Dr. T. PAZHANIVEL
ASSISTANT PROFESSOR

Educational Qualifications

Doctorate of philosophy	Thin films and Nanomaterials, Physics Bharathiar University, Tamil Nadu.
Master of Philosophy	Thin films and Nanomaterials, Physics Bharathiar University, Tamil Nadu.
Post Graduate	Physics Bharathidasan University, Tamil Nadu.
Under Graduate	Physics Bharathidasan University, Tamil Nadu.

Awards and Research Experience

- ✓ 3-years (July 2010 to June 2013) working as **Junior Research Fellow in ER & IRP sponsored DRDO project** entitled "Nanoparticle - Natural Biomolecule based Nanocomposite for Visible and Near IR sensitive, High Current Photoconductive Device Fabrication"

- ✓ Received **International Travel Grant from CSIR** for attending international conference "ICMAT – 2013", Singapore.

Teaching Experience

- ✓ Guest faculty, Department of Astrophysics, Pondicherry University from November 2013 – July 2015

Invited Talk:

- ✓ Quantum Dot based hybrid system for optoelectronic application, International conference on Smart Materials, Scared Heart College, Tirupattur, Tamilnadu, India, 11-12 February 2015 .

International journals

1. Systematic investigation on the structure and photophysical properties of CdSe, CdSe/ZnS QDs and their hybrids with beta carotene.
   T. Pazhanivel, V. P. Devarajan, G. Bharathi, K. Senthil, V. Ganapathy, K. Yong and D. Nataraj. *RSC Advances, (2013), 3, 26116.*

2. Improved Sensing performance from Methionine Capped CdTe and CdTe/ZnS Quantum Dots for the Detection of Trace Amount of Explosive Chemicals (DNT, NB and NT) in Liquid Medium.

   T. Pazhanivel, D. Nataraj, V.P. Devarajan, V. Mageshwari, K. Senthil and D. Soundararajan. *Analytical Methods, (2013) 5, 910.*

3. Hot electron extraction from CdTe quantum dots via beta carotene molecular energy levels
   T. Pazhanivel, D. Nataraj, V.P. Devarajan, K. Senthil, M. Seol and K. Yong, *Applied Physics Letter, (2012) 100, 261110.*

4. Molecular conformation dependent emission behavior (blue, red and white light emissions) of all-trans-β-carotene-ZnS quantum dot hybrid nanostructures.
   V. P. Devarajan, D. Nataraj, **T. Pazhanivel**, K. Senthil, M. Seol, K. Yong, H. Justus and R. Kempe. *Journal of Material Chemistry, (2012) 22, 18454.*

5. Self assembled V_2O_5nanorods for gas sensors.
   A. Dhayal Raj, **T. Pazhanivel**, P. Suresh Kumar, D. Mangalaraj, D. Nataraj, N. Ponpandian. *Current Applied Physics, (2010) 10, 531.*

International and National conferences

1. Higher Energy State Electron Dynamics in Colloidal CdSe and CdSe/ZnS Core Shell Quantum Dot – Biomolecule Hybrid System
   T.Pazhanivel, V.P.Devarajan and D.Nataraj,
   International conference on materials for advanced technologies (ICMAT – 2013), Material Research Society, Singapore on 30th June to 5th July – 2013.

2. Detection of Nitroaromatic Explosives Using Sulfur Containing Amino Acids Capped CdSe QDs via Fluorescent Quenching Mechanism
   T. Pazhanivel, D. Nataraj, D. Soundararajan, V. P. Devarajanand V. Mageshwari
   International conference on emerging technologies: Micro to Nano 2013 (ETMN-2013), Birla Institute of Technology & Science, Pilani, Goa, India on February 23rd& 24th -2013.

3. Investigation of hot electron transfer on CdTe QD – beta carotene hybrid system for photovoltaic application
   T.Pazhanivel, D.Nataraj, V.P.Devarajan, V.Mageswari and K.Senthil
   National conference on luminescence and its applications (NCLA 2013), PES, Bangalore, on January 8-10, 2013.

4. Study of charge transfer dynamics in CdSe quantum dot – natural molecule hybrid system for energy application.
   T.Pazhanivel, D.Nataraj, V.P.Devarajan, V.Mageswari and K. Senthil
   National workshop on Nanotechnology for defense applications (NWNDA-2011), SSPL, Delhi on 16th and 7th November 2011.

5. Synthesis of Monodispersed CdSe Nanorods through a Novel Chemical Route and Their Characterization.
   T.Pazhanivel, V.P.Devarajan, D.Mangalaraj and D.Nataraj
   First International Conference on Composites and Nanocomposites, Centre For Nanoscience and Nanotechnology, Mahattma Gandhi University, Kerala, India on January 7th - 9th -2011.

6. Solution – Phase Hydrothermal Synthesis and Characterization of CdSe Nanorods and Nanoflowers.
   T.Pazhanivel, V.P.Devarajan, D.Nataraj and Yoshitake Masuda.
   International Conference on Advanced Materials and Application – (ICAMA-2011), Multifunctional Materials Research Centre, kalasalingam University, Tamil Nadu, India on March 4th&5th - 2011.

7. Morphological and Optical Investigation on CdSe Hyper Branched Nanorods and Tetra Pots.
   T.Pazhanivel, V.P.Devarajan, Yoshitake Masuda, D.Mangalaraj and D.Nataraj.

Second National Conference on Multifunctional Nanomaterials and Nanocomposites, Department of Nanoscience and Technology, Bharathiar University, Tamil Nadu on March 24th&25th – 2011.

8. White light emitting ZnS:Cd/β-carotene hybrid system.
   V.P. Devarajan, **T. Pazhanivel** and D. Nataraj.
   National conference on luminescence and its applications (NCLA 2013), PES, Bengaluru, on January 8-10, 2013.

9. Photo-Physical and Biological Applications of ZnS Fluorescent Quantum Dots.
   V.P.Devarajan, **T.Pazhanivel**,D.Nataraj and D.Mangalaraj.
   Second National Conference on Multifunctional Nanomaterials and Nanocomposites, Department of Nanoscience and Technology, Bharathiar University, Tamil Nadu on March 24th&25th – 2011.

10. Synthesis, Characterization and Photocatalytic activity of Organic Molecule Capped ZnS Quantum Dot.
    V.P.Devarajan, **T.Pazhanivel** and D.Nataraj.
    International Conference on Advanced Materials and Application – (ICAMA-2011), Multifunctional Materials Research Centre, Kalasalingam University, Tamil Nadu, India on March 4th&5th - 2011.

11. Synthesis, Characterization and Application of Surface Modified ZnS Quantum Dots
    V.P.Devarajan, **T.Pazhanivel**, D.Mangalaraj and D.Nataraj
    First International Conference on Composites and Nanocomposites, Centre For Nanoscience and Nanotechnology, Mahattma Gandhi University, Kerala, India on January 7th, 8th and 9th -2011

12. Photoluminescence and Photocatalytic Behaviors of β-carotene Molecule Hybridized ZnS & CdS Quantum Dots.
    V. P. Devarajan, T. Pazhanivel, D. Nataraj
    National Conference of Advanced Functional Materials, Department of Physics, Bharathiar University, Coimbatore, India, January 30-31, 2014.

13. ZnS/CdS & CdS/ZnS Core-Shell Quantum Dots for Explosive Chemical Sensing Application Prepared by Simple Chemical Method.
    S. Tharani, V. P. Devarajan, T. Pazhanivel, G. Bharathi, D. Nataraj

National Conference of Advanced Functional Materials, , Department of Physics, Bharathiar University, Coimbatore, India, January 30-31, 2014.

14. Sensitivity of Self Assembled V_2O_5Nanorods towards Reducing Gases.
    A. Dhayalraj, P.Suresh Kumar, **T. Pazhanivel**, M.Seetha, D. Mangalaraj and D. Nataraj.
    International conference on Active/Smart Materials, Thiyagarajar College of Engineering (IMSE), Madurai, India onJanuary 7th to 9th - 2009.

Conferences/Seminars/Workshop/Courses Participated

1. Attended an INUP Familiarization ***Workshop on 'Nanofabrication Technologies'*** conducted by IISc Bangalore on April 16th to 18th - 2012.

2. Attended a ***National Seminar on Radiation Technology in Health Care and its Safety,*** Department of Physics, Bharathiar University, Coimbatore on March 16th& 17th – 2011.

3. Attended a ***National Conference on Multifunctional Nanomaterials and Nanocomposites (NCMNN)***Department of Nanoscience and Technology and DRDO-BU Center for Life Sciences, Coimbatore on February 4th&5th - 2010.

4. Attended an ***International seminar on 'Nanostructures for Electronics and Biomedical Applications***, Bharathiar University, Coimbatore on 9th January - 2009.

5. Participated ***Workshop on Electron Microscopy (3DWEM-2009)*** conducted by Federation of Science Club of Tamil Nadu (FSCT), Chennai and Central Electro Chemical Research Institute (CECRI), Chennai on July 31st and August 01st- 2009.

6. Participated ***Workshop on Advanced Techniques for Materials Characterization*** conducted by Department of Nanoscience and Technology, Bharathiar University, Coimbatore, India on March 19th to 21st- 2009.

7. Participated Lecture ***Workshop on 'Frontier Topics in Physics'***Sponsored by NGM college,Pollachi, Indian Academy of Sciences, Indian National Science Academy and National Academy of Sciences, India on January 22nd to 24th- 2008.

Instrumental Exposer

Film processing

- ✓ Vacuum evaporation,
- ✓ DC magnetron Sputtering,
- ✓ Tubler furnace and Hot filament method.

Characterization instruments

- ✓ X-ray diffraction
- ✓ Scanning electron microscope
- ✓ Photoluminescence
- ✓ Fourier transformations infra red spectroscopy
- ✓ UV-Vis
- ✓ Cyclic voltmeter
- ✓ Raman spectroscopy
- ✓ Dynamic light scattering for nano size analyzer

Current research interest

- ✓ Semiconductor quantum dots (solar cell, light emitting diodes and explosive sensors)
- ✓ Metal oxide nanostructures
- ✓ Conducting polymer solar cell
- ✓ Hydrogen storage

Contact

Dr. T. PAZHANIVEL
Assistant Professor
Department of Physics
Periyar University
Salem- 636 011.
Mobile: (+91) 9976560558
E-mail: pazhanit@gmail.com

pazhanivelt@periyaruniversity.ac.in