Faculty Profile

Dr. Sajan P

Assistant Professor

Department of Physics.

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Personal Details

Nationality	:	Indian
Date of Birth	:	03/05/1988
Gender	:	Male
Marital Status	:	Married
Permanent Address	:	Palangadan House Kambalakkallu (P.O) Mamankara, Malappuram, Kerala, 679333.

Educational qualifications

- **PDF in Physics** from Cochin University of Science and Technology (CUSAT) (2019-21).
- **PhD in Physics** from Cochin University of Science and Technology (CUSAT) (March 2017).
- **CSIR-UGC NET** (June 2015)
- **M. Sc (Physics)** from Cochin University of Science and Technology (CUSAT) with **first class** (2008-10)
- **B. Sc (Physics)** from Marthoma College, Chungathara (Affiliated to University of Calicut, Malappuram) with **first class** (2005-08).
- **AISSCE- Higher Secondary (Science)** from Jawahar Navodaya Vidyalaya, Malappuram (CBSE, India) with **first class** (2005)
- **AISSE-Secondary** from Jawahar Navodaya Vidyalaya, Malappuram (CBSE, India) with **first class** (2003).

Experiences

- **Assistant Professor**- Devaswom Board Pampa College, Parumala, Pathanamthitta Dist., Kerala – From 30/07/2021 onwards.
- **Postdoctoral Fellow**- Department of Physics, Cochin University of Science and Technology (CUSAT), Kochi, Kerala, India, 682022 – From 03/07/2019 to 02/07/2021.
- **Assistant Professor (F.D.P)** -From 12/07/2017 to 28/06/2019 -T. M. Govt. College, Tirur, Vakkad, Malappuram, Kerala, India 676502
- **Technical Assistant** (December 2016 – July 2017): Department of Physics, Cochin University of Science and Technology (CUSAT), Kochi, Kerala, India, 682022- FESEM, XPS, XRD, UV Vis NIR Spectrophotometer, Flurimeter (PL), FTIR, and Stylus Profilometer (Thickness measurement of thin films) instrument operator

Ph. D. thesis:

Solvo-hydrothermal growth and photoluminescence studies of micro and nano structured Zinc Sulfide for bio-imaging applications.

M. Sc. Project:

On the Prospects of Conducting Polyaniline for Effective Electromagnetic Shielding Applications

Other Important Responsibilities/Positions Held

- **Research Guide (2025 onwards)**
- **CTO, NCC Naval Unit (10 February 2025 onwards)**
- **NIRF, KIRF Committee Convenor (2021-25)**
- **PTA Treasurer (2022-23)**
- **Research and Publication Committee Member**
- **Anti-Narcotic Cell Member**
- **Discipline Committee Member**
- **Faculty Advisor (FYUGP)**

Recognized Orientation/Refresher/Short Term/MOOC Courses attended

- 13th UGC-sponsored **Faculty Induction Programme** conducted in hybrid mode by the **UGC–Human Resource Development Centre, University of Calicut**, from **12.07.2023 to 10.08.2023,** sponsored by the UGC, Ministry of Human Resource Development, Pandit Madan Mohan Malaviya Mission on Teachers and Teaching**.**
- 5th **Refresher Course in Interdisciplinary Advances in Biological Sciences** in offline mode at the **UGC–Malaviya Mission Teacher Training Centre, University of Calicut**, **from 15.10.2024 to 28.10.2024**, sponsored by the UGC, Ministry of Human Resource Development, Pandit Madan Mohan Malaviya Mission on Teachers and Teaching**.**
- **NEP 2020 Orientation & Sensitization Programme- UGC-MMTTC, University of Kerala, Kariavattom, Thiruvananthapuram**, **from 19.05.2025 to 29.05.2025**, under the Malaviya Mission Teacher Training Programme (MM-TTP) of the University Grants Commission (UGC)**.**

Projects Guided:-

1. **Effect of CTAB on the crystal structure and morphology of hydrothermally grown cubic ZnS**
   M.Sc. Physics Project, University of Calicut, Kerala, India (2018).
2. **Effect of CTAB on the optical properties and morphology of hydrothermally synthesized ZnS**
   M.Sc. Physics Project, University of Calicut, Kerala, India (2018).
3. **Synthesis and DRS study of chemically synthesized ZnS particles via molarity variation**
   B.Sc. Physics Project, University of Calicut, Kerala, India (2018).
4. **Effect of molarity on X-ray diffraction studies of chemically synthesized ZnS particles**
   B.Sc. Physics Project, University of Calicut, Kerala, India (2018).
5. **X-ray diffraction studies of chemically synthesized ZnO nanoparticles**
   B.Sc. Physics Project, University of Calicut, Kerala, India (2019).
6. **Concentration-, wavelength-, and temperature-dependent refractive index of sugar solutions**
   B.Sc. Physics Project, University of Calicut, Kerala, India (2019).
7. **On the prospects of wavelength determination of LEDs**
   B.Sc. Physics Project, University of Calicut, Kerala, India (2019).
8. **Structural, optical, and morphological studies of ZnO nanostructures grown at different temperatures by the wet chemical method**
   M.Sc. Project, Mahatma Gandhi University, Kottayam, Kerala, India (2022).

9. **Structural, optical, and morphological studies of temperature-assisted grown ZnS nanoparticles**
   M.Sc. Project, Mahatma Gandhi University, Kottayam, Kerala, India (2022).
10. **Effect of PVP on the structural, morphological, and photoluminescence properties of ZnO nanostructures synthesized by chemical precipitation method**
    M.Sc. Project, Mahatma Gandhi University, Kottayam, Kerala, India (2023).
11. **Structural, morphological, and photoluminescence properties of PVP-assisted ZnO nanostructures synthesized by chemical precipitation method**
    M.Sc. Project, Mahatma Gandhi University, Kottayam, Kerala, India (2023).
12. **Optical studies of PVP-assisted hydrothermally grown ZnO nanostructures**
    M.Sc. Project, Mahatma Gandhi University, Kottayam, Kerala, India (2024).
13. **PVP Assisted Hydrothermally Grown ZNO Nanostructures: Synthesis and Characterizations.**
    M.Sc. Project, Mahatma Gandhi University, Kottayam, Kerala, India (2025).
14. **Hydrothermal synthesis: Structural and optical characterization of Ag doped ZnO nanostructures.**
    M.Sc. Project, Mahatma Gandhi University, Kottayam, Kerala, India (2026).

Fields of major scientific interests

1. Nanomaterials, semiconductors and dichalcogenides for electronic, magnetic and energy applications,
2. Emerging 2-D materials
3. TENG Materials and Device
4. Biological materials
5. Semiconducting thin films for optoelectronic and magnetic applications
6. Nanophosphors and metal oxide nanostructures.
7. Conducting polymers

Special Skills

Hands on experience in different characterization tools like

1. X-RayDiffractometer (XRD)
2. Field Emission Scanning Electron Microscope (FE-SEM)
3. UV-Visible-NIR spectrophotometer, Fluorescence Spectrometer

4. FTIR Spectrophotometer
5. FT-Raman Spectrophotometer
6. Stylus profilometer
7. High Resolution X-Ray Diffractometer (HRXRD)
8. Atomic Force Microscope
9. Four and two probe for conductivity measurement

Peer Reviewed Journal Publications

1. **Boosted UV emission at 349 nm from mesoporous ZnS**
   P. Sajan, Junaid M. Bushiri, R. Vinod, *Applied Physics A*, **113**(2), 321 (2013).
   IF: 2.8 (2024)
2. **High luminescent yield from Mn-doped ZnS in the yellow–orange region and at 367 nm**
   P. Sajan, R. Vinod, M. Junaid Bushiri, *Journal of Luminescence*, **158**, 110–115 (2015).
   IF: 3.6 (2024)
3. **Synthesis of cubic ZnS microspheres exhibiting broad visible emission for bioimaging applications**
   P. Sajan, R. S. Jayasree, S. Agouram, M. Junaid Bushiri, *Luminescence*, **31**, 544–550 (2016).
   IF: 3 (2024)
4. **Enhanced UV emission from ZnO nanoflowers synthesized by the hydrothermal process**
   R. Vinod, P. Sajan, Sreekumar Rajappan Achary, Carmen Martínez-Tomás, Vicente Muñoz-Sanjosé, M. Junaid Bushiri,
   Journal of Physics D: Applied Physics, **45**, 425103 (2013).
   IF: 3.207 (2024)
5. **Mn^{2+}-induced room-temperature ferromagnetism and spin-glass behavior in hydrothermally grown Mn-doped ZnO nanorods**
   R. Vinod, M. Junaid Bushiri, P. Sajan, Sreekumar Rajappan Achary, Vicente Muñoz-Sanjosé,
   Physica Status Solidi A, **211**(5), 1155 (2014).
   IF: 1.981 (2024)
6. **In situ crystallization of highly conducting and transparent ITO thin films deposited by RF magnetron sputtering**
   K. Aijo John, Rachel Reena Philip, P. Sajan, T. Manju, *Vacuum*, **132**, 91–94 (2016).
   IF: 3.9 (2024)
7. **Room-temperature near-IR photoluminescence from ethylenediamine-assisted solvo-hydrothermally grown wurtzite ZnS:Nd_2O_3 system**
   P. Sajan, Krishna Sagar C. K., Divya N. G., G. Subodh, M. Junaid Bushiri,
   Materials Chemistry and Physics, **257**, 123713 (2021).
   IF: 4.7 (2024)

8. **Eu^{3+} and Cu^{2+} ion-doped ZnS microspheres exhibiting yellow–orange emission**
   C. K. Krishna Sagar, P. Sajan, M. Junaid Bushiri,
   Journal of Materials Science: Materials in Electronics, **30**, 18220 (2019).
   IF: 2.8 (2024)
9. **Hybrid nanomaterial of $ZnFe_2O_4$/α-Fe_2O_3-implanted graphene for electrochemical glucose sensing application**
   Divya Neravathu, Abdul Rasheed Paloly, P. Sajan, Satheesh M., M. Junaid Bushiri,
   Diamond and Related Materials, **106**, 107852 (2020).
   IF: 5.1 (2024)
10. **Structural and photoluminescence study of Mn-doped ZnO nanostructures assisted by PVP**
    Ganga S. Kumar, Subhadra S. Nampoothiri, Melottil Niveetha, Krishna K. S. K. Arya, P. Sajan,
    Processing and Application of Ceramics, **19**(3), 266–272 (2025).
    IF: 1.2 (2025)

Conference papers

1. **Optical studies of nanocrystalline ZnS grown by the hydrothermal method**
   P. Sajan, R. Vinod, M. Junaid Bushiri, *Second International Conference on Optoelectronic Materials and Thin Films for Advanced Technology (OMTAT-2013)*, January 3–5, 2013, CUSAT, Kochi.
2. **Grain size engineering of ZnS quantum dots prepared via molarity variation by chemical method**
   P. Sajan, R. Vinod, K. R. Nithinraj, M. Junaid Bushiri, *NANO INDIA-2013*, February 19–20, 2013, CSIR-NIIST, Thiruvananthapuram.
3. **Optical properties of ZnS quantum dots synthesized by the hydrothermal method at a reaction temperature of 200 °C** *(Oral Presentation)*
   P. Sajan, R. Vinod, M. Junaid Bushiri, *National Conference on Recent Trends in Electronics and Instrumentation (NCRTEI-2013)*, September 20–21, 2013, Bharathiar University, Coimbatore.
4. **Synthesis and characterization of Mn-doped ZnS nanostructures**
   P. Sajan, R. Vinod, M. Junaid Bushiri, *26th Kerala Science Congress*, January 28–31, 2014, Kerala Veterinary and Animal Sciences University, Pookode, Wayanad.
5. **Hydrothermal growth of manganese oxide nanostructures**
   P. Sajan, R. Vinod, M. Junaid Bushiri, *National Symposium on Advances in Material Science and Technology (AMST-2012)*, February 3–4, 2012, Gujarat University, Ahmedabad, Gujarat.
6. **Synthesis of flower-like ZnO nanorods**
   R. Vinod, P. Sajan, M. Junaid Bushiri, *National Symposium on Advances in Material Science and Technology (AMST-2012)*, February 3–4, 2012, Gujarat University, Ahmedabad, Gujarat.

7. **Photoluminescence and Raman studies of Mn-doped ZnO nanorods**
   R. Vinod, P. Sajan, M. Junaid Bushiri, *Second International Conference on Optoelectronic Materials and Thin Films for Advanced Technology (OMTAT-2013)*, January 3–5, 2013, CUSAT, Kochi.
8. **Optical studies of Ni-doped ZnO nanoflowers**
   R. Vinod, P. Sajan, M. Junaid Bushiri, *National Conference on Innovative Trends in Material Science (ITMS-2013)*, August 23–24, 2013, Arignar Anna College, Nagercoil, Tamil Nadu.
9. **Photoluminescence from solvo-hydrothermally grown Cu-doped ZnS**
   P. Sajan, M. Junaid Bushiri, *National Conference on Nanomaterials and Nanobiotechnology – Chennai Nanogathering (CNG-NCNN'17)*, February 7–8, 2017, University of Madras, Guindy Campus, Chennai.
10. **Synthesis and characterisation of ZnO nanorods grown by chemical precipitation method**
    Athira Suresh, Sneha Sajeevan, Sruthi P., Theja Ashok, Sheeja P., Sathyajith S., P. Sajan, *National Conference on Nanomaterials (NANOPHILIA-2022)*, August 25–27, 2022, Providence College of Engineering, Chengannur, Kerala.
11. **Chemical precipitation growth of ZnS nanoparticles**
    Jishnu P., Drishya Umesh, Bithov P., Sheeja P., Kavitha S., Sathyajith S., P. Sajan, *National Conference on Nanomaterials (NANOPHILIA-2022)*, August 25–27, 2022, Providence College of Engineering, Chengannur, Kerala.
12. **Solvo-hydrothermal growth of two-dimensional MoS_2 nanoflakes**
    P. Sajan, Ihsan Ahamed K., M. Junaid Bushiri,
    Advanced Functionalized Materials for Analytical, Environmental and Biomedical Applications (NSAFM-2022), **ISBN: 978-93-5620-274-0,** March 23–25, 2022, University of Kerala.
13. **Structural and morphological studies of chemically precipitated zinc oxide nanostructures grown at different temperatures**
    Ganga S. Kumar, Niveetha M., Subhadra S. Nampoothiri, P. Sajan,
    Proceedings of Insight-2024 International Conference on Advanced Research, February 7–9, 2024, KVM College, Valanchery.
    ISBN: 978-93-56486-45-4.
14. **Effect of PVP on the structural, morphological, and photoluminescence properties of ZnO nanostructures synthesized by chemical precipitation method**
    Subhadra S. Nampoothiri, Niveetha M., Ganga S. Kumar, P. Sajan,
    Proceedings of Insight-2024 International Conference on Advanced Research, February 7–9, 2024, KVM College, Valanchery.
    ISBN: 978-93-56486-45-4.

Training Programs/Workshops/Seminar/Conference organized.

1. **Second International Conference on Frontiers in Nanoscience and Technology (Cochin Nano - 2009)**
   Cochin University of Science and Technology, Kochi, India
2. **National Workshop on Recent Trends in Theoretical Physics (NWRTTP-2011)**
   19-21 March 2011, Cochin University of Science and Technology, Kochi, Kerala, India

3. **The Third International Conference on Frontiers in Nanoscience and Technology (Cochin Nano-2011)**
   14-17 August 2011, Cochin University of Science and Technology, Kochi, India
4. **Workshop on Physics: Scope and Awareness (for school children)**
   25-30 April 2011, Cochin University of Science and Technology, Kochi, India
5. **Workshop on Physics: Scope and Awareness (for school children)**
   23-28 April 2012, Cochin University of Science and Technology, Kochi, India
6. **International Conference on Optoelectronic Materials and Thin Films for Advanced Technology (OMTAT-2013)**
   2-5 January 2013, Cochin University of Science and Technology, Kochi, India
7. **Workshop on Physics: Scope and Awareness (for school children)**
   1-6 April 2013, Cochin University of Science and Technology, Kochi, India
8. **National Workshop on Advanced Materials (AM-2013)**
   31 October 2013, Department of Physics, Cochin University of Science and Technology, Kochi, India
9. **Workshop on Physics: Scope and Awareness (for school children)**
   31 March - 5 April 2014, Cochin University of Science and Technology, Kochi, India
10. **National Workshop on Energy Materials (EM-2014)**
    4 December 2014, Department of Physics, Cochin University of Science and Technology, Kochi, India
11. **Physics Open House 2015**
    16-17 January 2015, Cochin University of Science and Technology, Kochi, India
12. **International Conference on Energy Harvesting, Storage, and Conversion (IC-EEE 2015)**
    5-7 February 2015, Cochin University of Science and Technology, Kochi, India
13. **National Workshop on Technology for the Aged (NWTA-2015)**
    6 March 2015, Centre for Enabling Technologies for the Aged, Cochin University of Science and Technology, Kochi, India
14. **National Workshop on Material Characterization Tools & Techniques**
    19-21 March 2015, Centre for Advanced Materials, Cochin University of Science and Technology, Kochi, India
15. **Workshop on Physics: Scope and Awareness (for school children)**
    6-10 April 2015, Cochin University of Science and Technology, Kochi, India
16. **National Workshop on Recent Trends in Nanotechnology for Age Old (RTNO-2016)**
    10 March 2016, Cochin University of Science and Technology, Kochi, India