Curriculum Vitae

Dr. SUKDEV DOLAI
Assistant Professor
Department of Physics
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About:

Currently, I am an Assistant Professor in the Department of Physics of Ramsaday College, West Bengal, India. I have received B.Sc. degree from Midnpore College, Vidyasagar University in 2012 and M.Sc. degree from Indian Instituttion of Technology, Madras in 2014. I have obtained Ph.D degree from Jadavpur University in 2019, working with Professor Arun Kumar Pal and Professor Radhaballav Bhar.

I am working mainly in the area of material science. My main area of venture is the synthesis and characterization of oxide and sulphide based nanostructured semiconductors (ZnO, CuO, Cu_2O, NiO, CdS, etc) in thin film form for various optoelectronic applications like solar cells, light emitting diodes, solar cells, photo-electrochemical water splitting etc. Very recently, I am working on 2D Materials for various opto-electronic applications.

Personal Details:

Date of Birth -	06/04/1991
Nationality-	Indian
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Mother Tongue:	Bengali
Reading/Speaking/Writing language:	English
Other Language:	Hindi

Communication Details:

Permanent address:

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Qualifications:

- **2019** Ph.D. (Science) at Jadavpur University, India**.**
  Thesis Title: **"Studies on copper oxide thin films deposited by PVD and sol-gel route for PV applications"**
  Supervisor: Professor Arun Kumar Pal and Professor Radhaballav Bhar.
- **2014** M.Sc. (Physics), Indian Institute of Technology, Madras, Tamil Nadu, India
- **2012** B.Sc. (Physics), Midnapore College, Vidyasagar University, West Bengal, India

- **Membership**: Life member of Electron Microscopy Society of India (EMSI), India

Programming Skills:

Mathematica, Matlab and Origin.

Teaching Experience:

Semester-I: Mechanics (Theory)

Semester-II: Electricity and Magnetism (Theory), Electricity and Magnetism (Practical), Waves and Optics (Theory)

Semester-III: Some Special Integrals (Theory), Series Solutions and Frobenious Method (Theory).

Semester-IV: Quantum Mechanics (Theory), Complex Analysis (Theory), Analog Systems and Applications (Practical)

Semester-V: Quantum Mechanics and Applications (Theory), Linear Algebra and Vector Space (Theory and Tutorial)

Semester-VI: Nanomaterials and its applications (Theorial and Tutorial)

Research Interest:

- Experimental Condensed Matter Physics.
- Research expertise on the growth of semiconductor nanostructure materials.
- Two dimensional layered (TDL) materials synthesis and characterization and its energy storage and energy conversion applications.
- Interest in Perovskite solar cell and other semiconductor based optoelectronic applications.

Research Area:

Metal Oxide based Semiconductor, Solar Cell, Gas sensor, Metal Oxide based Super capacitor, Photo-electrochemical water splitting.

Research Expertise:

- Expertise on handling Multi-target sputtering, Pulsed LASER deposition (PLD) technique, Chemical vapor deposition (CVD) technique, Thermal evaporation technique for semiconductor nanostructure materials synthesis.

- Expertise on weight chemical method for synthesis of nano particle and nanostructure materials.
- Proficient experience of materials-characterization methods: X-ray Diffraction (XRD), Field Emission Scanning Electron Microscopy (FESEM) combined with Energy-dispersive X-ray spectroscopy (EDX), Transmission Electron Microscopy (TEM), Atomic Force Microscopy (AFM).
- Experience on handling Fourier Transformed Infrared Spectroscopy (FTIR), Raman Spectroscopy, UV-Visible Spectrophotometer, X-ray Photoelectron spectroscopy (XPS), Photoluminescence Spectroscopy.
- Impedance Analyzer instruments, solar simulator.
- Expertise on basic Matlab programme and LabView software.
- Expertise on Microsoft office, Origin software, ImageJ, etc.

List Of Publication:

1. Magnetic properties in nanocrystalline nickel incorporated CuO films, **S. Dolai**, S. Sarangi, S. Hussain, R. Bhar and A. K. Pal , **Journal of Magnetism and Magnetic Materials 479 (2019), 59-66.**[https://doi.org/10.1016/j.jmmm.2019.02.005] **ISSN: 0304-8853. Impact Factor-2.683**
2. Synthesis, characterization and photo-response of p-type cupric oxide thin films prepared by sol-gel technique, **S Dolai**, R Dey, S Hussain, R Bhar, AK Pal, **Materials Science and Engineering: B, 236 (2018), 153-161.**[https://doi.org/10.1016/j.mseb.2018.11.022] **ISSN: 0921-5107. Impact Factor-3.507**
3. Photovoltaic properties of F:SnO_2/CdS/CuO/Ag heterojunction solar cell, **Sukdev Dolai**, Rajkumar Dey, Shamima Hussain, Radhaballav Bhar and Arun Kumar Pal, **Materials Research Bulletin 109 (2019) 1–9.**[https://doi.org/10.1016/j.materresbull.2018.09.022] **ISSN: 0025-5408. Impact factor-3.355**
4. Fabrication and characterization of Cu/Cu_2O/CuO/ZnO/Al-ZnO/Ag heterojunction solar cells, R Bhunia, **S Dolai**, R Dey, S Das, S Hussain, R Bhar, and AK Pal, **Semiconductor Science and Technology, (2018)**.[https://doi.org/10.1088/1361-6641/aad8d3] ISSN: 0268-1242, **Impact Factor-2.654.**
5. Phosphorus doping of diamond-like carbon films by radio frequency CVD-cum-evaporation technique , R Dey, **S Dolai**, S Hussain, R Bhar, and A.K. Pal, **Diamond and Related Materials 82 (2018), 70-78.**[https://doi.org/10.1016/j.diamond.2018.01.002] ISSN: 0925-9635, **Impact Factor-2.290**
6. Cupric oxide (CuO) thin films prepared by reactive d.c. magnetron sputtering technique for photovoltaic application, **S. Dolai**, R.Dey, S. Das, S. Hussain, R. Bhar and A. K. Pal, **Journal of Alloys and Compounds 724 (2017) 456-464.**[https://doi.org/10.1016/j.jallcom.2017.07.061] ISSN: 0925-8388, **Impact Factor-4.175**
7. Cuprous oxide (Cu_2O) thin films prepared by reactive d.c. sputtering technique, **S. Dolai**, S. Das, S. Hussain, R. Bhar, A.K. Pal, **Vacuum 141 (2017) 296-306**.[https://doi.org/10.1016/j.vacuum.2017.04.033] ISSN: 0042-207X, Impact Factor-2.515.
8. Magnetic properties in nanocrystalline CuO embedded with PVDF polymer, **S. Dolai**, S. Sarangi, S.

Hussain, R. Bhar and A. K. Pal, **Journal of Magnetism and Magnetic Materials 495 (2020), 165903.**[https://doi.org/10.1016/j.jmmm.2019.165903]

9. Exfoliated Molybdenum Disulfide-Wrapped CdS Nanoparticles as a Nano-Heterojunction for Photo-Electrochemical Water Splitting, **Sukdev Dolai**, Pradip Maiti, Arup Ghorai, Ritamay Bhunia, Pabitra Kumar Paul, and Dibyendu Ghosh, **ACS Appl. Mater. Interfaces 13 (2021) 438–448. [**https://dx.doi.org/10.1021/acsami.0c16972]

Conferences/Seminar/Workshop Organized:

- One-day National Webinar On **"Recent Research and Opportunities in the Field of Renewable Energy Sources"** on dated Date: 26th September, 2020. Time: 3.00 PM.
  Organized by Department of Physics, Ramsaday College in collaboration with IQAC, Amta, Howrah-711401
  Convenor: Dr. Sukdev Dolai and Mr. Mrinal Kanti Debnath.

National and International Conferences/ Seminar/Workshop attended:

International Conferences/ Seminar/Workshop attended:

- Oral presentation at **6th International Conference on Functional Materials & Devices 2017 (ICFMD -2017),** Centre for Ionics, University of Malaya, 15 – 18 August 2017, Malacca, Malaysia.
- Oral presentation at **International Symposium on Functional Materials (ISFM-2018): Energy and Biomedical Applications,** 13-15, April 2018 in Chandigarh, India.
- Participated in the one day international level webinar on **'Recent Research Trends in Nanomaterials and Devices',** Organized by Department of Physics **SANTAL BIDROHA SARDHA SATABARSHIKI MAHAVIDYALAYA**, West Bengal, India, on 11th August , 2020**.**
- Participated in the Two Day International Webinar on '**Recent Trends in Condensed Matter and Particle Physics**' organized by Victoria Institution (College) during 31st July-1st August, 2020.
- Participated in the one day international level webinar on **"Living with the Pandemic: Managing Mind, Body & Lifestyle",** jointly organised by Department of Commerce and Central Library, Ramsaday College on 4th July, 2020.

National Conferences/ Seminar/Workshop attended:

- Poster presentation at **National Thematic Workshop on Advances in Nanostructured Materials: Applications and Perspectives (ANMAP-2016)** at Kaziranga University, Assam. India
- Poster presentation at **Study of Matter Using Intense Radiation Sources and Under Extreme Conditions** , 3-6 November, 2016 at UGC-DAE Consortium for Scientific Research, Indore, India.
- Participated in the **National Seminar on Solar Phenomenology (NSSP-2018)**, 2nd January, 2018, Department of Instrumentation Science, Jadavpur University, India.
- Participate at **National Seminar on Energy Storage and Conversion (NSESE-2018), 6th**

December, 2018, Department of Instrumentation Science, Jadavpur University, India.

- Participated in the One Day National Level Webinar on **"USE OF ICT IN TEACHING LEARNING DURING PANDEMIC AND POST PANDEMIC SITUATION"** organized by: Department of Physics in association with Dept. Of Computer Sc., Dept. Of Electronic Sc. and IQAC, Dum Dum Motijheel College, Date: 13th July, 2020.
- Participated in the one day national wevinar on **'Advancement of Plasma Physics and Nanoscience'** 30th June, 2020, organized by Department of Physics, Kharagpur College, West Bengal, India.
- Participated in the National Webinar on **"Emerging Issues in Physics (EIP-2022)"** organized by the Department of Physics in association with IQAC of Uluberia College on 26th May, 2022.

State Level Conferences/ Seminar/Workshop attended:

- Participate in the one day State level Seminar on **'Recent Trends in Renewable Energy Harvesting'**, 14th March, 2020 Department of Physics, Uluberia College, Howrah, West Bengal, India.
- Participate in the One day Webinar on **'ONLINE TEACHING AND LEARNING - STRATEGIC INSIGHT INTO PHYSICS'** organized by Department of Physics in Collaboration with IQAC, Ramsaday College, held on 31st August, 2020, time-3.00P.M-6.00 P.M

Extra-Curricular Activities:

Cricket and Football

Declaration:

I hereby declare that the details information mentioned above are true and correct to the best of my knowledge and bear the responsibility for the correctness of the mentioned particulars.

Date: 5 March 2023

Place: Kolkata, West Bengal, India

Signature