Dr. Sudam D. Chavhan

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Department of Physics, S. G. Patil ASC College Sakri
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PROFILE:

Expertisein fabrication and characterization of nanostructure solar cells, organic solar cells, perovskite solar cells, thin film solar cells, and organic light-emitting diodes (OLEDs). Comprehensive knowledge and expertise solar cell device performance analysis. Experience in working with world class international multidisciplinary organizations.

RESEARCH EXPERTISE:

- Fabrication and characterization of organic, perovskite and thin film solar cells.
- Fabrication and characterization of organic light-emitting diode.
- Semiconductor thin film deposition by R.F. sputtering and thermal evaporation techniques.
- Preparation of p-type wide band gap semiconductor thin films by spin coating method for polymer and perovskite solar cell.
- Characterization of semiconductor thin films by XRD, XPS, SEM and AFM techniques.
- Time resolved photoluminescence measurements of semiconductor thin films.
- Analysis of photo-physical properties of hybrid solar cells by time resolved microwave conductivity technique.

HANDS ON INSTRUMENTS:

- Solar Simulator and External Quantum Efficiency (EQE).
- Spectral Sensitivity Measurement of Organic Light-Emitting Diode (OLED)
- Thermal Vacuum Evaporator, R.F. Sputtering.
- Atomic Force Microscopy (AFM).
- Field Emission Scanning Electron Microscopy (FE-SEM).
- X-ray Diffraction (XRD).
- UV-Vis Spectrophotometer.
- Time Resolved Photoluminescence Spectroscopy (PL).
- Operation and Maintenance of Glove Box.
- Four Probe Measurement Unit.
- Spin Coater.
- Rapid Thermal Annealing System for Selenization of CIGS film.

CAREER SUMMARY:

- 2019-Present: Assistant Professor, V. V.M's S. G. Patil ASC College Sakri, Dist: Dhule, Affiliated to K.B.C. North Maharashtra University, Jalgaon (M.S.)
- 2017- 2019: Postdoctoral Research Fellow,National Tsing-Hua University, Hsinchu, Taiwan.
- 2015-2016 Postdoctoral Research Fellow, National Taiwan University, Taipei, Taiwan.
- 2014-2015 Visiting Research Fellow, Karlstad University, Karlstad, Sweden.
- 2011-2014 Senior Research Fellow, CIDETEC, Donotia-San Sebastian, Spain.
- 2010-2011 Postdoctoral Research Fellow, Karlstad University, Karlstad, Sweden.
- 2008-2009 Postdoctoral Research Fellow, Delft University of Technology, Delft, Netherlands.
- 2007-2008 Postdoctoral Research Fellow, Chonbuk National University, South Korea.
- 2001-2007 Ph.D. North Maharashtra University, Jalgaon, India.

EDUCATION/CETIFICATIONS:

- **Ph.D. (Physics), North Maharashtra University, Jalgaon, India (2001-2007).**
  - Thesis Title: Studies on Structural, Electrical and Optical Properties of n-CdZn$(S_{1-x}Se_x)_2$ and n-Si/p-CuIn$(S_{1-x}Se_x)_2$ Heterojunction Thin Films for Photovoltaic Application.
- **M.Sc. (Physics), North Maharashtra University, Jalgaon, India (1999-2001)**
  - Distinction, University Rank: 1
- **B.Sc. (Physics), North Maharashtra University, Jalgaon, India (1996-1999).**
  - Distinction, University Rank: 2

POSITIONS OF RESPONSIBILITY:

- Member of The Japan Prize Foundation
- Reviewer for ACS, RSC and Elsevier Scientific Journals.

TEACHING AND MANAGEMENT:

- 2020 to present: Ph. D. Guide at K.B.C. North Maharashtra University, Jalgaon (M.S.), India
- 2017-2019: Guidance to master students at National Tsing-Hua University, Taiwan.
- 2015-2016: Guidance to master students at National Taiwan University, Taiwan.
- 2011-2014: Partial supervision to research technician at CIDETEC, Spain.
- 2011: Guidance to master student at Karlstad University, Sweden.

PROFESSIONAL EXPERIENCE:

Postdoctoral Research Fellow, Department of Materials Sciences and Engineering, National Tsing-Hua University, Hsinchu, Taiwan (15th August 2017-31st July 2019)

- **Fabrication and characterization of organic light emitting diode**
- **OLED device analysis by SETFOS**

Research Fellow: Institute of Physics, Academia Sinica, Nangan, Taiwan (16th Jan 2017- 16th July 2017)

Synthesis of 2D single crystal Ruddlesden-Popper organic-inorganic hybrid perovskite materials and their application in optoelectronic devices.

Postdoctoral Research Fellow, Dept. of Chemical Engineering, National Taiwan University, Taiwan (22nd May 2015-31st Oct. 2016).

Fabrication and I-V Characteristic Study of Perovskite Solar Cells.

- Fabrication of TiO_2 compact and porous layer by using spin coating method.
- Synthesis of CH_3NH_3I compound.
- Fabrication of mesoporous and planer perovskite solar cells.
- Investigation of photovoltaic properties of the hybrid perovskite solar cells.
- RTA process for selenization of CIGS thin film solar cells.
- Preparation of Al doped ZnO and La: SnO_2 thin films by sol-gel method.
- XRD and SEM analysis of the Al:ZnO, La:SnO_2 and perovskites films.
- I-V characteristic study of perovskite solar cells.

Visiting Research Fellow, Departmentof Engineering and Physics, Karlstad University, Karlstad, Sweden

(3rd Nov. 2014- 31st March 2015).

Investigation of p-Type Wide Band Gap Materials as a Hole Transporting Layerfor Polymer Solar Cells.

- Room temperature preparation of NiO thin films by spin coating method as HTL for polymer solar cells.
- Solution processed CuSCN thin films as a HTL for polymer solar cells.
- MoO_3thin films prepared by thermal evaporation method for high efficiency polymer solar cells.
- Fabrication and I-V measurement of polymer solar cells.

Senior Research Fellow, Department Energy, CIDETEC, Donostia-San Sebastian, Spain.

(1st June 2011- 30th June 2014).

Fabrication and Characterization ofZnOnw/CdSe, TiO_2/Sb_2Se_3 and $TiO_2/CH_3NH_3PbI_{3-x}Cl_x$ Solar Cells.

- Optimization of CdSe layer as light absorber on nanostructured ZnO photoanode.
- Fabrication of FTO/ZnOnanowire/CdSe/CuSCN/Au solar cells.
- Analysis of FTO/TiO_2/Sb_2Se_3/CuSCN/Au solar cells.
- Synthesis of perovskite $CH_3NH_3PbI_3$, $CH_3NH_3PbI_{3-x}Cl_x$ compounds.
- Fabrication of FTO/TiO_2/ $CH_3NH_3PbI_{3-x}Cl_x$ / HTM/Au, solar cells.
- Study of optical and I-V properties of solar cells.
- Surface morphology characterization of polymer solar cells via atomic force microscopy (AFM)
- Investigation of internal morphology of nanostructured solar cells by FE-SEM.

Postdoctoral Research Fellow, Department of Engineering and Physics, Karlstad University, Karlstad Sweden.

(1stMarch 2010- 31stMay 2011).

Investigation of Alternative Hole Transporting Layer for Highly Efficient Polymer Solar Cells.

- Fabrication of ITO/ NiO nanoparticle electrode by spin coating technique.
- Study the physical properties of ITO/ NiO electrodes
- Fabrication of polymer solar cells with NiO nanoparticle thin films as hole transporting layer.
- Study the photovoltaic properties of polymer solar cells with and without NiO hole transporting layer.

Postdoctoral Research Fellow, Department of Chemical Engineering, Delft University of Technology, Delft, Netherlands.

(6th Oct. 2008- 31stDec. 2009).

Investigation of Photophysical Properties of p-NiO/n-PF_2CVTP Heterojunction Hybrid Solar Cells Through Time Resolved Microwave Conductivity Technique (TRMC).

- Fabrication of NiO thin films by R.F sputtering.
- Crystallographic and compositional analysis ofNiO thin films via XRD and XPS analysis.
- Photoluminescence study of p-NiO/n-PF_2CVTP bilayer device.
- Determination of diffusion length of PF_2CVTP polymer.
- Photoconductivity study of p-NiO/n-PF_2CVTP bilayer by using TRMC.
- Fabrication and characterization of p-NiO/n-PF_2CVTP hybrid solar cells.

Postdoctoral Research Fellow, Department of Chemical Engineering, Chonbuk National University, Jeonju, South Korea.

(1st Oct. 2007-30thSept. 2008)

Development of Inorganic Quantum Dot Embodied Polymer Solar Cells.

- Synthesis of CdS, and ZnS quantum dots.
- Processing of CdS:P3HT and CdS:P3HT:PCBM hybrid solar cells.

- Surface morphology study of CdS quantum dot thin films prepared by solution process method.
- XRD and XPS analysis of CdS and ZnS quantum dots.
- Fabrication of CdZnSe thin films by electrodeposition and chemical bath deposition techniques for photoelectrochemical cell.
- Optical properties and I-V characteristic study of solar cell devices.

PUBLICATIONS

Manuscript under preparation

1. Approaches for fabricating blue hazard free lighting sources
2. Solution processed highly-efficient fluorescent based yellowish-green OLED

National and International Refereed Journals

1. Growth and characterization of cobalt oxalate crystals by ager-ager gel method;
   H. S. Pawar, S. J. Nandre, N. B. Sonawane, **S. D. Chavhan**, R. R. Ahire, *International Journal of Creative Research Thoughts*, **9(2021) 1343-1347 (IF: 7.97).**

2. Thermal and morphological study of transition metal cobalt oxalate crystal grown by agar-agar gel technique.
   H. S. Pawar, S. J. Nandre, **S.D. Chavhan**, R. R. Ahire, *International Journal of Creative Research Thoughts***, 9(2021) e349-e355(IF: 7.97).**

3. Physical and morphological study of barium oxalate crystals grown by agar-agar gel method,
   H. S. Pawar, S. J. Nandre, **S.D. Chavhan**, R. R. Ahire, , *Journal of Emerging Technologies and Innovative Research*, **8(2021) 737-743 (IF: 7.95).**

4. Growth and characterization of barium oxalate crystals by single diffusion gel method,
   H. S. Pawar, S. J. Nandre, S.D. Chavhan, R. R. Ahire, , Journal of Emerging Technologies and Innovative Research, **8(2021) 625-633 (IF: 7.95).**

5. Modification effect of hole injection layer on efficiency performance of wet-processed blue organic light emitting diodes
   Cheng-Chieh Lo, SujithSudheendranSwayamprabha, Tsung-Chia Hsueh, **Sudam D. Chavhan**, Rohit Ashok Kumar Yadav, Jia-Ren Lee, Pei-YuinKeng, Sun- Zen Chen, and Jwo-HueiJou; *Organic Electronic***Vol. 92 (2021) 106084 (IF: 3.31).**

6. Naphthalene flanked diketopyrrolopyrrole: a single versatile organic dye for dopant free high performance stable perovskite solar cells, single crystal & thin film transistors, and light emitting diodes.
   Qian Liu, **Sudam Chavhan**, Hantang Zhang, Huabin Sun, Aidan Brock, Sergei Manzhos, Yingqian Chen, Krishna Feron, James R. Durrant, Steven E. Bottle, John Bell, John McMurtrie, Jwo-HueiJou Ho-Shin Chen, Mangey Ram Naga, Wen ping Hu, Yong-Young Noh, Yong Gang Zhen, Sagar M. Jaini and Prashant Sonar; *Advance Electronic Materials***7 (2021), 2000804(IF:6.593)**

7. Liquid exfoliation of decagonal quasicrystals and its lightout-coupling performance in organic light-emittingdevices
   Anbalagan Ramakrishnan, Kiran Kishore Kesavan, **Sudam Chavhan**,Mangey Ram Nagar, Jwo-HueiJou, Sinn-Wen Chen, Haw-Wen Hsiao, Jian-Min Zuo,and Lin Yu Hung, *Adv. Photonic Res.* **(2020)200004, (DOI: 10.1002/adpr.202000042)**

8. Fluorene based amorphous hole transporting materials for solution processed organic light-emitting diodes
   Deepak Kumar Dubey, GintareKrucaite, SujithSudheendranSwayamprabha, Rohit Ashok Kumar Yadav, DovydasBlazevicius, JairamTagare, **Sudam Chavhan**, Tsung-Chia Hsueh, SivakumarVaidyanathan, SauliusGrigalevicius, Jwo-HueiJou, *Organic Electronics***79 (2020) 105633(IF: 3.31)**..

9. High efficiency color-temperature tunable organic light-emitting diode
   Sheng-Hsu Shih, Jwo-HueiJou, Tsung-Hao Su, Chih-Hsien Yuan, **Sudam D.Chavhan**, Jia-Wei Wen, Pin-Ren Chen, Fu-Ching Tung, Yung-Cheng Tasi, *Journal of Materials Chemistry C***7(2019) 15322-15334 (IF:7.05)**

10. Napthalimideend-capped diphenylacetylene: a versatile organic semiconductor for blue light emitting diodes and donor or acceptor for solar cells
    Thu-Trang Do, **Sudam Chavhan**,JegadesanSubbiah, Tsu-HaoOu, Sergei Manzhos, David Jones, John M. Bell,JwoHueiJou, Prashant Sonar; *New Journal of Chemistry,* **43 (2019)9243-9254(IF:3.27)**

11. Pseudo-sunlight organic light-emitting diodes.
    Jwo-HueiJou, Tzu-Chieh Tai, Shih-Hao Liu, Zhe-Kai He, Chung-Long Chen, **Sudam D. Chahvan**, Yi-Hong Chen, Chung-Chia Chen, Meng-Ting Lee, Jia-Ren; *Optics and Laser Technology***112 (2019) 494-499(IF: 2.10).**

12. Back migration based long lifetime approach for organic light-emitting diode.
    Jwo-HueiJou, Tzu-Chieh Tai, Yu-Ting Su, Hui-Huan Yu, Chi-Heng Chiang, **Sudam D. Chavhan**, You-Ting Lin, Jing-Jong Shyue, Tzu-Wei Liang; *Physica Status Solidi (A)*,**216 (2019)1800390(IF:1.77).**

13. Molecule-based monochromatic and polychromatic OLEDs with wet-process feasibility
    Jwo-HueiJou, SnehasisSahoo, Deepak Kumar Dubey, Rohit Ashok Kumar Yadav, SujithSudheendranSwayamprabha, **Sudam Dhudaku Chavhan**; *J. Mater. Chem. C***6 (2018)11492-11518 (IF: 7.05)**.

14. Investigation of charge transporting layers for high efficiency organic light-emitting diode.
    Jwo-HueiJou, Jia-Wei Weng, **Sudam DhudakuChavhan**, Rohit Ashok Kumar Yadav and Tzu-Wei Liang; *J. Phys. D:Applied Physics***51(2018)454002(IF: 2.37).**

15. Enabling high efficiency organic light emitting diode with a tri-functional solution processableCuSCN.
    Sudam D. Chavhan, TsuHao, Ou Ming, Ruei Jiang, Ching-Wu Wang, Jwo-HueiJou; *J. Phys. Chem. C***122(2018)18836(IF: 4.48).**

16. Low temperature processed NiO_x hole transport layers for efficient polymer solar cells.

Sudam D. Chavhan,Rickard Hansson, Leif K. E. Ericsson Paul Beyer, Alexander Hofmann, Wolfgang Brütting, Andreas Opitz, Ellen Moons; *Organic Electronics,* **44 (2017) 59(IF: 3.31)**.

17. Structural evaluations and temperature dependent photoluminescence characterization of Eu^{3+} activated $SrZrO_3$ hollow spheres for luminescence thermometry applications.
Subrata Das, SudiptaSom, Che-Yuan Yang, **Sudam D. Chavhan**, Chung-Hsin Lu; *Scientific Report***6 (2016) 25787,(IF: 3.228).**

18. Organo-metal halide perovskite-based solar cells with CuSCN as the inorganic hole selective contact.
Sudam D. Chavhan, O. Miguel, H. Grande, V. Gonzalez-Pedro, E.M. Barea, I. Mora-Seró, J. Bisquert, R. Tena-Zaera; *Journal of Materials Chemistry A***2 (2014) 12754,(IF: 8.262).**

19. Passivation of ZnO nanowire guest and 3D inverse opal host photoanode for dye-sensitized solar cells.
Philippe Labouchere, Aravind Kumar Chandiran , Thomas Moehl , Hauke Harms , **Sudam D. Chavhan**, Ramon Tena-Zaera , Mohammad KhajaNazeeruddin, Michael Graetzel, Nicolas Tetreault; *Advanced Energy Materials***4(2014) 26, (IF:15.23).**

20. Electrodeposition of antimony selenide thin films and application in semiconductor sensitized solar cells.
T. Tuyen Ngo, **Sudam D. Chavhan**, IvetKosta, Oscar Miguel, Hans Grande, Ramón Tena-Zaera; *Applied Materials&Interfaces***6 (2014) 2836, (IF:7.14).**

21. Nanomorphologyinfluence on the light conversion mechanisms in highly efficient diketopyrrolopyrrole based organic solar cells.
Jon Ajaria,**Sudam D.Chavhan**, Ramón Tena-Zaera, Jihua Chen, Adam J. Rondinone, Prashant Sonar, AnanthDodabalapur, Roberto Pacios; *Organic Electronics***14 (2013) 326, (IF:3.482).**

22. Colloidal PbS and PbSeSquantum dot Sensitized solar cells prepared by electrophoretic deposition.
NimaParsiBenehkohal, Victoria González-Pedro, Pablo P. Boix, **Sudam D. Chavhan**, Ramón Tena-Zaera, George P. Demopoulos, Iván Mora-Seró; *Journal of Physical Chemistry C***116(2012) 16391, (IF:4.509).**

23. NiO cathodic electrochemical deposition from an aprotic ionic liquid:building metal oxide n– p heterojunctions.
EnekoAzaceta, **Sudam D. Chavhan**, Paola Rossi, MarziaPaderi, Sebastien Fantini, Mariana Ungureanu, Oscar Miguel, Hans-Jurgen Grande, Ramon Tena-Zaera*; ElectrochemicaActa***71(2012) 39, (IF:4.803).**

24. Sensitization of p-type NiO using n-type conducting polymers.
Sudam D. Chavhan, Ruben D. Abellon, A.Breemen, M.M.Koetse, J.Sweelssen, Tom J. Savenije; *Journal of Physical Chemistry C***114 (2010)19496, (IF:4.509)**.

25. Structural and optical properties of electrodeposited $Cd_{0.7}Zn_{0.3}Se$ thin films: effect of annealing.
Sudam D. Chavhan, R. S.Mane, Ganesh T, Wonjoo Lee, Sung-Hwan Han, S. Senthilarasu, Soo-Hyoung Lee; *Journal of Alloys and Compounds***474 (2009) 210, (IF:3.014).**

26. Modifications of structural, optical and electrical properties of nanocrystalline bismuth sulphide by using swift heavy ions.
R. R. Ahire, Abhay A. Sagade, **Sudam D. Chavhan**, V. Huse, Y. G. Gudage, F. Singh, D. K. Avasthi, D. M. Phase,Ramphal Sharma; *Current Applied Physics* **9 (2009) 374, (IF:2.138).**

27. Study on photoelectrochemical solar cells of nanocrystalline $Cd_{0.7}Zn_{0.3}Se$-water soluble conjugated polymer.
Sudam D. Chavhan, R.S.Mane, Wonjoo Lee, S. Senthilarasu, Sung-Hwan Han, Soo-Hyoung Lee; *ElectrochimicaActa***54 (2008) 3169, (IF: 4.803).**

28. Effect of annealing on structural and optical properties of indium diffused $Cd_{0.7}Zn_{0.3}Se$ thin films.
Sudam D. Chavhan, S. Senthilarasu, Soo-Hyoung Lee; *Journal of Physics D: Applied Physics***41 (2008) 165502, (IF:2.772).**

29. Effect of temperature on stacking orientations of zinc phthalocyanine thin films.
S.Senthilarasu, Su-JinBaek, **Sudam D. Chavhan**, J. Lee, Soo-Hyoung Lee; *Journal of Nanoscience and Nanotechnology***8 (2008)5414 (IF:1.556), .**

30. Annealing effect on the structural and optical properties of a $Cd_{1-x}Zn_xS$ thin film for photovoltaic applications.
Sudam D. Chavhan, S. Senthilarasu, Soo-Hyoung Lee; *Applied Surface Science***254 (2008) 4539, (IF:3.150).**

31. Effect of swift heavy ion irradiation on the physical properties of $CuIn(S_{0.4}Se_{0.6})_2$ alloy thin films prepared by solution growth technique
Sudam D. Chavhan, N.G.Deshpande, Y.G.Gudage, A.Ghosh, R.R.Ahire, S.V.Borse, R.S.Khairnar, K.M. Jadhav, F. Singh, Ramphal Sharma; *Radiation Physics andChemistry* **77 (2008) 794, (IF: 1.207).**

32. Growth, structural, optical and electrical study of ZnS thin films deposited by solution growth technique (SGT).
H. K. Sadekar, N. G. Deshpande, Y. G. Gudage, A. Ghosh, **Sudam D. Chavhan**, S. R. Gosavi, Ramphal Sharma; *Journal of Alloys and Compounds* **453 (2008)519, (IF:3.014)**.

33. Structural damages studies in conducting Indium-Tin Oxide (ITO) thin films induced by Au^{8+} swift heavy ions (SHI) irradiation.
N.G. Deshpande, A.A. Sagade, **Sudam D. Chavhan**, J.C.Vyas, F. Singh, A.K.Tripathi, D.K.Avasthi, Ramphal Sharma; *Vacuum* **82 (2008)39, (IF:1.558)**.

34. Engineering of nanocrystalline cadmium sulfide thin films using swift heavy ions.
R. R. Ahire, A. A. Sagade, N. G. Deshpande, **Sudam D. Chavhan**, F. Singh,Ramphal Sharma; *Journal of Physics D: Applied Physics* **40 (2007) 4850, (IF:2.772)**.

35. A comparative study on physical properties of CdS, Bi_2S_3 and composite CdS-Bi_2S_3 thin films for photosensor application.
R. R. Ahire, N. G. Deshpande, Y. G. Gudage, A. A. Sagade, **Sudam D. Chavhan**, D. M. Phase,Ramphal Sharma; *Sensors and Actuators A: Physical Sensors* **140 (2007) 207, (IF:2.201)**.

36. Growth, structural and optical properties of $Cd_{1-x}Zn_xS$ alloy thin films grown by solution growth technique (SGT).
S.V.Borse, **Sudam D. Chavhan**, R.P.Sharma, *Journal of Alloys and Compounds* **436 (2007) 407, (IF: 3.014)** .

37. Gigantic irradiation effect of 100 MeV Au^{8+} swift heavy ions on the copper sulfide thin films with different chemical compositions
Abhay A. Sagade, N.G.Despande, **Sudam D. Chavhan,** R.R.Ahire, D. K. Avashi, F. Singh, A. Tripathi,R.P.Sharma;*Radiation Effect and Defectsin Solids* ***162(2007) 77*** .

38. Growth and characterization of CdZn $(S_{1-x}Se_x)_2$ alloy film deposited by solution growth technique.
Sudam D. Chavhan, Satish Bagul, R.R.Ahire, N.G. Deshpande, A. A. Sagade, Y. Gudage, R. P.Sharma; *Journal of Alloys and Compounds***436 (2007)400, (IF: 3.014)**.

39. Growth and characterization of Cu_xS(x =1.0, 1.76, 2.0) thin films grown by solution growth technique.
S.V. Bagul, **Sudam D. Chavhan**,R. P. Sharma*; Journal of Physics and Chemistry of Solids***68 (2007)1623, (IF: 2.048)**.

40. Growth, structural and optical properties of non-stoichiometric CuIn$(S_{1-x}Se_x)_2$ thin films deposited by solution growth technique for photovoltaic application.
Sudam D. Chavhan, R.P. Sharma, *Journal of Physics and Chemistry of Solids* **67 (2006)767, (IF:2.048).**

41. New trends to grow the n-CdZn$(S_{1-x}Se_x)_2$/p-CuIn $(S_{1-x}Se_x)_2$ heterojunction thin films for solar cell applications.
Sudam D. Chavhan,R.P.Sharma, *Solar Energy Materials & Solar Cells***90 (2006) 1241, (IF: 4.732).**

42. Growth and optoelectronic characteristic of n-Si/p-CuIn$(S_{1-x}Se_x)_2$ thin film solar cell by solution growth technique.
Sudam D. Chavhan, R.Sharma; *JournalCrystal Growth* **293 (2006) 52, (IF: 1.462).**

43. Growth and optical transport properties of nanocrystal Zn_{1-x}CdS thin films deposited by solution growth technique (SGT) for photovoltaic application.
Sudam D. Chavhan,R.P.Sharma***, Journal of Physics and Chemistry of Solids*** **66 (2005) 1721,(IF: 2.048).**

44. Studies on structural, optical and photoelectron transportation in solution-grown nano size CdSthin films for photo sensor applications.
Sudam D. Chavhan, S.V. Bagul, A. R. Patil, R.P.Sharma,*IndianJournal of Engineering &Materials Science***11 (2004)130, (IF: 0.456).**

45. Review: Effect of the preparation procedures on the long terms performance of SnO_2 thin film sensing layers deposited with different methodologies.
Ramphal Sharma,Mahendra Singh Raghuwanshi, **Sudam Chavhan**, Satish Bagul, SuhasBhavsar, Farid Ahmad,SerigioNicoletti, Stefano Zampolli, Leonello Dori, *Indian Journal of Pure & Applied Physics***41 (2003) 749, (IF: 0.739).**

National and International Conference Proceedings

46.

47. Insight into the recombination zone of OLED: Effect of electron mobility and molecular energy level of the hole transport layer
Deepak Kumar Dubey, Sophiya Khan, Rohit Ashok Kumar Yadav, MinaalDembla, SujithSudheendranSwayamprabha, Tzu-Wei Liang, **Sudam DhudakuChavhan**, Jwo-HueiJou, *19th IEEE International Conference on Nanotechnology,* Macau, China (Accepted-2019)

48. Solution Processed CuSCN Hole Transporting Layers for high efficiency Organic Light-Emitting Didoes
Sudam D. Chavhan, TsuHaoOu, Jwo-HueiJou, *European Material Research Society Meeting**, June-2018***, Strasbourg, France (**Oral Presentation**)

49. Stable and Efficient Organic Solar Cells with Low Temperature Processed NiOx Hole Transport Layers
Leif K. E. Ericsson, **Sudam D. Chavhan**, Rickard Hansson, Paul Beyer, Andreas Opitz, DargieDeribew, Jan van Stam, Ellen Moons, *European Material Research Society Meeting,* ***June-2018*****,** Strasbourg, France.

50. The effect of hole transport layers on polymer solar cell performance and stability
DargieDeribew, VanjaBlazinic, Leif Ericsson, **Sudam Chavhan**, Ellen Moons*, Stability of Emerging Photovoltaics from Fundamental to Applications (SEPV)*, **February 2018**, Barcelona, Spain.

51. Role investigation of charge transporting layer in high performance organic light-emitting diode: A case study.
WengJia-Wei, **Chavhan Sudam Dhudaku**, Yadav Rohit Ashok Kumar, Liang Tzu-Wei, and JouJwo-Huei, *Light Conference: International Conference on Optics in Materials, Energy, and Technologies 2018, National Museum of Prehistory, Taitung, Taiwan*

52. Effect of CH_3NH_3I concentration and deposition temperature on nanostructured growth of $CH_3NH_3PbI_{3-x}Cl_x$ Perovskite by two-step sequential deposition technique.
S.D.Chavhan, Kuan-Rong Chen, Chung-Hsin Lu,*Surface science and department of chemical engineering annual proceeding*, *Taiwan* -**2016.**

53. A multi-scale study of phase separation and $PC_{70}BM$ aggregation for efficient and stable polymer solar cells.
Rickard Hansson, **S.D. Chavhan,** Camilla Lindqvist, Natalie Holmes, Jan van Stam, Leif Ericsson, Ergang Wang, Paul Dastoor, Ellen Moons*, European Material Research Society, **(E-MRS-2015)**, Lille, France*.

54. Perovskite Solar Cells with Inorganic Hole Selective Contacts: $TiO_2/CH_3NH_3PbI_{3-x}Cl_x/CuSCN$.
S.D. Chavhan, Oscar Miguel, Hans-Jurgen Grande , Victoria Gonzalez-Pedro , Eva M. Berzosa , Ivan Mora-Sero , Ramon Tena-Zaera, *International Conference on Hybrid Inorganic-organic Photovoltaics***(May -2014)**, *Lausanne, Switzerland.*

55. NiO nanoparticle films as electrodes in polymer solar cells.
S.D. Chavhan, Rickard Hansson, Ellen Moons, *International Conference on Optics and Photonics-* **2011,***Universidade do Minho, Braga, Portugal.*

56. Solution processed NiO hole transporting layer in P3HT: PCBM bulk heterojunction solar cells.
S.D.Chavhan, Ricard Hansson, Ellen Moons, *Material Research Society* **(MRS2011***), San Francisco, USA.*

57. Photovoltaic study of p-NiO/$PC_{70}BM$ hybrid solar cells.
S.D. Chavhan, Ruben D.Abellon, Tom J. Savenije, Ellen Moons, *Material Research Society* **(MRS-2011)**, *San Francisco, USA.*

58. Preparation and characterization of p-NiO/n-type conjugated polymer bilayer structures for photovoltaic applications.
S.D.Chavhan, Ruben D. Abellon, Tom J. Savenije, *Proceeding of European Research Material Society* **(E-MRS-2009***), Strasbourg, France .*

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