

Kannaiyan Pandian, M.Sc. Ph.D

Professor in Inorganic Chemistry
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Education

S.No.	Degree	Institution/University	Year of Passing	Rank
1	Ph.D. Anal Chem	University of Madras, Chennai	1995	-
2	M.Sc Chemistry	Govt College (auto), Kumbakonam Bharathidasan University, Trichy	April 1989	Ist class
3	B.Sc. Chemistry Maths, physics	Thiru-Vi-Ka Art College, Tiruvarur Bharathidasan University, Trichy	April 1987	Ist Class

Post Doctoral Fellow (3 years)

1997 – 2000 Postdoctoral fellow in Prof Yu-Tai Tao's research group, Institute of Chemistry, Academia Sinica, Taipei, Taiwan, 115 ROC.

Professional Experience

S.No.	Position held	Institution	Periods	Nature job
1	Scientist B	National Geophysical Research Institute (NGRI), Hyderabad (CSIR lab)	Feb 1994 – Jan 1997	Geochemical analysis and Geochronology
2	Lecture	University of Madras, Postgraduate Extn Centre, Vellore	Nov 2000 – May 2002	Teaching for M.Sc. and M.Phil, Research
3	Lecture	Thiruvalluar University (First Controller of Exam)	Nov. 2000 – May 2005	Teaching for M.Sc.M.Phil and Research, COE i/c
4	Assistant Professor	University of Madras, Guindy Campus, Chennai-600025	Nov.2005 – Nov. 2012	Teaching M.Sc. M.Phil, Ph.D.Research
5	Associate Professor	-do-	Dec. 2012 – Nov. 2015	Teaching M.Sc. M.Phil, Ph.D. Research
6	Professor	-do-	Dec.2015 to tilldate	Teaching M.Sc. M.Phil, Ph.D. Research

Research on Socio-Economic

- ✚ Health and Hygiene- Development new technology for diseases diagnosis and controlling aspect by nanotechnological approach
- ✚ Energy demand like solar energy, fuel cell, supercapacitor using nanomaterials
- ✚ Food adulteration and food safety- monitoring food coloring agents, toxic polyphenol for food preservatives, pesticide residue and heavy metals
- ✚ Nanomaterials for environmental pollutants remediation and industrial effluent treatment, water treatment, monitoring environmental pollutants
- ✚ Chemical and electrochemical sensors including Biosensors

Teaching Assignment: for PG and M.Phil Students

Nanochemistry	Solid state Chemistry	Organometallic Chemistry
Nuclear Chemistry	Bioinorganic Chemistry	Electroanalytical Chemistry
Instrumental methods of analysis	Research Methodology	Organic Reaction mechanism

Research Interest

Nanotechnology	Semiconductor Quantum dots	Targeted Drug delivery
Conducting polymers	Energy storage Devices	Microelectronic devices
Biosensors	Electroanalytical methods	Fuel cell/Solar Cells

Administrative Experience

- ✚ Controller of Examinations in Madras University since Nov.2018
- ✚ Controller of Examination for two years in Thiruvalluvar University, Vellore
- ✚ Head of the Department in Thiruvalluvar University for two years
- ✚ Faculty Selection board member in Thiruvalluvar University
- ✚ Academic council members and board studies members in various Institutions
- ✚ Selection board and various examination activity in various Institution
- ✚ Curriculum development and national level monitoring committees
- ✚ Chair person in various national and international level conferences

Professional Associations

- ❖ Catalyst Society of India, Life member
- ❖ Indian Society of Mass Spectrometry (ISMS)
- ❖ SAEST, India, Life member – Vice Chair for Madras Chapter
- ❖ National Environmental Science Academy, NESAC, India -Life member

Academic Honors

- Proficiency award in M.Sc. degree, **1989**
- Merit Scholarship in M.Sc. degree, **1989**
- Research Fellowship award (CSIR-JRF), **1989**
- Best Paper award in Mass Spectroscopy Symposium, DRDE at Gwalior, **1996**
- INSA Visiting Fellow award, **2005** (with Prof. T.Pradeep, IIT Madras)
- Best Researcher Award from Madras University, **2017**
- Esero association Best Research award, **2005**
- Millennium leadership award by Malaysian Govt, **2017**

Member in Editorial Board in various Journals

- ✚ Journal of Nanoscience and Technology – Chief Editor
- ✚ Journal of Advanced Chemical Sciences (JACS)- Associate Editor
- ✚ Journal of Chemistry and Applied Biochemistry-Associate Editor
- ✚ Frontier in Polymer Chemistry- Associate Editor

Organizing workshop/ Conference

1. International conference on Advanced Materials for Catalysis, Energy and Environment, 21 & 22nd Feb.2019
2. National seminar on nanobiosensors (NBS-2018), University of Madras during Feb 22 and 23. 2018
3. Organized one National Conference on Emerging Trends in Nanotechnology in association with Sriparamakalyani College, Alwarkurichy, Trinelveili, Tamil Nadu on October 2010.
4. Organize one workshop on practical aspect of synthesis of nanomaterials held Dec. 2011.

Collaborative Work with Other Groups

- **Prof. Yu-Tai Tao**, Institute of Chemistry, Academia sinica, Taipei, **Taiwan** 115 ROC on microelectronics and OLED
- **Prof. Bing Joe Hwang**, National Taiwan University Science and Technology, Taipei, **Taiwan** on fuel cell, supercapacitor and lithium batteries
- **Prof. M. Eswaramoorthy**, Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur Campus, Bangalore on aminoclay and nanoporous carbon
- **Prof. Mirunalini**, Dept of Biochemistry and biotechnology, Annamalai University on Cancer cell imaging and drug deliver

Collaboration with Industry

- Poseidon Biotech – SIBRI Project in DBT
- Sun Agrochemicals – Nanoformulations in Agro Industry
- Regenic – Diagnosis kit
- Health care products standardization

As Ph.D. supervisor (11 Ph.Ds awarded)

- **2 Ph.D. scholars awaiting for Ph.D. viva voce**
- **8 Ph.D. scholars are working currently**

No of Ph.D. awarded	11
No. of M.Phil awarded	30
Invited Talk delivered	150
No. of publications	145
No of papers presented in National & international Conferences	152
Patent	2

Publications in Top Ranking Journals

1. J.Am.Chem.Soc - *IF: 14.36
 2. Chemistry Materials IF: 9.89
 3. Langmuir IF: 3.79
 4. Electrochemistry commun IF: 4.46
 5. Colloids and Surface B IF: 4.66
 6. Sensors and Actuators B IF: 5.7
 7. Microchimica Acta IF: 5.8
- (* IF- Impact Factor)

Funds generated from various sources (~ 3 Crores)

UGC- three times	CSIR	DST-Young Scientist	University Project
DBT- Nanomedicine	DST-Nanomission two times	Ministry of Environment & Forest	DST-SERB
UPE project on Mangrove project	DST- Purse	DBT-SIBIRI with Industry	DAE Project on Uranium exploration

Selected Publications

1. Hydrogen Sulfide-Induced Desorption/Reorganization of Self-Assembled Monolayers of Alkanethiol and Its Derivatives, Yu-Tai Tao, **Kannaiyan Pandian**, Wen-Chung Lee, *J. Am. Chem. Soc.*, **2000**, 122, 7072–7079.
2. Microfabrication of Interdigitated Polyaniline/Polymethylene Patterns on a Gold Surface, Yu-Tai Tao, **Kannaiyan Pandian**, Wen-Chung Lee, *Langmuir*, **1998**, 14, 6158–6166.
3. Monolayer-Protected Cluster Superlattices: Structural, Spectroscopic, Calorimetric, and Conductivity Studies N. Sandhyarani, M. R. Resmi, R. Unnikrishnan, K., Chandrakumar, **Kannaiyan Pandian**, Yu-Tai Tao, and T. Pradeep, *Chemistry of Material*, **2000**, 12, 104-113.
4. Pt, Pt-Pd and Pt-Pd/Ru nanoparticles entrapped polyaniline electrodes - A potent electrocatalyst towards the oxidation of glycerol, A. Nirmala Grace, **K. Pandian**, *Electrochemistry Communications*, **2006**, 8, 1340–1348.
5. Treatment of petroleum refinery wastewater by ultrasound-dispersed nanoscale zero-valent iron particles, Qusay Jaffer Rasheed, Kannaiyan Pandian, Karuppan Muthukumar, *Ultrasonics Sonochemistry*, **2011**, 18, 1138–1142.
6. Ellagic acid encapsulated chitosan nanoparticles for drug delivery system in human oral cancer cell line (KB), V. Arulmozhi, **K. Pandian**, S. Mirunalini, *Colloids and Surfaces B: Biointerfaces*, **2013**, 110, 313–320
7. Greener approach for synthesis of antibacterial silver nanoparticles using aqueous solution of neem gum (*Azadirachta indica*L.) , Palaniyandi Velusamy, Jayabrata Das, Raman Pachaiappan, Baskaralingam Vaseeharan, **Kannaiyan Pandian**, *Industrial Crops and Products*, **2015**, 66, 103-109.
8. Satish Addanki, J. Jayachandiran, **K. Pandian**, D. Nedumaran, Development of optical sensors for the quantitative detection of ozone using gold and silver thin film nanoislands *Sensors and Actuators B: Chemical*, **2015**, 210, 17-27.
9. Amperometric detection of Sudan I in red chili powder samples using Ag nanoparticles decorated graphene oxide modified glassy carbon electrode E. Prabakaran, **K. Pandian**, *Food Chemistry*, 166, **2015**, 198-205.
10. Enhanced amperometric detection of metronidazole in drug formulations and urine samples based on chitosan protected tetrasulfonated copper phthalocyanine thin-film modified glassy carbon electrode, S. Meenakshi, **K. Pandian**, L.S. Jayakumari, S. Inbasekaran, *Materials Science and Engineering C*, **2016**, 59, 136–144.

11. Sun light assisted synthesis of silver nanoparticles in zeolite matrix and study of its application on electrochemical detection of dopamine and uric acid in urine samples S. Meenakshi, S. Devi, **K. Pandian**, R. Devendiran , M. Selvaraj, *Materials Science and Engineering C*, **2016**, 69, 85-94.
12. Amperometric determination of nitrite using natural fibers as template for titanium dioxide nanotubes with immobilized hemin as electron transfer mediator, Balasubramanian Ranjani Jayaprakasham Kalaiyarasi, Loganathan Pavithra, Thiyagarajan Devasena, **Kannaiyan Pandian**, Subash C. B. Gopinath, *Microchimica Acta*, **2018**, 185,194.
13. High surface graphene nanoflakes as sensitive sensing platform for simultaneous electrochemical detection of metronidazole and chloramphenicol, S.Meenakshi, S.Jancy Sophia, **K. Pandian**, *Materials Science and Engineering C*, **2018**, 90, 407 - 419.
14. Gelatin stabilization of quantum dots for improved stability and biocompatibility, Sundararajan Parani, **Kannaiyan Pandian**, Oluwatobi Samuel Oluwafemi, *International Journal of Biological Macromolecules*, **2018**, 107, 635-641.
15. Amperometry detection of nitrite in food samples using tetrasulfonated copper phthalocyanine modified glassy carbon electrode, A. Sudarvizhi, **K.Pandian**, Oluwatobi Samuel Oluwafemi, Subash C.B.Gopinath, *Sensors and Actuators B*, **2018**, 272, 151-159.
16. K Mahesh, Subramanian Karpagam, **K Pandian**, How to Design Donor-Acceptor Based Heterocyclic Conjugated Polymers for Applications from Organic Electronics to Sensors, *Topics in Current Chemistry*, **2019**, 377, 12.
17. Qingfeng Lv, Yongmei Wang, Cuijin Su, Thangavel LakshmiPriya, Subash CB Gopinath, **Kannaiyan Pandian**, Veeradasan Perumal, Ying Liu, Human papilloma virus DNA-biomarker analysis for cervical cancer: Signal enhancement by gold nanoparticle-coupled tetravalent streptavidin-biotin strategy, *International Journal of Biological macromolecules*, **2019**, 134, 354-360.
18. B.Ranjani, **K.Pandian**, G. ArunKumar, S.C.B.Gopinath, D-glucosamine chitosan base molecule-assisted synthesis of different shape and sized silver nanoparticles by a single pot method: A greener approach for sensor and microbial applications, *International Journal of Biological Macromolecules*, **2019**, 133, 2019, 1280-1287
19. AJ Raiza, **K Pandian**, RG Kumar -,Biosynthesis of Copper Nanoparticles Supported on Zeolite Y and its Application in Catalytic C-N Cross Coupling Reactions between Amines and Aryl halides, *Chemistry Select*, **2019**, 4, 1964 -1970.
20. **K Pandian**, DM Soundari, PR Showdri, J Kalaiyarasi, Voltammetric determination of caffeic acid by using a glassy carbon electrode modified with a chitosan-protected nanohybrid composed of carbon black and reduced graphene oxide, *Microchimica Acta*, **2019**, 186, 2, 54