

CURRICULUM VITAE

Name : Dr ACHINTYA DHAR

Affiliation : Professor,
Department of Physics
IIT Kharagpur, INDIA, PIN 721302

Date of Birth : 13th November 1961 **Status :** Male/Married

Educational Qualifications :

M.Sc (Physics) from Calcutta University, Kolkata 1984
PhD (Physics) from Jadavpur University (IACS, Kolkata) - 1991

Research Experience :

1. on compound semiconductor thin films for solar cell applications as JRF/SRF at IACS, Kolkata (1986- 1991)
2. on phase change optical materials as Scientific Officer (Project) at IIT, Delhi (1991-92)
3. on High temperature superconducting thin films as Scientific Officer at IIT, Kharagpur.(1992-93)
4. on high dielectric constant thin film materials for memory and gate dielectric applications as Scientific Officer at IIT Kharagpur (1994-2004)
5. on micro-electro-mechanical-systems (MEMS) for microfluidic applications as Visiting Assistant Professor at Texas Tech University, USA (2001-02)
6. Electro-optical properties of transparent conducting oxides and semiconducting polymers at IIT Kharagpur (2004 – Present)

5. PUBLICATIONS	Number completed	Number under review
(a) Publication in refereed journals	70	2
(b) Publications in proceedings of seminars / conferences	61	--
6. RESEARCH GUIDANCE	Number completed	Number in progress
(a) Guidance at doctoral level	04	03
(b) Guidance at masters level	23	02

Specializations/Research Interest :

1. Thin film deposition techniques
2. Optical and electrical measurement techniques
3. Plasma processing techniques
4. Surface and Interface properties
5. Quantum opto-electronic devices
6. Micro-sensor and actuators

Current Research Interest :

In the frontier areas of Nano-Science & Technology and Organic Opto-Electronics

Recent publications on Organic Opto Electronics :

1. "The effect of substrate temperature on the properties of ITO thin films for OLED applications", by V Sivaji Reddy, K Das, A Dhar and S K Ray, **Semicond. Sci. Technol.** 21 (2006) 1747–1752.
2. "Studies on conduction mechanisms of pentacene based diodes using impedance spectroscopy" by V S Reddy, S Das, S K Ray and A Dhar, **J. Phys D: Applied Physics**, 40, 7687 - 7693 (2007)
3. "Carrier transport mechanism in aluminum nanoparticle embedded AIQ3 structures for organic bistable memory devices", by V.S. Reddy, S. Karak, S.K. Ray, A. Dhar, **Organic Electronics**, 10(1), 138-144 (2009)
4. "Multilevel conductance switching in organic memory devices based on AIQ3 and Al/AI₂O₃ core-shell nanoparticles" by V S Reddy, S Karak, and A Dhar, **Appl. Phys. Letts.**, 94, 173304 (2009)
5. "Photovoltaic properties of pentacene/PCBM discrete hetero-junction solar cells" by V S Reddy, S. Karak, S K Ray and A Dhar, **J. Physics D: Applied Physics**, 42, 145103 (2009)
6. "Organic photovoltaic devices based on pentacene/N,N'-dioctyl-3,4,9,10-perylenedicarboximide heterojunctions" by S Karak, V S Reddy, S K Ray and A Dhar, **Organic Electronics**, 10, 1006-1010 (2009)
7. "Improved photovoltaic properties of pentacene/N,N'-Dioctyl-3,4,9, 10-perylenedicarboximidebased organic heterojunctions with thermal annealing" by S. Karak, S.K. Ray, A. Dhar, **Solar Energy Materials & Solar Cells**, 94, 836–841 (2010)
8. "Optical and charge carrier transport properties of polymer light emitting diodes based on MEHPPV" by V.S. Reddy, A. Dhar, **Physica B**, 405,1596–1602 (2010)
9. "Photoinduced charge transfer and photovoltaic energy conversion in self-assembled N,N'-Dioctyl-3,4,9,10-perylene dicarboximide nanoribbons", by S. Karak, S. K. Ray, and A. Dhar, **Appl. Phys. Lett** 97, 043306 (2010)
10. "Improvement of efficiency in solar cells based on vertically grown copper phthalocyanine nanorods" By S Karak, S K Ray and A Dhar, **J. Phys. D: Appl. Phys.**, 43, 245101 (5pp) (2010)
11. "The effects of different atmospheric conditions on device stability of organic small-molecule solar cells under constant illumination" by S Karak, S Pradhan and A Dhar, **Semicond. Sci. Technol.** 26, 095020 (2011)
12. "Enhancing the performance of nanostructured zinc oxide/polymer-based hybrid solar cells using ammonia as a structural and interfacial modifier", by S Pradhan, S Karak and A Dhar, **J.Phys.D:Appl.Phys.**, 45,235104(2012)
13. "Synthesis of vertically grown N,N'-Dioctyl-3,4,9,10-perylenedicarboximide(PTCDI-C8) nanostructure for photovoltaic application", S. Pradhan and A. Dhar, **J.Renewable and Sustainable Energy**, 5(3), 031611 (2013)
14. "Improvement of the nanostructured zinc oxide/polymer based solar cell efficiency through the incorporation of N,N'- Dioctyl-3,4,9,10-perylenedicarboximide(PTCDI-C8) nanoribbons as charge mediator", S. Pradhan and A. Dhar, **Synthetic Metals**, 2013 (accepted)
15. "Fabrication of N,N'- Dioctyl-3,4,9,10-perylenedicarboximide(PTCDI-C8) nanostructures through solvent influenced π - π stacking and their morphological impact on photovoltaic performance" S. Pradhan, J. Redwine, J.T. McLeskey Jr. and A. Dhar, **Thin Solid Films**, 2013(communicated)