

Curriculum Vitae of Prof. NavdeepGoyal

Name : **Professor NavdeepGoyal**
Place of Birth : **Hoshiarpur, Punjab, India**
Address : Department of Physics,
Panjab University, Chandigarh -160 014
Date of Birth : 07th March, 1965 (07-03-1965)
Filed of Research : Condensed Matter Physics (Experimental), Solar Energy Systems

Research Experience:

- ❖ About 34+years of research experience on Condensed Matter Physics experimental, post doc experience in New South Wales university Australia and visiting scientist to TIFR, Mumbai, India.
- ❖ Working on Device applications of Superconductors, Semiconductors and Magnetic materials.
- ❖ Expertise in strongly correlated materials (advanced functional materials) and X-ray absorption spectroscopy techniques using synchrotron radiations (XAS/EXAFS).
- ❖ Expert in synthesis (wet chemical, gel-to-crystallite conversion, sol-gel, hydrothermal, microwave), thin film techniques (RF/DC magnetron sputtering, PLD, e-beam evaporation, spin coating) and basic characterization (SEM/EDAX/TEM, XRD/SAXS, Four-probe resistivity, UV-vis, XPS) of the materials.
- ❖ Experience of leading international research collaborations and high cost research projects efficiently.
- ❖ International scientific publications =**141**, **h-index=18**, Citations: 1264, i10 Index: 44

Administrative Experience:

On the basis of teaching Electronics to M.Sc (Physics) students and the feedback of local industries, it was realized that if students are taught Physics along with Electronics, it can significantly enrich students in Experimental Physics (particularly experiments of High Energy Physics, involving large data handling), Industry and Research in fast Electronics. Therefore a new self financing five year course of Physics and Electronics was started at Panjab University in the year 2007. The course became very popular and is running successfully since then.

Being a member of Governing bodies of Panjab University, large number of responsibilities were given by the Vice-Chancellor and Syndicate of the University. One of the important responsibilities was to enhance the internal income of the University by around 50 crores per annum. A committee was formed for the same under my Chairmanship. The Committee suggested many ways like rationalization of examination fee, conduct of examinations for external agencies using University resources and was able to achieve the given target.

As chairperson of the Department of Physics, I have also instituted two annual memorial lectures in the memory of Former Professors of the Department. Every year eminent scholars from India and abroad were invited to deliver lectures. Also a conference of undergraduate students of Physics was being conducted in the Department by Indian Association of Physics Teachers. Steps were taken to ensure that it became an annual feature.

Administrative Responsibilities:

1. **Dean Student Welfare** (August 2013-October 2016), Panjab University, Chandigarh
2. **Chairperson**, Department of Physics, P.U. Chandigarh (August 2017-July 2020)
3. **Co-ordinator**, Centre for Nano-Science and Nano-Technology (August 2017-July 2020)
4. Member,**Panjab University Senate** (2013-2016) and (2016-2020)
5. Member,**Panjab University, Syndicate** (2015, 2016, 2017, 2018, 2019, 2020)
6. Member,**Board of Finance**, Panjab University, Chandigarh (2015,2016,2017,2018,2019, 2020)
7. Joint Secretary, **Panjab University Alumni Association** (2001-2008)
8. President of **Physics Association**, Panjab University (1998-2000).
9. General Secretary, Panjab University Teacher Association (1999-2000).
10. **Warden**, Boys Hostel No 6, (July 2005- October2008).
11. Member,**Research Board** Punjabi University, Patiala (2018-2020)
12. **Chairman, Panjab University Affiliation Committee** 2017, 2019
13. Chairman,**Regulations Committee of Panjab University** 2018
14. Members to various **Board of Studies**, Panjab University, Chandigarh.
15. Member of **Budget estimate committee**, Panjab University Chandigarh (2014-2020).
16. Members of **Promotion policy** committees, Panjab University, Chandigarh.
17. Member of **Bhagyatara Award Standing Committee** 2017.
18. Member of UGC Major Research Project Assessment committee (2018)
19. Member of **UGC Travel Grant Committee** (2018).
20. Member of the **Cancer Research Centre Project** 2018.
21. Member of **Solar Power Project** in Panjab University.
22. Member of **Standing Committee** for Equal Opportunity Cell (EOC)–PWD, Panjab University.
23. Member of **Faculty of Engineering&Technology**, Panjab University, Chandigarh (2013-2020).

24. Chairperson of **Affiliation committees and extension of affiliation committees**, Panjab University
25. Vice Chancellor **Nominee/Committee member** of around 10 **selection committees of Principals** of affiliated Colleges, and 40 **selection committees of Assistant Professors**.
26. Member of Migration (Lateral Entry) for UG/PG Law course at Panjab University and its Centre's.
27. Member of Committee for PhD guidelines (2017), Panjab University.
28. Member of CORONA Care Team(CRIKC), 2020-21.
29. Member(Chairperson) of **Coordination Committee for Multipurpose Hall**, Panjab University.
30. Member of **DST-Centre for Policy Research (CPR) Committee**, Panjab University (2017-19).
31. Member of organizing committee for International and Interdisciplinary Scientific Event, **NanoSciTech 2017**.
32. Member of **Executive Council, Dean Alumni Relations (2014-2020)**, Panjab University, Chandigarh.
33. Member of **Scientific Proposal Committee** for Institute of Eminence, Panjab University.
34. Member of **Executive Committee**, Prof. Yashpal Memorial, Panjab University, Chandigarh.
35. Member of Inspection Team/Flying Squad during the Panjab University Examinations (2012-2019).
36. Member of **Apex Committee, Dept. of Indian Theater** (2015-18), Panjab University.
37. Chairman, **International Yoga Day Celebrations** with Honorable Prime Minister at Panjab University.
38. Director of Sports (Acting), Panjab University.
39. Coordinator of **Transport Committee** in the **CRIKC** , Chandigarh.
40. Member of the **Steering Committee**, Panjab University Foundation day, 2012.
41. Member of the **Scientific Committee for RUSA proposal** submission for Panjab University.

Professional Experience:

1. **Professor in Physics** – March 2010 – Current, Department of Physics, P.U. Chandigarh
2. **Associate Professor** (March 2007-March 2010), Department of Physics, P.U. Chandigarh
3. **Reader** (March 2003- March 2007), Department of Physics, P.U. Chandigarh
4. Lecturer (March 1995-March 2003)
5. **Post doc fellow**, University of New South Wales (1994-95)
6. **Research Associate**, Department of Physics, P.U. Chandigarh (1993-1994)

7. Visiting Scientist, TIFR 1992

Teaching Experience

Teaching experience (more than 25 years) of **teaching Digital Electronics, Advanced Microprocessors and Microcontrollers** to M.Sc Physics, M.Sc Physics and Electronics and M.Tech Microelectronics students.

Designed and started the **new course of Physics and Electronics** in Physics Department of Panjab University, Chandigarh (running successfully with full sanctioned seats)

Ph.D students supervised: 17 (14 in Science Faculty and 3 in Engineering Faculty)

1. Abdolali Zolanvari, (2001)
2. Sanjeev Gautam, (2007)
3. Falah I Mustafa (2009)
4. Shikha Gupta (2010)
5. Kulbir Kaur Ghuman, (2012)
6. Anil Kumar (2013)
7. Kanchan Sharma (2014)
8. Ramesh K Sharma (2018)
9. Anil Sharma (2018)
10. Neeru Chaudhary (2018)
11. M.D Sharma (2019)
12. Amardeep Bharti (2019)
13. Ram Murty Sharma (2019)
14. Jashangeet Kaur (2019)
15. Richa Bhardwaj (2020)
16. Suman (2020)
17. Baljit Kaur (2021)

Research Projects

- **CSR-Industrial (2020-2025)** – Development of efficient photovoltaic (PV) solar power plant and concentration solar power (CSP) plants for integrated electric vehicle charging station (Electrowave Electronics Pvt. Ltd, Parwanoo, HP, India) – **Rs. 37,70,000/-**.
- **IUAC/UGC (2018-21)** - Irradiation induced interface and magnetic properties of Zinc ferrite/insulator/ cobalt ferrite hetero-structures (IUAC37/50) – **Rs. 12,00,000/-**.
- **GIAN (MHRD) International Workshop (XAS) funded 2017** (8 lakh).
- CSIR (2005-2008) Photo-induced changes on the structural and electronic properties of glassy semiconductors – 8.24 lakhs
- IUAC/UGC (2007-2011) - SHI induced changes on the electrical and optical properties of glassy semiconductors – 5.01 lakh
- **DST, New Delhi (2008-2011)** - Surface controlled of nanoscale materials through clean synthesis and their characterization – 31.82 lakh

- *UGC, New Delhi (2008-2011)* - Study of non-linearity in chalcogenide glasses for electronic devices – 5.76 lakh
- *UGC, New Delhi (2010-2011)*- Dielectric studies of chalcogenide glasses for electronic devices – 9.61 lakh
- *UGC, New Delhi (2007-2010)* - Structural, vibrational and electronic properties of noncrystalline materials – 6.91 lakh

International Visits

- **International visit to Indo-US** collaborative workshop at Florida Polytech, Florida USA.
- **March 17- March 27, 2019** – International visit for Synchrotron experiment at Synchrotron Light Ray Institute, Korat, Thailand.
- University of New South Wales Australia as PDF 1994-95

Memberships

- Lifetime Member of IAPT (Indian Academy of Physics Teacher).
- Membership for IEEE and MRS Society.
- Active member of International Forum of Chalcogeniders.
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Workshop/Conference Organized

- (1) Organizing Co-coordinator for IntConf on "Recent Developments in Disordered Materials" P U Chand. (2002).
- (2) Organizing Co-coordinator for Seminar on “Comp. Techniques in Science” P. Univ Chandigarh, India (2002).
- (3) Organizing committee member for Chandigarh Science congress (CHASCON 2019), March 13-15,2019
- (4) Organizing committee member for 12th**Chandigarh Science Congress** (CHASCON 2018), February 12-14,2018.
- (5) Organising Committee member of Workshop on contemporary Trends in High Energy Physics and Experimentation
- (6) Organizing committee member for 5th**Chandigarh Science Congress** (CHASCON 2011), February 26-28, 2011.
- (7) Organizing committee member for 3rd**Chandigarh Science Congress** (CHASCON 2009), February 26-28,2009.
- (8) Organizing committee member for **International Conference on Aspects of Materials Science and Engineering** (ICAMSC-2020, May 29-30, 2020), Panjab University.
- (9) Organizing coordinator for **Panjab University Alumni Association Meet** –Nov. 2016.
- (10) Organizing member for seminar on awareness on **e-Governance and National e-Governance Plan** (Dec 07, 2012), Panjab University.
- (11) Organizing committee member for “**India-UK Seminar in Nuclear Physics at ISOLDE** (Jan 22-24, 2014).

- (12) Organizing committee member for **Neutrino Workshop-cum-Meeting on establishing a Center for HEP Detectors & Instrumentation at PU** on 23rd - 24th Jan. 2014.
- (13) Organizing and executive committee member “**PU-Accelerator Project**”, Panjab University.

Invited Talks /resource person

- (1) Invited talk entitled “Synthesis and applications of silicon nanowire in Device fabrications” in Physical section of 13th Chandigarh Science Congress (March 13-15, 2019).
- (2) Resource person talk in the seminar on awareness on e-Governance and National e-Governance Plan (Dec 07, 2012), Panjab University.
- (3) Invited talk on “to generate innovative ideas and knowledge” in RUSA sponsored 7-days capacity building workshop “A step towards interdisciplinary approach” during February 20-26th, 2016, PG G College for Girls, Sector 42, Chandigarh.
- (4) Keynote address on “Materials and their role in technology” delivered at RSD College Ferozepur in October 2018.
- (5) Keynote address on “Electrical Vehicles and Energy requirements in future and role of renewable energy” at JC DAV College Dasua on 11th May 2021.

International workshops/courses

- (1) Course completed on Neutrons as probes in condensed matter-IV organized by BARC and IUAC/DAE (Oct 31-Nov 20, 1992).
- (2) Completed workshop on **Academic Leadership Training in Higher Education** (February 12-15, 2019), Central University of Jammu, J&K sponsored by PMMMNMTT and MHRD, Govt. of India.

International Research Collaborations

➤ **Prof. Dharendra Yogi Goswami**

Director and Distinguished Professor
Clean Energy Research Centre
University of South Florida

Area of Collaboration: Development of CSP plants.

➤ **Dr. KeunHwaChae**(Korean Collaboration -KIST)

Principal Research Scientist, Advanced Analysis Center,
Korea Institute of Science and Technology (KIST),
Seoul, Republic of Korea- 136 791.
E-mail: khchae@kist.re.kr, Phone: +82-11-9734-1017

Area of collaboration: Electronic Structure studies in Synchrotron NEXAFS/EXAFS.

➤ **Prof. Gap Soo Chang**(Canada Collaboration)

Associate Professor, Deptt. of Physics and Engg. Physics,
University of Saskatchewan, 116 Science Place, Saskatoon,
Saskatchewan S7N 5E2, Canada
Phone: (306) 966-2768, E-mail: gapssoo.chang@usask.ca

Area of Collaboration: Electronic structure investigations and energy studies.

➤ **Dr. Pardeep Thakur** (collaborator, Oxford UK)

Beamline Scientist, Diamond Light Source Ltd.
Oxfordshire, United Kingdom
E-mail: pardeep.kumar@diamond.ac.uk, Phone: +91-9876666511
Area of Collaboration: Magnetic materials and XMCD investigations.

Annexure -1

List of Publications (Prof. NavdeepGoyal)

Published in International SCI Journals (Total=130)

(h-index =18, ORCID ID)

1. Parmar A, Kaur J, Sharma M.D., Goyal N., Extensive study of optical contrast between bulk and nanoscale transition metal dichalcogenide semiconductors, (2021), **Journal of Semiconductors**, 1, 71.
2. VikasKashyap, NeeruChaudhary, NavdeepGoyal, KapilSaxena. The analysis of fabricated silicon nanowires with various techniques: a roadmap to energy saving world, IOP Conference Series: Materials Science and Engineering 1033 (1) (2021) 012047.
3. Ramesh K Sharma, Rajender Singh, Anil Kumar, NavdeepGoyal. A time saving ZnO nanoparticle fabrication approach for bulk photocatalytic applications, Materials Today: Proceedings (2021).
4. VikasKashyap, NeeruChaudhary, NavdeepGoyal, KapilSaxena, Band gap modification for enhancement in optoelectronic properties with silicon nanowire, Materials Today: Proceedings (2021).
5. KC Verma, RK Kotnala, NavdeepGoyal, Multiferroic Systems of BiFeO₃ and BaTiO₃ Nanostructures: New Ideas and Insights from Recent Magnetoelectric Advancements, Nanostructured Multiferroics, (2021)
6. VikasKashyap, NeeruChaudhary, NavdeepGoyal, KapilSaxena, Fabrication and characterization of silicon nanowires with MACE method to influence the optical properties, Materials Today: Proceedings (2021).
7. Bharti, A., Chae, K.H., Goyal, N., Real-time synthesis and detection of plasmonic metal (Au, Ag) nanoparticles under monochromatic X-ray nano-tomography(2020) **Scientific Reports**, 10 (1), art. no. 20877.
8. Thakur, V., Upadhyay, K., Kaur, R., Goyal, N., Gautam, S., Investigating phase transition and morphology of Bi-Te thermoelectric system(2020) **Materials Today Advances**, 8, art. no. 100082.

9. Kumar, A., Singh, V., Sharma, P., Goyal, N., Study of Dielectric properties of Se-Te-Zn Ternary Chalcogenide Glasses(2020) **AIP Conference Proceedings**, 2270, art. no. 30011,
10. Bhardwaj, R., Bharti, A., Singh, J.P., Chae, K.H., Goyal, N., Influence of Cu doping on the local electronic and magnetic properties of ZnO nanostructures(2020) **Nanoscale Advances**, 2 (10), pp. 4450-4463.
11. Bhardwaj, R., Chae, K.H., Goyal, N., Electronic structural study of defect-induced magnetism in Co doped ZnO nanostructure(2020) **Vacuum**, 178, art. no. 109446.
12. Sharma, M.D., Goyal, N., Optical and electrical studies of doped in-se system for phase-change memory applications(2020) **Chalcogenide Letters**, 17 (6), pp. 321-328.
13. Bhardwaj, R., Kumar, M., Chae, K.H., Goyal, N., Defect induced magnetism in Ni doped ZnO nanoparticles(2020) **AIP Conference Proceedings**, 2220, art. no. 110011.
14. Bhardwaj, R., Chae, K.H., Goyal, N., Electronic structural study of defect-induced magnetism in Co doped ZnO nanostructure, (2020) **Vacuum**, 178, art. no. 109446, .
15. Sharma, M.D., Goyal, N., Optical and electrical studies of doped in-se system for phase-change memory applications, (2020) **Chalcogenide Letters**, 17 (6), pp. 321-328.
16. Bhardwaj, R., Kumar, M., Chae, K.H., Goyal, N., Defect induced magnetism in Ni doped ZnO nanoparticles, (2020) **AIP Conference Proceedings**, 2220, art. no. 110011,
17. Kumar, A., Singh, V., Sharma, P., Goyal, N., Optical properties of $(\text{Se}_{80}\text{Te}_{20})_{100-x}\text{Zn}_x$ ($2 \leq x \leq 6$) amorphous thin films, (2020) **Journal of Non-Crystalline Solids**, 531, art. no. 119848, .
18. Kaur, J., Parmar, A., Tripathi, S.K., Goyal, N., Temperature-dependent opto-electronic properties of $\text{Ge}_{2.53}\text{Sb}_{4.89}\text{Te}_{2.50}$ thin films, (2020) **Phase Transitions**, 93 (1), pp. 134-147.
19. Suman, Goyal, N., Prabhakar, N., Kumar, R., Study of structural, optical and electrochemical properties of ZnO nanostructures and ZnO-PANI nanocomposites, (2020) **Materials Research Express**, 7 (2), art. no. 025024.
20. Kashyap, V., Chaudhary, N., Goyal, N., Saxena, K., Cost effective synthesis of semiconductor nanowires, (2019) **AIP Conference Proceedings**, 2162, art. no. 020165.
21. Katoch, A., Goyal, N., Gautam, S., Applications and advances in coordination cages: Metal-Organic Frameworks, (2019) **Vacuum**, 167, pp. 287-300.
22. Ankush, Kaur, J., Goyal, N., Size selection of MoS_2 nanosheets through liquid exfoliation technique(2019) **AIP Conference Proceedings**, 2115, art. no. 030186.
23. Bhardwaj, R., Kaur, B., Singh, J.P., Kumar, M., Lee, H.H., Kumar, P., Meena, R.C., Asokan, K., HwaChae, K., Goyal, N., Gautam, S., Role of low energy transition metal ions in interface formation in ZnO thin films and their effect on magnetic properties for spintronic applications(2019) **Applied Surface Science**, 479, pp. 1021-1028.

24. Verma, K.C., Goyal, N., Singh, M., Singh, M., Kotnala, R.K., Hematite α -Fe₂O₃ induced magnetic and electrical behavior of NiFe₂O₄ and CoFe₂O₄ ferrite nanoparticles(2019) **Results in Physics**, 13, art. no. 102212
25. Upadhyay, K., Goyal, N., Gautam, S., Solvothermal assisted synthesis of CoSb₃ phase evolution: Morphology and electrical study for thermoelectric applications(2019) **Vacuum**, 163, pp. 142-147.
26. Mahajan, P., Sharma, A., Kaur, B., Goyal, N., Gautam, S., Green synthesized (Ocimum sanctum and Allium sativum) Ag-doped cobalt ferrite nanoparticles for antibacterial application(2019) **Vacuum**, 161, pp. 389-397.
27. Kumar, A., Singh, V., Singh, H., Sharma, P., Goyal, N., Electronic transport properties of (Se₈₀Te₂₀)_{100-x}Zn_x ($2 \leq x \leq 6$) chalcogenide alloys(2019) **Physica B: Condensed Matter**, 555, pp. 41-46.
28. Verma, K.C., Goyal, N., Kotnala, R.K., Tuning magnetism in 0.25BaTiO₃-0.75CoFe₂O₄ hetero-nanostructure to control ferroelectric polarization(2019) **Physica B: Condensed Matter**, 554, pp. 9-16.
29. Kumar, A., Sharma, R.K., Goyal, N., Gautam, S., Synthesis, characterization & study of Ni-doped CdS nanoparticle for high voltage application(2019) **Vacuum**, 160, pp. 75-80.
30. Upadhyay, K., Gautam, S., Goyal, N. Phase-evolution in Co-Sb System: CoSb₃ solvothermal synthesis(2019) **Materials Today: Proceedings**, 18, pp. 1358-1363.
31. Verma, K.C., Goyal, N., Kotnala, R.K. Lattice defect-formulated ferromagnetism and UV photo-response in pure and Nd, Sm substituted ZnO thin films(2019) **Physical Chemistry Chemical Physics**, 21 (23), pp. 12540-12554.
32. Kaur, J., Parmar, A., Tripathi, S.K., Goyal, N., Optical Study of Ge₁Sb₂Te₄ and GeSbTe thin films(2019) **Materials Research Express**, 6 (4), art. no. 046417.
33. Verma, K.C., Singh, M., Kotnala, R.K., Goyal, N., Magnetic field control of polarization/capacitance/voltage/resistance through lattice strain in BaTiO₃-CoFe₂O₄ multiferroic nanocomposite(2019) **Journal of Magnetism and Magnetic Materials**, 469, pp. 483-493.
34. Katoch, A., Bhardwaj, R., Goyal, N., Gautam, S. Synthesis, structural and optical study of Ni-doped Metal-organic framework for adsorption based chemical sensor application(2018) **Vacuum**, 158, pp. 249-256.
35. Bhardwaj, R., Singh, J.P., Chae, K.H., Goyal, N., Gautam, S., Electronic and magnetic structure investigation of vanadium doped ZnO nanostructure(2018) **Vacuum**, 158, pp. 257-262.

36. Murti, R., Tripathi, S.K., Goyal, N., Prakash, S. The ac conductivity of binary chalcogenide glasses $\text{Se}_{100-x}\text{X}_x$ ($\text{X} = \text{Ge}, \text{In}, \text{Te}$) (2018) **Journal of Materials Science: Materials in Electronics**, 29 (17), pp. 14865-14873.
37. Singh, H., Bharti, A., Goyal, N., Gill, P.S. Metallic/chalcogen dual phase effects on dielectric relaxations, resonance and spectroscopic impedance in amorphous chalcopyrite $\text{Cu}_x\text{In}_y\text{Ga}_{10}\text{Se}_{70-x}\text{Te}_{20-y}$ thin films (2018) **Journal of Materials Science: Materials in Electronics**, 29 (17), pp. 14406-14415.
38. Murti, R., Tripathi, S.K., Goyal, N., Prakash, S. Meyer–Neldel energy in Se-based binary and ternary chalcogenide glasses (2018) **Pramana - Journal of Physics**, 91 (2), art. no. 25.
39. Bhardwaj, R., Bharti, A., Singh, J.P., Chae, K.H., Goyal, N., Gautam, S. Structural and electronic investigation of ZnO nanostructures synthesized under different environments (2018) **Heliyon**, 4 (4), art. no. e00594.
40. Sharma, M.D., Goyal, N. Applications of advanced electronic materials: Inse system $(\text{In}_{10}\text{Se}_{90})_{100-x}\text{Pb}_x$ with $x = 0, 2, 5, 10$ for PCRAM applications (2018) **Journal of Ovonic Research**, 14 (2), pp. 145-154.
41. Chaudhary, N., Tripathi, S.K., Goyal, N., Deviation in tuning of optical properties of polycrystalline AgSeTe thin films (2018) **Integrated Ferroelectrics**, 186 (1), pp. 84-90.
42. Verma, K.C., Kotnala, R.K., Goyal, N. Multi-functionality of spintronic materials (2018) **Nanoelectronics: Devices, Circuits and Systems**, pp. 153-215.
43. Singh, J.P., Kaur, B., Sharma, A., Kim, S.H., Gautam, S., Srivastava, R.C., Goyal, N., Lim, W.C., Lin, H.-J., Chen, J.M., Asokan, K., Kanjilal, D., Won, S.O., Lee, I.-J., Chae, K.H., Mechanistic insights into the interaction between energetic oxygen ions and nanosized ZnFe_2O_4 : XAS-XMCD investigations (2018) **Physical Chemistry Chemical Physics**, 20 (17), pp. 12084-12096.
44. Bharti, A., Agrawal, A.K., Singh, B., Gautam, S., Goyal, N. Surface plasmon band tailoring of plasmonic nanostructure under the effect of water radiolysis by synchrotron radiation (2017) **Journal of Synchrotron Radiation**, 24 (6), pp. 1209-1217.
45. Chaudhary N., Prasad KNN, Goyal N., Electrical Resistivity change of SeTeAg compositions to thermal and pressure as stress, (2017) *J. Material SciEng*, 6(339), 2169.
46. Kaur, J., Tripathi, S.K., Ankush, Sharma, M.D., Kanika, Goyal, N. Rietveld Refinement Study of GeSb_2Te_4 Bulks Prepared Through Distinct Melting Profiles (2017) **Materials Today: Proceedings**, 4 (9), pp. 9524-9528.
47. Tripathi S.K., Gupta S., Mustafa F.I., Singh K.P., Goyal N., Irradiation Induced Effects on the optical properties of a-GaSe thin films, (2017), *Materials Focus*, 6(5), 590-596

48. Singh H, Bharti A, Kumar A, Goyal N, Gill P.S., Crystal structure characterization and morphology of Tellurium doped multicomponent chalcogenide copper indiumgalliumdiselenide compound, (2017), **Material Focus**, 6(6) 611-617.
49. Kumar A, Sharma R.K., Goyal N., Gautam S.,Effect if Ni doping on structural and optical properties of Ni_xCd_{1-x}S nanoparticles synthesized by chemical precipitation method, (2017), *Int J. AdvSci Manage* 2(11), 22-28
50. Kumar, A., Singh, H., Gill, P.S., Goyal, N.The effect of doped zinc on the structural properties of nano-crystalline (Se_{0.8}Te_{0.2})_{100-x}Zn_x(2016) **AIP Conference Proceedings**, 1728, art. no. 020351.
51. Bharti, A., Bhardwaj, R., Agrawal, A.K., Goyal, N., Gautam, S.Monochromatic X-Ray Induced Novel Synthesis of Plasmonic Nanostructure for Photovoltaic Application(2016) **Scientific Reports**, 6, art. no. 22394.
52. Murti, R., Tripathi, S.K., Goyal, N., Prakash, S.Random free energy barrier hopping model for ac conduction in chalcogenide glasses(2016) **AIP Advances**, 6 (3), art. no. 035010.
53. Chaudhary, N., Tripathi, S.K., Goyal, N.Optical coefficients and PL spectra with variation in Ga-content in GaSeTe thin films: Visible spectrum(2016) **Journal of Nano- and Electronic Physics**, 8 (3), art. no. 03019.
54. Sharma R.K., Kumar A, Gautam S, Goyal N., Symthesis and Characterization of cobalt doped ZnSnanoparticles, (2016), *Integrated Research Advances*, 3(1), 26-29
55. Chaudhary, N., Prasad, K.N.N., Goyal, N.Pressure tolerant nanocrystalline Se_{85-x}Te₁₅Ga_x(x=0, 2, 6, 10, 15) semiconductor(2016) **Materials Today: Proceedings**, 3 (6), pp. 2347-2351.
56. Bharti, A., Singh, S., Meena, V.K., Goyal, N.Structural Characterization of Silver-Hydroxyapatite Nanocomposite: A Bone Repair Biomaterial(2016) **Materials Today: Proceedings**, 3 (6), pp. 2113-2120.
57. Chaudhary N., Prasad KNN, Goyal N., Pressure tolerant nanocrystalline Se_{85-x}Te₁₅Ga_x (x=0,2,6,10,15), (2016), *Materials Today Proceedings*, 3(6)2347-2351.
58. Bharti, A., Singh, S., Singla, M.L., Goyal, N.Chemical phase analysis of seed mediated synthesized anisotropic silver nanoparticles(2015) **AIP Conference Proceedings**, 1675, art. no. 030062.
59. Bharti, A., Singh, S., Meena, V.K., Goyal, N.Synthesis of novel multiple shaped silver nanoparticles incorporated Hydroxyapatite nanocomposite for orthopaedic body implants(2014) **Advanced Science Letters**, 20 (7-9), pp. 1297-1302.
60. Sharma, K., Lal, M., Kumar, A., Goyal, N.Effect of Bi additive on electrical properties of chalcogenide Se₈₀Te₂₀ amorphous thin films(2014) **Journal of Ovonic Research**, 10 (3), pp. 75

61. Sharma, K., Lal, M., Kumar, A., Goyal, N. Photoelectrical properties of semiconducting amorphous Se-Te-Sb thin films (2014) **Journal of Ovonic Research**, 10 (1), pp. 7-13.
62. Kumar, A., Lal, M., Sharma, K., Gill, P.S., Goyal, N. Dielectric properties of $\text{Se}_{85-x}\text{Te}_{15}\text{Ge}_x$ chalcogenide glasses (2014) **Chalcogenide Letters**, 11 (5), pp. 249-256.
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