applications of polymer nanocomposites
- Evaluation of antimicrobial properties of novel materials
- Biomass wastes utilization and applications

### Research Supervision:

Program	Ongoing	Completed
Ph.D	02	01+(02 disseration submitted)
M.Phil	01	07

## PROFESSIONAL EXPERIENCE

No	Institution	Position	From	To	Duration
1	DDE, MKU, Madurai	Assistant professor	05.12.2013	Till date	8y (as on Dec.2021)
2	Thiagarajar College of Engg., Madurai	Lecturer Assistant professor	June 2007	Dec.2013	6 ½ y
3	Centre for Energy Research SPIC Science Foundation, Tuticorin	Scientist	Feb 2004	May 2007	3 ½ y
4	Battery Division, CECRI Karaikudi	Senior Research Fellow (CSIR)	October 1999	Oct.2002	3y
5	Electrochemical Materials Science Division, CECRI, Karaikudi	Project Assistant	April 1999	Oct.1999	6 months
6	Battery Division, CECRI, Karaikudi	Project Assistant	May 1996	Mar1999	3y

## RESEARCH COLLABORATION (BOTH NATIONAL & INTERNATIONAL)

Name of the Collaborator	Institute	Collaboration Details	Collaboration Output ( Papers/Patents/Research/Online)
Dept. of Chemistry	Bharathidhasan University, Trichy	Material Synthesis	Research papers
Dept. of Physics	Gandhigram Rural University	Material characterization	Research papers
Dept. of Chemistry	Thiagarajar College of Engg., Madurai	Material characterization	Research papers

## COMPLETED RESEARCH PROJECT

No	Title of the Project	Funding Agency	Total Grant	Year

## ON-GOING RESEARCH PROJECT

No	Title of the Project	Funding Agency	Total Grant	Year
----	----------------------	----------------	-------------	------


## HONORS/AWARDS/RECOGNITIONS

- Recipient of **Prof. K.L. Palaniswamy Gold Medal** for securing College first rank in B.Sc. Degree
- Secured 3<sup>rd</sup> rank in MSc (Analytical Chemistry) Degree – Madras University
- Recipient of **Senior Research Fellowship (SRF)**, a prestigious three-year fellowship awarded by Council of Scientific and Industrial Research (CSIR), New Delhi -2000-2003
- Recipient of the **Young Scientist Award (CASH AWARD-SECOND PRIZE)** of the year 2002, for presenting a research paper (in a conference held at CECRI, Karaikudi), titled *“An innovative attempt to synthesize and characterize highly ordered LiNiO<sub>2</sub> cathodes of potential electrochemical activity”*

## PUBLICATIONS (OF LAST TEN YEARS)

1. On the modified Inverse Spinel viz., LiCo(PO<sub>4</sub>)<sub>x</sub>(VO<sub>4</sub>)<sub>1-x</sub> as Cathode for Lithium Cells, **P. Kalyani, Ionics**, 17 (2011) 391–397.
2. Improvement in the discharge characteristics of Zinc-Carbon primary cells: A comparative study with various carbon additives, S. Sundar Pethaiah, J. Arun Kumar and **P. Kalyani, Ionics**, 17 (2011) 339–342.
3. Areca leaves as a source of carbon: preliminary investigation as catalyst support for electrolytic hydrogen evolution in acidic medium, **P. Kalyani & A. Anitha, Intl. J. Hydrogen Energy**, 38 (2013) 2263-2270.
4. Biomass carbon & its prospects in electrochemical energy systems, **P. Kalyani & A. Anitha, Intl. J. Hydrogen Energy**, 38 (2013) 4034-4045.
5. Activated carbon from grass: A green alternative catalyst support for water electrolysis, **P. Kalyani, A. Anitha & A. Darchen, Intl. J. Hydrogen Energy**, 38 (2013) 10364-10372.
6. Refuse Derived Energy - Tea Derived Boric Acid Activated Carbon as an Electrode Material for Electrochemical Capacitors, **Portugaliae Electrochim. Acta, P. Kalyani & A. Anitha**, 31 (2013) 165-174.
7. On the (pseudo) capacitive performance of jack fruit seed carbon, **P. Kalyani & A. Anitha, International Journal of Research in Engineering and Technology**, 3(2014)225-238.
8. Capacitive performance of onion peel derived carbon, A. Anitha & **P. Kalyani**, International Journal of Current Research, 6(2014)8433-8438.
9. Obtaining Activated Carbon From Papaya Seeds For Energy Storage Devices, **P. Kalyani & A. Anitha & A. Darchen, International Journal of Engineering Sciences & Research Technology**, 4 ( 2015) 110-122.
10. Capacitive behavior of activated carbon form used tea dust powder, **P. Kalyani & A. Anitha, Asian Journal of Chemistry**, 27(2015)1365-1370.
11. Extraction of Cu(II) Using Biomass Carbon Derived From Banana Leaves, S. Abirami, A. S. Shobiya, A. Anitha, C. Amutha & **P. Kalyani, International Journal of Current Trends in Engineering & Research**, 2(2016)506-514.
12. On the effects of high loading of ZnO nanofiller on the structural, optical, impedance and dielectric features of

PVA@ZnO nanocomposite films, A. Muthupandeeswari · **P. Kalyani** · L. C. Nehru, **Polymer Bulletin**, 78(2021)7071-7088 <https://doi.org/10.1007/s00289-020-03443-6>.

13. Evaluation of vital features of PVA–CaCO<sub>3</sub> nanocomposite films for biodegradable packaging applications, A. Muthupandeeswari · **P. Kalyani** · P. Vickraman, **Polymer Bulletin** <https://doi.org/10.1007/s00289-020-03492-x> (in print, 2020).

14. Activated carbon from banyan prop root biomass and its application in pseudocapacitors: a strategy towards circular economy for energy, **P. Kalyani** & T. R. Banuprabha & V. Velkannan, **Ionics** (2021) 27:1357–1368, <https://doi.org/10.1007/s11581-020-03874-1>.

15. A phytomass-inspired carbon and its importance as an antibacterial agent against human pathogens, N. Anvarsha and **P. Kalyani**, **Future Journal of Pharmaceutical Sciences** (2021)7:48, <https://doi.org/10.1186/s43094-021-00195-6>.

16. Investigation on the altered properties of PVA filled magnesium oxide composite (PVA@xMgO) thin films. **P. Kalyani** and T. Muthupandeeswari, **Polymer Bulletin (Accepted, November 2021)**.

17. Grass-inspired Active Porous Carbons for Electrochemical Capacitors: A Comparative Study, T. R. Banuprabha, **P. Kalyani** and C. Sudharsana, **Indian Journal of Natural Sciences**, Issue 68, 12 (2021)34352-34370.

18. Evaluation and application of phytomass derived activated carbons as electrodes for coin cell supercapacitors, T. R. Banuprabha, A. Karthikeyani and **P. Kalyani**, *Int. J. Electrochem. Sci.*, 16 (2021) Article Number: 211251, doi: 10.20964/2021.12.21.

19. Phytomass-Derived Activated Carbon: A Potential Material for Antibacterial Resistance, Anvarsha Nazim, **Kalyani Palanichamy**, Vimali Elamathi and Varalakshmi Perumal., *Indian Journal of Natural*, issue 69 12( 2021)36205-36217.

## PAPER PRESENTED IN CONFERENCE/SEMINAR/WORKSHOP

Name of the Conference	Date	Place	Title	Author(s)
One day National Conference on Frontier Topics in Advanced Materials	11 <sup>th</sup> March 2013	Bishop Heber College, Tiruchirapalli	Jack Fruit Seeds as a source of carbon: Investigation as electrode material in electrochemical double layer capacitor. (Recipient of BEST PAPER AWARD)	A. Anitha and P. Kalyani
International Conference on Surface Engineering for Research and Industrial Applications (Interfinish-Seria 2013)	7-9 <sup>th</sup> Aug, 2013	Rajalakshmi College of Engineering, Thanadalam, Chennai	Prospects of Indian Pennywort and banana leaf extracts as green corrosion inhibitors for Aluminum	A. Anitha, P. Kalyani and K. Radha
International conference on Chemistry in Synergy with Materials and Biology	10 <sup>th</sup> and 11 <sup>th</sup> Jan, 2014	Held at Bishop Heber College, Trichy	Capacitive performance of onion peel derived carbon	A. Anitha and P. Kalyani
National Conference on Recent Advances in Chemical Sciences [RACS-2015]	5-6, March 2015	Gandhigram Rural Instt. Gandhigram	Banana leaf derived carbon as an electrode material for electrochemical capacitors	A. Anitha and P. Kalyani

National Seminar on Recent advances in chemistry, Dept. of Chemistry,	13-14 <sup>th</sup> , August 2015	Kandaswamy Kandar's College, Namakkal Dist,	Application of Soya chunks based carbon as electrode materials for supercapacitors	T. R. Banuprabha and P. Kalyani
International Conference on Chemical and Environment Research (ICCER 2015)	17 <sup>th</sup> Dec. 2015	Jamal Mohamed College, Tiruchirapalli	Studies on the pesticides residue in ground water at Oddanchathiram whole sale vegetable market: Impacts due to pesticides	T. Muthupandeeswari and P. Kalyani
International Conference on Recent Trends in Analytical Chemistry (ICORTAC-2015)	28-30, Dec. 2015	University of Madras, Guindy	Capacitive behavior of certain biomass derived carbons	P.Kalyani
National Seminar- Teacher Education in the digital era (TEDE-2016),	28-29 <sup>th</sup> March 2016,	MKU, Madurai	Advancement of ICT in Chemistry Education	P. Kalyani
National conference on Recent Advancements in Materials Science	February 10 <sup>th</sup> 2017	Dept. of Physics, Jayaraj Annapackiam College for Women, Periyakulam	Soya chunks Carbon : A prospective electro active Material for Super capacitors	T. R. Banuprabha and P. Kalyani
International conference on Advanced Functional Materials for Energy, Environment and Biomedical Applications (AFMEEB – 2017)	Dec. 11 <sup>th</sup> & 12 <sup>th</sup> 2017	MKU, Madurai	Soot as a novel Electrode Material for Super capacitors	T. R. Banuprabha and P. Kalyani
National Level Conference - Recent trends in Chemical Sciences (RTCS-2017)	21-22 <sup>nd</sup> Dec.2017	Dadapatil Rajale Arts & Science College, Ahmednagar - 414 505.	Prospects of MgO filled PVA Polymer-nanocomposite for Optoelectronic Applications: (Resource Person)	P. Kalyani
International Conference-Recent Trends in Chemistry and Biosciences (ICRTCB -2019)	16&17 <sup>th</sup> May 2019	MKU, Madurai	Antibacterial studies of activated carbon from grass biomass	P. Kalyani
International Conference on Expanding Frontiers in Chemistry (EFC-19)	Sept 13, 2019	Arul Anandar College, Karumathur, Madurai	Soot-A new form of carbon for energy storage applications	N. Anvarsha and P. Kalyani

## CONFERENCE/WORKSHOP/SEMINAR/TRAINING ORGANIZED

Type	Name	Date(s)	Place	Role Played	Funding Agency
2 day – National	Water Quality & Treatment	22 <sup>nd</sup> -23 <sup>rd</sup> March, 2018	MKU, Madurai	Convenor	Heavy Water Board, Mumbai & SPINCOTECH, Chennai
2 day – National Webinar	Chemistry in Circular Economy [CHEMinar-20]	29 <sup>th</sup> -31 <sup>st</sup> July, 2020	Google meet	Organizer	Self

## BOOK PUBLISHED

Title of the Book / Chapter	Author	Publisher	Year	ISBN Number
Title of the book chapter: "Engineering Materials"	P. Kalyani	Wiley India Ltd., Bangalore	April 2011	978-81-265-4303-8
Engineering Chemistry (includes laboratory Experiments	S. Vairam, P. Kalyani, Suba Ramesh	Wiley India Ltd., New Delhi	April 2013	978-81-265-4334-2
<b>Title of the book chapter:</b> "Biomass Carbon: Prospects as Electrode Material in Energy Systems", Chapter. 8.	P. Kalyani, A. Anitha	Taylor & Francis	April 2018	978-11-387-39024
<b>Title of the book chapter:</b> <b>Phytomass-Derived Multifunctional Activated Carbon as a "Wonder-Material": A Paradigm Shift of Filth-to-Wealth:</b> In book: Current Topics in Recycling	P. Kalyani, T. R. Banuprabha, C.Sudharsana, N. Anvarsha	IntechOpen Ltd., London, UK	Aug 2021	978-1-83969-681-7 DOI:10.5772/intechopen.99448

## MEMBERSHIP IN ACADEMIC / PROFESSIONAL BODIES

*Life Member of The International Society for Fluoride Research (Newzealand)*

## INTELLECTUAL PROPERTY RIGHTS (Patents)

### ADMINISTRATIVE EXPERIENCE

Role Played	Responsibilities	Period ( Month & Year)

### CONTACT

**Name** : P. KALYANI  
**Department** : Chemistry  
**Institution** : DDE, Madurai Kamaraj University, Madurai 625021  
**Mobile No** :8870413618  
**E-Mail Id** :mkuddechemist@gmail.com  
**Ext** : 509