



PERSONAL INFORMATION

Name : Dr. Amrik Singh

Current Position: Assistant Professor C. Physics, Department of Physics, Chaudhary Devi Lal University, Sirsa(Haryana)

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Education Qualification

- **Ph.D. (Physics) awarded, from CDLU, Sirsa in 2017.**

Research Topic : Dye Sensitized Solar Cells Degree

- M.Sc. Physics (Specialization in Condensed Matter Physics & Electronics) from K.U.K, Haryana) in 2009.
- PGDCA From C.D.L.U Sirsa
- B.Ed. from KUK in 2010.
- B.Sc. (Specialization in Electronics) from G.N.C (K.U.K) Sirsa with 76.7% marks in 2007.
- 10+2(Non-Medical) from C.B.S.E Board in 2004.
- 10th from C.B.S.E Board in 2002
- GATE 2011 Qualified

Research Experience –Three Years, March 2012-March2015, (IUAC, new Delhi Major Research Project)

Teaching Experience- 5 years (UG, PG)

Research Papers Published in Journals

1. Effect of heat treatment on the microstructural properties of silica embedded cobalt ferrite nanocomposites Meenakshi Bansal , Dharamvir Singh Ahlawat, **Amrik Singh** , Vijay Kumara and Shish Pal Rathee, NANOCOMPOSITES 2020, VOL. 6, NO. 4, 158–164. (Scopus, Sci Indexed)
2. Ce doping induced modifications in structural, electrical and magnetic behaviour of hematite nanoparticles, VijayKumar, Dharamvir S.Ahlawat, Shah Aarif Ul Islam, **AmrikSingh**, Materials Science and Engineering: B, 272, 2021, 115327
3. Thermal and magnetic investigations of cobalt ferrite doped with Zn and Cd synthesized by auto combustion method, Dharamvir S.Ahlawat, Harpreet Kaur, **Amrik Singh** Journal of magnetism and Magnetic materials, 474, 511, 2019.
4. Performance parameters of graphite and platinum counterelectrode based dye sensitized solar cells, **Amrik Singh**, Devendra Mohan, Dharamvir S.Ahlawat, Journal for Foundation and Applications of Physics, 5(2), 2018, 55-66.
5. Effect of Heat Treatment conditions the Structural and magnetic Properties of Nickel Zinc Ferrite, Papers J. of Materials and Environmental Science, Richa, **Amrik Singh**, Dharamvir S.Ahlawat Mater. Environ. Sci. 8 (S) (2017) 4650-4656.
6. Performance of spin coated silver doped ZnO photoanode based dye sensitized solar cells, Processing and Applications of Ceramics, **Amrik Singh**, Devendra Mohan, Dharamvir S.Ahlawat 11(3), 2017, 213-219.
7. Influence of ion irradiation on the properties of oxide films for dye sensitized solar cells, , **Amrik Singh**, Devendra Mohan, Dharamvir S.Ahlawat, Advanced material Letters,8(4), 2017, 565-571.
8. Influence of dye loading time and electrolytes constituents ratio on the performance of ZnO phptoanode based dye sensitized solar cells. **Amrik Singh**, Devendra Mohan, Dharamvir S.Ahlawat 1 Orient Journal of Chemistry, 32(2), 2016, pp. 1049-1054.
9. Effect of working temperature on the open circuit voltage of TiO₂ photoelectrode based dye sensitized solar cells, **Amrik Singh**, Devendra Mohan, Dharamvir S.Ahlawat IISST, JAP, 6(2), 29-32, 2015
10. Comparison of structural properties of Nickel Zin Ferrites Synthesized by solution auto ignition and solid state reaction method, Richa, Dharamvir S. Ahlawat, **Amrik Singh**, ISST Journal of Applied Physics, 6(2), 25-28, 2015

11. Effect of Material Parameters on the Optical Properties of Dye-Sensitized Solar Cell Photoanode, **Amrik Singh**, Devendra Mohan, Dharamvir S.Ahlawat Divya Jyoti, Materials Science Forum Vol. 771 (2014) pp 115-119 © (2014) Trans Tech Publications, Switzerland
12. A Critical Review on Mesoporous Photoanodes for Dye-Sensitized Solar Cells” Materials Science Forum, Divya Jyoti, Devendra Mohan, **Amrik Singh**, Vol. 771 (2014) pp 53-69 © (2014) Trans Tech Publications, Switzerland
13. Comparison of Anatase and Rutile TiO₂ Thin films via Sol-Gel Route for their use in Dye-Sensitized Solar Cells, Divya Jyoti, Devendra Mohan, **Amrik Singh**, Invertis Journal of Renewable Energy, Vol 2(1), 2012, 29-31.
14. Swift Heavy Ion Tailoring of Anatase TiO₂ Film for Its Use in Dye-Sensitized Solar Cell, Divya Jyoti, Devendra Mohan, **Amrik Singh**, Invertis Journal of Renewable Energy, Vol. 3, No. 1, 2013, 1-5
15. Growth and Performance of TiO₂ Nanotubes with Blocking Layer in Dye-Sensitized Solar Cells, , Divya Jyoti, Devendra Mohan, **Amrik Singh**, Journal Of Applied Physics
16. Reflection and Losses in Fibre, Interdisciplay Journal of CDLU, Dharamvir Singh, **Amrik Singh**, 2015.

Research Papers Published in Proceeding

1. **A Review : Dye sensitized solar cells based on different photosensitizers**, A national Seminar on Nanochemistry, Proceeding ISBN No. 978-93-82166-87-0, 19 Jan., 2018 CMK National PG College, Sirsa(Hry.)
2. **A Review on the different film Deposition Techniques and their effect on the performance of DSSCs”.NSABSET**, 27-28 Dec. at echelon Institute Faridabad (Hry.).
2. **Effect of working temperature on the open circuit voltage of dye sensitized solar cell”** RSAT-2016, 27-28 Feb., 2016, Arya PG College, Panipat (Haryana).
3. **Influence of Ion beam Parameters on its Range and Energy Loss”** Proceeding ISBN No.978-93-83842-92-6, International Conference on Frontier in Material Research and Applications, 2014(FMRA-2014) held at SBSSTC, Ferozepur (Pb.)on 30-31 Oct. 2014.

4. **Swift heavy Ions irradiated ZnO and TiO₂ films**” Proceeding ISBN No.978-93-83842-92-6, International Conference on Frontier in Material Research and Applications 2014(FMRA-2014) held at SBSSTC, Ferozepur(Pb.) on 30-31 Oct. 2014.
5. Richa, Anand K.Tyagi, Dharamvir Singh Ahlawat and **Amrik Singh** “**Effect of Heat Treatment on the Structural and Optical Properties of Nickel Zinc Ferrite**” Proceeding ISBN No.978-93-83842-92-6, International Conference on Frontier in Material Research and Applications 2014(FMRA-2014) held at SBSSTC, Ferozepur (Pb.)on 30-31 Oct. 2014.
6. **Comparison of structural properties of Nickel Zinc Ferrites synthesized by solution auto ignition and solid state reaction method.** RSAT-2016, 27-28 Feb., 2016, Arya PG College, Panipat (Haryana).

Research Papers Presented in Conferences/Seminar/Symposia

1. A Review: Dye sensitized solar cells based on different photosensitizers, A national Seminar on Nanochemistry, 19 Jan., 2018 CMK National PG College, Sirsa(Hry.)
2. Dye concentration dependent performance of DSSC, International Conference, ICAOP-2017, Department of Physics, GJUS&T, Hisar, 23-26 Nov. , 2017.
3. Effect of fuel to oxidant ratio on saturation magnetization of NiZn ferrite nanoparticles, , International Conference, ICAOP-2017, Department of Physics, GJUS&T, Hisar, 23-26 Nov., 2017.
4. Dye sensitized solar cells fabricated by different film coating techniques : A review. National Conference, 2 March , 2017, REESCM-2017 Jan Nayak Chaudhary Devi Lal Memorial College of Education, Sirsa, Haryana
5. Crystallite size dependent optical properties of Ni-Zn Ferrite nanoparticels, National Conference, 2 March , 2017, REESCM-2017 Jan Nayak Chaudhary Devi Lal Memorial College of Education, Sirsa, Haryana
6. Influence of annealing temperature of platinum counter electrode on the photon to electron conversion efficiency of DSSC, ICRISMET -2016, Aug., JCD Memorial College, Sirsa(Haryana).

7. Effect of Heating rate on the magnetic properties of NiZn Ferrite powder synthesized by solution auto ignition method, ICRISMET -2016, Aug., JCD Memorial College, Sirsa(Haryana).
8. Effect of annealing temperature of counterlectrode on the performance of DSSC, ETPMS -2016 , March, 2018, Department of Physics, CDLU, Sirsa(Haryana).
9. Effect of heat treatment on the grain size of Nickel Zinc Ferrite synthesized by solution auto combustion method. ETPMS -2016, March, 2018, Department of Physics, CDLU, Sirsa(Haryana).
10. Effect of working temperature on the open circuit voltage of dye sensitized solar cell” RSAT-2016, 27-28 Feb., 2016, Arya PG College, Panipat (Haryana)
11. Comparison of optical properties of Nickel and oxygen ion irradiated ITO substrate based DSSC, ETPMS -2015, FEB, 2015, Department of Physics, CDLU, Sirsa(Haryana).
12. Swift heavy ions irradiated films, ETPMS -2015, FEB, 2015, Department of Physics, CDLU, Sirsa(Haryana).
13. A Comparative Study: Range and Energy Losses of Alkaline Earth Metal and Lanthanide Series Ions irradiated ZnO and TiO₂ Target”, NCA PMS-2015, Feb. 5-6, Deptt. of Physics, MDU, Rohtak (Haryana)
14. Influence of Ion beam Parameters on its Range and Energy Loss” Proceeding ISBN No.978-93-83842-92-6, International Conference on Frontier in Material Research and Applications, 2014(FMRA-2014) held at SBSSTC, Ferozepur (Pb.)on 30-31 Oct. 2014.
15. Effect of Heat Treatment on the Structural and Optical Properties of Nickel Zinc Ferrite, International Conference on Frontier in Material Research and Applications 2014(FMRA-2014) held at SBSSTC, Ferozepur (Pb.)on 30-31 Oct. 2014.
16. Swift heavy Ions irradiated ZnO and TiO₂ films, International Conference on Frontier in Material Research and Applications 2014(FMRA-2014) held at SBSSTC, Ferozepur(Pb.) on 30-31 Oct. 2014.
17. Effect of Solvents and stabilizers on the optical and structural properties of Dye Sensitized Solar Cells”, NCPMS-2014, 20-21 March 2014 at GJU, Hisar(Hry.)

18. Theoretical Analysis of transmission from Nanocrystalline TiO₂ Film for Application in Dye Sensitized Solar Cells.” NCPMS-2014, 20-21 March 2014 at GJU, Hisar (Hry.)
19. Growth and Development of Polymeric Photovoltaic Devices.” NCPMS-2014, 20-21 March 2014 at GJU, Hisar(Hry.)
20. Optical and structural properties of Silver and Cerium doped ZnO photoanode for DSSCs” ICOL5-8 Maarch, 2014 at IRDE Dehradun, Uttrakhand.
21. Role of computer controlled system in fabrication and optimization the performance of Dye Sensitized solar Cells CAMBTE-2014, 21-22 Feb. at UIT, Hisar(Hry.).
22. A Review on the different film Deposition Techniques and their effect on the performance of DSSCs”.NSABSET, 27-28 Dec. at echelon Institute Faridabad (Hry.)
23. Effect of annealing temperature on the structural and Optical properties of ZnO photoanode for DSSCs. ETPRAM-13, 13-14 Dec., Punjabi University, Patiala(Punjab).
24. Effect of cerium doping on theOptical and Electrical properties of ZnO photoanode for (DSSCs) Dye Sensitized Solar cells”. ETPEMM-2012, 17-19 Dec. Punjabi University, Patiala(Punjab).
25. Photoelectrochemical properties of Eco-friendly (DSSCs) Dye Sensitized Solar cells controlled by sol processing parameters” (ETPEMM-2012, 17-19 Dec. Punjabi University, Patiala(Punjab)
26. Modeling of the passage of Swift heavy ions through Anatase TiO₂ film for application in Dye sensitized Solar Cells”. SHIMEC-2012 at IUAC, New Delhi.
27. Comparison of Anatase and Rutile TiO₂ Thin Films via Sol-Gel Route for their Use in Dye-Sensitized Solar Cells” in National Conference on Advances in Nanomaterials and Nanotechnology for Renewable Energy Conversion and Storage Devices held at Jaipur Engineering College, Kukas, Jaipur (Rajsathan) on March 1-3, 2012.
28. Effect of electrode parameters on electron Transport in Dye Sensitized Solar Cells” at NSRTMMP-2011 at G.P.G. College, Gopeshwar, Chamoli (Uttrakhand)

FACULTY DEVELOPMENT PROGRAM ONE WEEK FACULTY DEVELOPMENT PROGRAM
 12-20 September 2020 Development of Teacher's e-kit and MOOCs in Four Quadrant Format of e-Content This is to certify that Dr Jaswinder Singh Principal S.G.T.B. Khalsa College, University of Delhi One Week National Faculty Development Program organized by Guru

Angad Dev Teaching Learning Centre, S.G.T.B. Khalsa College, University of Delhi under the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT) of MHRD.

Conferences/Seminar Attended

1. National Seminar on Recent Trends in Science & Technology, NSRTST-2015, Feb. 21, 2015, CDLU, Sirsa(Hry.)
2. National Conference on Role of Applications of ICT in Inaccessible Areas on March 5-6, 2013, Deptt. Of Computer Sci. & Eng. , G.J.U.S.&T., Hisar(Hry.)
3. International Conference on Recent Trend in Applied Physics and Material Science. Feb. 01-02, 2013 Govt. College of Eng. Bikaner (Raj.).
4. National Conference Recent Advances in Material Science, Feb. 25-26, 2012, Dyal Singh College, Karnal(Hry.).
5. National Conference on Recent Advances in Eng. Tech. and Environmental Issues (RAETE) Feb. 22-24, 2012, JCD College of Eng., Sirsa (Hry.)
6. International Conference on Energy-Water-Waste Nexus for Environment Management, Jan. 28-30, 2012, Deptt. Of Energy and Environmental Sciences, C.D.L.U., Sirsa(Hry.)

Workshops Attended

1. Workshop on Intellectual Property Rights and technology Commercialization on 18 March -2013 at GJU, Hisar (Hry.)
2. Workshop on Research Data Awareness on May7, 2013 at GJU, Hisar (Hry.)

Areas of Interest in Research

- Dye Sensitized Solar cells,
- Swift Heavy ions irradiation,
- Ferrites,
- Electronics Circuit Design
- Synthesis of nanoparticles by different methods, Co-precipitation, Auto-Combustion methods.

Experimental Skills

- Thin film deposition techniques (Sol-Gel Spin coating. Sol-Gel dip coating, R.F. /D.C. Sputtering, Vacuum evaporation thermal coating, Spray Prolysis).
- Nanoparticles Synthesization by different methods.

- Working experience of Dye Sensitized Solar Cell device fabrication.
- Experience in ion beam irradiation experiments materials at Material Science Beam line of IUAC, New Delhi.
- Acquired good experience in doing current-voltage set up, X-ray diffraction (XRD), UV-Vis spectroscopy, SEM, DSC/TGA/DTA, FTIR, SEM.
- SRIM/TRIM (stopping power and range of ions in matter/transport of ions in matter) simulations.
- Experience of handling and working with Lasers/ performing experiment based on Z-Scan Technique (Nd:YAG, He:Ne, Nitrogen and Argon ion lasers).

Other Achievements

- Best Volunteer in NSS Camp 2006-07 in GNPG College, Sirsa (Haryana).
 - 1st position in Electronics and 2nd position in English in B.Sc. 2004-05.
- **Editorial Member** in National Conference on Photonics and Material Sciences (NCPMS-2014), March 20-21, 2014, Deptt. Of Physics, G.J.U.S.&T., Hisar(Hry.)