

Kannaiyan Pandian, M.Sc. Ph.D

Controller examinations

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-25	1995	-
2	M.Sc Chemistry	Govt College (auto), Kumbakonam Bharathidasan University, Trichy	April 1989	1st class
3	B.Sc. Chemistry Maths, physics	Thiru-Vi-Ka Art College, Tiruvarur Bharathidasan University, Trichy	April 1987	1st 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)	April 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	-do-
6	Professor	-do-	Dec.2015 to tilldate	-do-

Research on Socio-Economic (annexure I)

- ✚ Health and Hygiene- Development new technology for diseases diagnosis and controlling aspect by nanotechnological approach
- ✚ Fabrication Rapid kit for naked eye detection of Viral and Bacterial infection
- ✚ 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 since Nov. 2018 -**
- ✚ Controller of Examinations for two years in Thiruvalluvar University, Vellore, TN
- ✚ Head of the Department in Thiruvalluvar University for two years
- ✚ Faculty Selection board member in Thiruvalluvar University
- ✚ Faculty Selection Board member in Pachiyappan college, Polytechnic, etc.
- ✚ Faculty Selection member, Tamil Nadu Teachers Recruitment (TRB)
- ✚ Member in UPSC, SSC and Tamil Nadu state council
- ✚ Member in Project Review committee in Unanimedicine, Ministry of Health, New Delhi and DBT
- ✚ Thiruvalluvar University Nominee for Peer Committee
- ✚ Thrift society board of directors, University of Madras
- ✚ Thiruvalluvar University Nominee in FIP selection
- ✚ Faculty selection board member in Rin Polytechnic Lecturer selection committee
- ✚ Academic Council Member in Sacred Heart College, Thirupattur, Queenmarys College, Chennai, and Bharathi Womens College, Chennai
- ✚ Board of Study member in Chemistry, Meenakshi College, Chennai, KSR Arts and Science College, Namakka, TN, Theivanai Ammal College, Villupuram, TN
- ✚ Post graduate Board member in Chemistry in Periyar University, Salem
- ✚ Curicium development council in Tamilnadu Agriculture University, Coimbatore
- ✚ Purchase committee member in Anna University, Chennai
- ✚ Purchase committee member in Thiruvalluvar University

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, NESA, India -Life member

Academic Honors

- Best Researcher award from Madras University, 2019
- Best Researcher award from Madras University, 2018
- Best Researcher award from Madras University, 2017
- Millennium leadership award by Malaysian Govt, 2017
- Scientist of the year 2019, NESA, Delhi, Govt of India
- DST Young Scientist Award, 2001
- Proficiency award in M.Sc. degree, 1989
- Merit Scholarship in M.Sc. degree, 1989
- Research Fellowship award (CSIR-JRF), 1989
- INSA Visiting Fellow award, 2005 (in IIT Madras)
- Esero association Best Research award, 2005

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 Energy and Environment as Co-Convenier, 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

- Ph.D. awarded - 12
- Ph.D. Scholars awaiting of Ph.D. viva voce -2
- **6 Ph.D. scholars are doing Ph.D.**

No of Ph.D. awarded	12
No. of M.Phil awarded	33
Invited Talk delivered	120
No. of publications	165
No of papers presented in National and international conference	152
Patent (Indian)	4
Book Publication on Nanotechnology	3
Book Chapters	3

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) totally 20 projects are completed

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. Quantitative simultaneous determination of pentoxifylline and paracetamol in drug and biological samples at graphene nanoflakes modified electrode, S.C.B. Gopinath S. Meenakshi, K. Pandian, *Journal of the Taiwan Institute of Chemical Engineers*, **2020**, 107, 15 – 23.
17. How to design donor–acceptor based heterocyclic conjugated polymers for applications from organic electronics to sensors, K Mahesh, Subramanian Karpagam, K Pandian, *Topics in Current Chemistry*, **2019**, 377, 12.
18. 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, S.C.B.Gopinath B.Ranjani, K.Pandian, G.Arun Kumar, *International Journal of Biological Macromolecules*, **2019**, 133, 1280-1287
19. Human papilloma virus DNA-biomarker analysis for cervical cancer: Signal enhancement by gold nanoparticle-coupled tetravalent streptavidin-biotin strategy, Qingfeng Lv, Yongmei Wang, Cuijin Su, Thangavel LakshmiPriya, Subash CB Gopinath, Kannaiyan Pandian, Veeradasan Perumal, Ying Liu, *International journal of biological macromolecules*, **2019**, 134, 354-360.
20. Simultaneous and Selective Electrochemical Detection of Sulfite and Nitrite in Water Sources Using Homogeneously Dispersed Ag Nanoparticles over PANI/rGO Nanocomposite, P. Wilson and K. Pandian G. Kaladevi, *Journal of The Electrochemical Society*, **2020**, 167, 027514.
21. 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, Kannaiyan Pandian, Dhamodaran Mohana SoundariPanneerselvam Rudra ShowdriJayaprakash KalaiyarasiSubash C. B. Gopinath, *microchimica Acta*, **2019**, 186, 54