

Dr. Raj Kishor C H

Assistant Professor

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Profile

I am a dedicated and self-motivated researcher with a Ph.D. in Physics and CSIR-UGC JRF-NET qualification, specializing in thin-film fabrication, semiconductor device characterization, and photovoltaic technologies. My research has focused on solution-processed and vacuum-deposited solar cell structures, including work on inverted organic solar cells for improved efficiency and stability. Currently, I work as a Guest Lecturer at Nehru Arts and Science College Kanhangad, where I teach undergraduate and postgraduate physics courses, including Quantum Mechanics, Semiconductor Physics, Optics and Electronics, while also mentoring students in research projects. With a strong ability to quickly grasp new concepts and effectively solve complex problems, I am passionate about teaching, curriculum development, and research. I am eager to contribute my knowledge and skills to a dynamic academic environment.

Work Experience

Guest Lecturer , <i>Nehru Arts and Science College Kanhangad</i>	07/2026 – Present Kanhangad, Kerala
Guest Lecturer , <i>Government College Kasaragod</i>	08/2024 – 03/2026 Kasaragod, Kerala
Senior Research Fellow , <i>Central University of Kerala</i>	08/2018 – 12/2023 Kasaragod, Kerala
Junior Research Fellow , <i>Central University of Kerala</i>	08/2016 – 08/2018 Kasaragod, Kerala

Education

PhD in Physics , <i>Central University of Kerala</i> Title of the Thesis: Fabrication of heterojunctions and perovskite/organic solar cell structures using wide band gap semiconducting thin films.	08/2016 – 06/2024 Kasaragod, India
Master of Science in Physics (81.40%) , <i>Nehru Arts and Science College Kanhangad, Kannur University</i>	2013 – 2015 Kanhangad, India
Bachelor of Science in Physics (87.00%) , <i>Nehru Arts and Science College Kanhangad, Kannur University</i>	2010 – 2013 Kanhangad, India

Expertise

Material Synthesis & Characterization

- Synthesis and Characterizations of Nanostructures
- Growth of Thin Films for Device Applications
- Study of Crystallinity in Nano Powders and Thin Films: X-ray Diffractometer (XRD)

Device Fabrication

- Fabrication and Characterization of Organic and Perovskite Solar Cells
- Fabrication and Characterization of Thin Film p-n Junctions and Heterojunctions
- Spin Coating
- Vacuum Thermal Deposition (PVD)
- Spray Pyrolysis
- RF/DC Sputtering

Technical Instrumentation

- Solar Simulator
- Atomic Force Microscope (AFM)
- Vibrating Sample Magnetometer
- Keithley Source Meter I-V Measurement System
- Photoluminescence Spectroscopy
- Furnaces, Hot-Air Ovens, Fume Hood

Software

- Origin, Latex, Word, PowerPoint, Excel
- Image J, Inkscape, Gimp, Gwyddion

Research Interests

- Photovoltaic
- Thin Film Heterojunction Devices
- Organic Solar Cells
- Thin Film-Based Sensors
- Perovskite Solar Cells

Conferences

International Conference on Material Science- A Kaleidoscopic Journey (icMKJ), <i>CUSAT</i>	2022 – 2022 Kochi
International Conference on Emergent Phenomena and Quantum Technologies, <i>Central University of Kerala</i>	31/10/2023 – 01/11/2023 Kasaragod
International E-Conference on Physics of Materials & Nanotechnology (ICPN), <i>Mangalore University</i>	28/10/2021 – 30/10/2021 Mangala Gangotri
International Conference on Optoelectronic and Nano Materials for Advanced Technology (icONMAT), <i>CUSAT</i>	03/01/2019 – 05/01/2019 Kochi

Awards

CSIR UGC National Eligibility Test in Physical Sciences, <i>CSIR UGC</i>	01/10/2015
CSIR UGC Junior Research Fellowship (Rank 133/0319), <i>CSIR UGC</i>	01/10/2015

International Publications

Structural, optical properties of V₂O₅ and NiO thin films and fabrication of V₂O₅/NiO heterojunction, <i>Physica Scripta</i> , 98, 095957	01/12/2022
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Fabrication of transparent p-CuI/n-ZnO heterojunctions using solution-processed spin coating technique, <i>Physica B: Condensed Matter</i> , 639, 414020	01/12/2021
Dependence of various oxide interfacial layers on the performance of P3HT:PCBM-based inverted organic solar cells, <i>Bulletin of Materials Science</i> , 45, 131	01/12/2021
Structural and optical properties of V2O5 nanostructures grown by thermal decomposition technique, <i>Applied Physics A: Mater Sci and Processing</i> , 126, 586	01/12/2019
Growth and characterization of α-MoO₃ thin films grown by spray pyrolysis technique, <i>AIP Conf. Proc.</i> 2082 (2019) 050010	01/12/2018

Training and Certification

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| • PRAYOJAN Workshop 2023 (Research, Academia and Industry Opportunities) | • Online Workshop on Rietveld Refinement Method, 2020 | • National Workshop on Research Publishing and Plagiarism, 2018 |
| • NCPRE Familiarization Workshop on Photovoltaics, IITB 2017 | • National Workshop on Usage of Sophisticated Instruments, Mangalore University 2022 | • National Workshop on Computational Physics, 2019 |
| • National Workshop on Accelerator Based Scientific Research, 2018 | • INUP Familiarization Workshop on Nanofabrication Technologies, IITB 2017 | • Online International Workshop on X-ray Diffraction Analysis, 2020 |
| • National Workshop on Recent Trends in Photovoltaics & Psi Fest-2018 | • Hand on Training Workshop on Python, 2017 | • Gian Sponsored International Winter Course on Organic Solar Cells, NIT Calicut 2016 |

References

Dr. P M Aneesh, Assistant Professor, Department of Physics, Central University of Kerala
aneeshpm@cukerala.ac.in, +91 - 9447719721

Prof. Jijo P Ulahannan, Professor and Head, Department of Physics, Government College Kasaragod, Kerala
jijo@gck.ac.in, +91 - 9495122006

Prof. Vincent Mathew, Professor, Department of Physics, Central University of Kerala
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