





PG Department of Physics

**Faculty Achievements
2022-23**

LIST & PROOFS OF PUBLICATIONS (July 2020-Dec 2021)




| Sr. No. | Title | Journal | DOI No. |
|------------------------------|--|---|---|
| Department of Physics | | | |
| Dr. Anita Rani | | | |
| | | |  |
| 1. | Study of effect of hydrostatic pressure on Structural, Electronic and Magnetic properties of In _{0.75} Cr _{0.25} P | AIP conference proceeding (2020) | https://doi.org/10.1063/5.0017342 |
| 2. | LDA+U study of ferromagnetism in Ga _{1-x} Mn _x N | AIP conference proceeding | https://doi.org/10.1063/5.0016726 |
| 3. | Emergence of half-metallic ferromagnetism in Ga _{1-x} Mn _x As (x=0.25, 0.125 and 0.0625)” | AIP conference proceeding | https://doi.org/10.1063/5.0016723 |
| 4. | Emergence of Ferromagnetism in Vanadium doped Aluminium Phosphide: DFT Study | Journal of Materials Today Proceedings | https://doi.org/10.1016/j.matpr.2020.05.260 |
| 5. | Study of effect of Hydrostatic Pressure on structural, electronic and magnetic properties of In _{0.75} Mn _{0.25} P using density functional theory | Journal of Materials Today Proceedings (2020) | https://doi.org/10.1016/j.matpr.2020.04.832 |
| 6. | Structural Stability and Magnetism in Cd _{0.875} Mn _{0.125} Z (Z=S,Se) | Journal of Applied Physics A | https://doi.org/10.1007/s00339-019-3193-5 |

LIST & PROOFS OF PUBLICATIONS (Jan 2022-Mar 2023)



| Sr. No. | Title | Journal/Book | Proof |
|------------------------------|--|---|--|
| Department of Physics | | | |
| | | |  |
| Dr. Anita Rani | | | |
| 1. | Ferromagnetism in V and Cr doped ScN diluted magnetic semiconductor in B3 phase: A DFT study | Journal of Solid-State Communication | https://doi.org/10.1016/j.ssc.2022.114724 |
| 2. | DFT study of ScP and AIP in B1, B2 and B3 phases at ambient pressure | ECS Transaction | ECS Transactions, 107 (1) 12693-12704 (2022) |
| 3. | Effect of strain on the spin-polarization, mechanical and magnetic properties of CoTiGeHeusleralloy: A First Principal Study | Memories – Materials, Devices, Circuits and Systems | https://doi.org/10.1016/j.memori.2023.100046 |
| 4. | Exploring of Cr and V doped CaZ (Z= S, Se) DMS for Spintronic Applications: DFT Study | Journal of Electronic Materials | Communicated |
| 5. | Study of structural stability and ferromagnetic behaviour of CR and V doped CaZ (Z=S, Se) | Journal of Magnetism and Magnetic Materials |  |
| Ms. Rajveer Kaur | | | |
| 6. | Chapter in Book: Nuclear Technology: A boon to society | Issues, Challenges and opportunities in Science and Technology Ed. Dr. Harpreet Kaur. Chandigarh: New Era International Imprint (2022) | ISSN/ISBN No. 9788129002518  |




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List of training courses/workshops attended by the faculty (July 2020-Dec 2021)



| # | Title | Date | Proofs |
|------------------------------|---|---|---|
| Department of Physics | | | |
| Dr.Anita Rani | | | |
| 1 | Faculty development program at Coimbatore Institute of technology, Tamil Naidu. | 06 July -10 th July 2020 |  |
| 2 | Participated in workshop organized by Centre for Curriculum, Research, policy and Educational Development at School of Education at Central University of Punjab, Bathinda under PMMMNMTT (MHRD sponsored) scheme. | 21 st July-31, July, 2020 | |
| Dr.Prabhjeet Kaur | | | |
| 3 | One week Faculty Programme on “ Evolution of Functional Materials and its effective Characterization towards Diverse Engineering Applications” by Department of Science & Humanities (Physics Division), Kumaraguru College of Technology, Coimbatore | 22 nd June-29 th June, 2020 |  |
| Ms. Rajveer Kaur | | | |
| 4. | Faculty Development Program at KS Jain Institute of Engineering and technology Modinagar, Ghaziabad | 15 th July-21 st July, 2020 |  |

List of training courses/workshops attended by the faculty (Jan 2022-Mar 2023)

| Sr. No. | Title | Date | Proof(certificates) |
|------------------------------|---|--|---|
| Department of Physics | | | |
| Dr. Anita Rani | | | |
| 1. | Participated in National Conference on Recent Trends in Physics (NCRTP-2022) at Nooral Islam Centre for Higher Education, Tamil Naidu and presented paper on topic: Study of Structural and Electronic properties of ScN using DFT | 12 th May, 2022 |  |
| 2. | One Week Faculty Development (MSPR-ESD) Program organized by SGTB, University, Gurugram | 28 th June 2022 to 27 th July, 2022. | |
| 3. | Participated in National Conference on Physics and Chemistry of Materials at Govt. Science College, Indore and presented paper on topic: Study of Sc _{0.875} Cr _{0.125} N Dilute Magnetic Semiconductor using Density Functional Theory | 16 th March, 2023 | |
| 4. | Participated in Faculty Development Programme on exploring dynamics of National education Poliy 2020 with reference of NAAC perspectives organised by faculty of commerce, Parul University Gujrat, Research Foundation of India and RFI-CARE | 12 th -18 th May, 2022 | |
| 5. | Participated in one week hands on training workshop on Physics Projects organised by department of Basic Sciences, Guru Nanak College, Sri Muktsar Sahib | 19 th September, 2022 -24 th September, 2022 | |
| 6. | Participated in one-week Training program on C and C++ language organised by department of Basic Sciences, Guru Nanak College, Sri Muktsar Sahib | 10 th March, 2022- 15 th March, 2022 | |
| Dr. Prabhjeet Kaur | | | |
| 7. | Presented Paper in 6th National Conference on current Advances in Physical Sciences at Khalsa College, Sri Amritsar on topic:PostCovid Examination: Offline Vs Online Exam of B.Sc (NM) | 8 th Feb, 2023 |  |
| 8. | Participated in one week hands on training workshop on Physics Projects organised by department of Basic Sciences, Guru Nanak College, Sri Muktsar Sahib | 19 th September, 2022 -24 th September, 2022 | |
| 9. | Participated in one-week Training program on C and C++ language organised by department of Basic Sciences, Guru Nanak College, Sri Muktsar Sahib | 10 th March, 2022- 15 th March, 2022 | |
| Ms. Rajveer Kaur | | | |











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| 10. | One Week Faculty Development (MSPR-ESD) Program organized by SGTB, University, Gurugram | 28 th June 2022 to 27 th July, 2022. |  |
| 11 | Participated in one week hands on training workshop on Physics Projects organised by department of Basic Sciences, Guru Nanak College, Sri Muktsar Sahib | 19 th September, 2022 -24 th September, 2022 | |
| 12. | Participated in one-week Training program on C and C++ language organised by department of Basic Sciences, Guru Nanak College, Sri Muktsar Sahib | 10 th March, 2022- 15 th March, 2022 | |
| Ms. Gaganjot Kaur | | | |
| 13. | Participated in one week hands on training workshop on Physics Projects organised by department of Basic Sciences, Guru Nanak College, Sri Muktsar Sahib | 19 th September, 2022 -24 th September, 2022 |  |
| 14. | Participated in one-week Training program on C and C++ language organised by department of Basic Sciences, Guru Nanak College, Sri Muktsar Sahib | 10 th March, 2022- 15 th March, 2022 | |
| Ms. Sandeep Kaur | | | |
| 15. | Participated in one week hands on training workshop on Physics Projects organised by department of Basic Sciences, Guru Nanak College, Sri Muktsar Sahib | 19 th September, 2022 -24 th September, 2022 |  |
| 16. | Participated in one-week Training program on C and C++ language organised by department of Basic Sciences, Guru Nanak College, Sri Muktsar Sahib | 10 th March, 2022- 15 th March, 2022 | |






Training/Workshops/Seminars organized (July 2020-Dec 2021)



| Sr. No. | Title | Dates | Resource Persons | No. of Beneficiaries | Proofs |
|------------------------------|--|--------------|---|-----------------------------|---|
| Department of Physics | | | | | |
| 1. | Online essay writing competition, online quiz competition, online poster presentation/digital poster presentation and speech competition to celebrate National Chemistry Week 2020 | 24.10.2020 | Ms. Kirandish Kaur Asst. Prof., Guru Nanak College, Sri Muktsar Sahib Ms. Rippandeeep Kaur, Asst. Prof., Guru Nanak College, Sri Muktsar Sahib | 30 |  |
| 2. | National Webinar on Conservation of Plant Biodiversity | 20.05.2021 | Dr. Manish Kapoor, Associate Professor,PUChd | 150 |  |

Training/Workshops/Seminars organized(Jan 2022-Mar 2023)

Department of Physics

| S.No | Name of Activity | Resource Person | No. of beneficiaries | Date | Remarks |
|------|--|---|----------------------|--------------------------|--|
| 1. | National Science Day Celebrations Event (Online) | - | 47 | 15/03/2022 to 17/03/2022 |  |
| 2. | Two Days National Seminar on Recent Advances in Sciences and its Applications(RASA-2022) | Dr. Manish Dev Sharma, Professor in Physics, Panjab University, Chandigarh | 210 | 25/03/2022 |  |
| 3. | NGPE 2022 (Training to appear in competitive exams) | - | 29 | 27/03/2022 |  |
| 4. | Workshop on C and C++ programming/ | Dr. Sunil Kumar, Asst. Prof. Comp. Sci., Dr. RupinderKaur, Asst. Prof. Comp. Sci., Dr.AmanpreetKaur Asst. Prof. Comp. Sci.,and Ms. Monika Juneja,Asst. Prof. Comp. Sci., Guru Nanak College, Sri Muktsar Sahib | 47 | 04/05/2022 to 09/05/2022 |  |
| 5. | Hands on Training Workshop in Physics equipment for School Student | Ms. Rajveer Kaur, Assistant Professor in Physics Ms. Sandeep Kaur, Assistant Professor in Physics | 22 | 10/5/2022 to 14/05/2022 |  |
| 6. | Mentorship Program | Dr.Vimal Mehta, Assistant Prof .in Physics, Guru Teg Bahadur Khalsa College, Sri Anandpur -Sahib | 16 | 20/05/2022 |  |
| 7. | Educational Visit IISER Mohali | - | 41 | 24/05/2022 |  |
| 8. | Project Demonstration Event | Dr. Ritu Pasrija, Assistant Professor Physics, DAV College Abohar (Pb). | 158 | 30/05/2022 |  List of projects demonstrated:  |
| 9. | Hands on Training Workshop for Physics Practicals | Er. Sukhvinder Singh, Coordinator, National Institute of Electronics, Research and Training, Patiala | 151 | 19/09/2022 to 24/09/2022 |  |

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|-----|---|--|-----|--------------------------|---|
| 10. | NGPE 2023 (Training to appear in competitive exams) | - | 40 | 22/01/2023 |  |
| 11. | National Workshop on Material Science and Nuclear Physics | Dr. AtulKhanna, Professor, Department of Physics, Guru Nanak Dev University, Amritsar. | 126 | 25/02/2023 |  |
| 12. | Educational Visit of Central University of Punjab, Bathinda | Dr. Prashant S. Alegaonkar, Associate Professor in Physics, Central University of Punjab, Bathinda Dr. Vinod Kumar, Associate Professor in Chemistry, Central University of Punjab, Bathinda | 105 | 03/03/2023 |  |
| 13. | One day Workshop on CRO and DSO: Working & Applications and Extension Lecture on Particle Physics | Dr. Navneet Kumar Pruthi, Assistant Professor (Physics) D.A.V. College Sector 10, Chandigarh. | 126 | 06/03/2023 |  |
| 14. | Workshop on C and C++ language | 10 March 2023 (Session I and II): Dr. SubhashChander, Assistant Professor in Computer Science, Punjabi University College, Jaito; 11 March 2023 (Session I and II): Dr. Rajiv Kapoor, Assistant Professor in Computer Science, Punjabi University College, Jaito; 13 March 2023 (Session I and II): Dr. Manish Kumar Jindal, Professor in Computer Science and Applications, Panjab University Regional Centre, Sri Muktsar Sahib; 14 March 2023 (Session I and II): Dr. Mohinder Kumar Jindal, Assistant Professor in Computer Science and Applications, Panjab University Regional Centre, Sri Muktsar Sahib. 15 March 2023 (Session I and II): Dr. SubhashChander, Assistant Professor in Computer Science, Punjabi | 52 | 10/03/2023 to 15/03/2023 |  |

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|------------|---|--|--|--------------------------|---|
| | | University College, Jaito | | | |
| 15. | Teaching and Non Teaching staff Computer Workshop | Dr. Subhash Chander, Asst. Prof. Computer Science, Punjabi University College, Jaito | 12 (Teaching staff) 03 (Non-Teaching staff) | 15/03/2023 |  |
| 16. | One-Week Hands-On & Minds-On Physics Workshop | Er. Sukhvinder Singh, Coordinator, National Institute of Electronics, Research and Training, Patiala | 20 | 24/03/2023 to 29/03/2023 |  |

Books purchased and Journals Subscribed (Jan 2022-Mar 2023)

Department of Physics

1. Journal Subscribed:

- Current Science (Forth Nightly)
- IAPT (Indian association of Physics Teachers) (Monthly)



2. List of Books (Total Books= 142)

| <u>S.No</u> | <u>Particulars</u> | <u>Qty</u> |
|-------------|--|------------|
| 1. | Wahab - Solid State Physics | 3 |
| 2. | Subrahmanaya - Waves And Oscillations | 3 |
| 3. | Kaplan - Nuclear Physics | 3 |
| 4. | Scarborough - Numerical Mathematical Analysis | 3 |
| 5. | Rajkumar - Atomic And Molecular Spectra | 3 |
| 6. | Arora - B.Sc. Practical Physics | 4 |
| 7. | Thankappan - Quantum Mechanics | 3 |
| 8. | Gupta - Classical Mechanics Of Particles And Rigid Bodies | 3 |
| 9. | Mahajan - Electricity And Magnetism | 3 |
| 10. | Ghatak - Optics | 3 |
| 11. | Patil - Elements Of Modern Physics | 3 |
| 12. | Laud - Lasers And Non - Linear Optics | 3 |
| 13. | Balagurusamy - Object Oriented Programming With C++ | 3 |
| 14. | Perkins - An Introduction To High Energy Physics | 3 |
| 15. | Xavier - Fortran 77 And Numerical Methods | 4 |
| 16. | Aruldas - Molecular Structure And Spectroscopy | 2 |
| 17. | Chaddha - Quantum Mechanics | 4 |
| 18. | Mahajan - Electricity And Magnetism | 2 |
| 19. | Griffiths - Introduction To Electrodynamics | 2 |
| 20. | Zettili - Quantum Mechanics Concepts And Applications | 2 |
| 21. | Chaddha - Quantum Mechanics For B.Sc. And M.Sc Students Of Physics And Chemistry | 2 |
| 22. | Kittel's Introduction To Solid State Physics | 2 |

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| 23. | Pillai - Solid State Physics | 1 |
| 24. | Boylestad - Electronic Devices And Circuit Theory | 2 |
| 25. | Malvino - Electronic Principles | 2 |
| 26. | Streetman - Solid State Electronic Devices | 2 |
| 27. | Bhargava - Basic Electronics And Linear Circuits | 2 |
| 28. | Young - University Physics | 2 |
| 29. | Arihant Handbook Physics Class Xi And Xii | 2 |
| 30. | Schaum's Quantum's Outlines Quantum Mechanics | 1 |
| 31. | Puri - Solid State Physics And Electronics | 2 |
| 32. | Bhatia - Statistical Physics , Thermodynamics & Kinetic Theory | 1 |
| 33. | Kumar - Atomic And Molecular Spectra : Laser | 3 |
| 34. | Patil - Elements Of Modern Physics | 1 |
| 35. | C.L.Arora - Physics For Degree Students B.Sc First Year | 1 |
| 36. | Arora - Physics For Degree Students B.Sc. Second Year | 2 |
| 37. | Arora - Physics For Degree Students B.Sc. Third Year | 2 |
| 38. | Theraja - Basic Electronics Solid State | 2 |
| 39. | Arora - B.Sc. Practical Physics | 2 |
| 40. | Oxford Dictionary Of Physics S | 2 |
| 41. | Gupta Kumar - Practical Physics | 2 |
| 42. | J.K.Goyal - Viva Voce In Physics | 2 |
| 43. | Gupta Kumar- Elements Of Spectroscopy Atomic Molecular Laser Physics | 2 |
| 44. | Srivastava- Quantum Mechanics | 1 |
| 45. | Gupta Kumar- Classical Mechanics | 2 |
| 46. | Sinha- Physical Sciences Csir-Ugc-Jrf/Net/Set | 2 |
| 47. | Saxena Gupta- Fundamentals Of Solid State Physics | 2 |
| 48. | Problems And Solutions In Optics & Photonics McGraw Hill | 1 |
| 49. | Polymer Science New Age | 1 |


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|-----|--|---|
| 50. | An Introduction To Astrophysics 2nd Edition Phi | 1 |
| 51. | Semiconductor Physics And Devices Wiley | 1 |
| 52. | Essentials Of Biophysics Paragon | 1 |
| 53. | Mathematical Methods ForPhysicists Academic Press | 2 |
| 54. | Atomic And Molecular Physics Narosa Publishing House Pvt Ltd | 1 |
| 55. | Iit Jam Physics Solved Papers 3 Practice Set ArihantPublication(India)Ltd | 2 |
| 56. | Nta/CsirUgc/Net/Set Physical Science ArihantPrakashan,Meerut | 2 |
| 57. | Mathematics For Physics Students Tmh | 1 |
| 58. | Atomic & Molecular Spectra: Laser KedarNath Ram Nath | 2 |
| 59. | Advanced Practical Physics Volume - I PragatiPrakashan Meerut | 1 |
| 60. | Advanced Practical Physics Volume - .2 PragatiPrakashan Meerut | 1 |
| 61. | Mathematical Physics Sultan Chand & Sons | 1 |
| 62. | Quantum Mechanics Schaums Outline SerTmh | 2 |
| 63. | Conceptual Physics 10ed Pearson | 1 |
| 64. | Problems In General Physics Vol-Ii Wiley India | 1 |
| 65. | The Lectures On Physics Vol 1 | 1 |
| 66. | The Lectures On Physics Vol 2 Pearson | 1 |
| 67. | The Lectures On Physics Vol 3 Pearson | 1 |
| 68. | Solid State Physics 3rd Edition Narosa | 2 |
| 69. | Mechanics And Relativity Alpha Books | 1 |
| 70. | Principles Of Physics Wiley | 1 |
| 71. | Statistical Mechanics KedarNath Ram Nath | 1 |
| 72. | Sol. For Selected Exe. & Prob. To Acco. PhysiCbs Publishers & Distributors Pvt. Ltd. | 1 |
| 73. | Handbook Of Electronics Set Of Vol. I And Ii PragatiPrakashan Meerut | 1 |
| 74. | Electro dynamics Pragati Prakashan Meerut | 1 |
| 75. | Thermodynamics , Kinetic Theory , & Statistic Narosa | 1 |

Outreach Activities (July 2020- Dec. 2021)

| S.No. | Name Of Activity | Date | Participants | Proofs |
|------------------------------|---|------------|----------------------------------|---|
| Department of Physics | | | | |
| 1. | Van-Mahotsav (Online Competitions) | 07-07-2021 | Students from different colleges |  |
| 2. | Online Elocution Competition to observe Vigilance Awareness Week 2021 | 30-10-2021 | Students from different colleges |  |




Annexure VIb

Outreach Interdisciplinary Activities (Jan 2022-Mar 2023)


| Sr. No. | Title | Dates | Participants | No. of Beneficiaries | Proofs |
|------------------------------|--|-------------------------------|---|----------------------|---|
| Department of Physics | | | | | |
| 1. | Hands on Training Workshop | 25.03.2023 - 29.03.2023 | Students of Guru Nanak Collegiate Sen. Sec. School, Sri Muktsar Sahib | 22 |  |
| 2. | Stubble Burning Awareness | 02.01.2023 | Students of B.Sc. I,II, III | 48 | |
| 3. | Inter- College Competitions at Sri Guru TegBhadaur Khalsa College, Sri Anadpur Sahib | 01.03.2023 | Students of B.Sc. I, II, III | 20 | |
| 4. | Ms. Rajveer Kaur delivered a lecture on Semiconductor devices and digital circuits | 15.09.2022 | Students of Guru Nanak Collegiate Sen. Sec. School, Sri Muktsar Sahib | 36 | |
| 5. | Dr. Prabhjeet Kaur delivered a lecture on Fundamentals of Magnetism | 15.09.2022 | Students of Guru Nanak Collegiate Sen. Sec. School, Sri Muktsar Sahib | 34 | |
| 6. | Dr. Anita Rani delivered a lecture on Superconductivity | 14.09.2022 | Students of Guru Nanak Collegiate | 40 | |

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| | | | Sen. Sec. School, Sri Muktsar Sahib | |
| 7. | Dr. Anita Rani delivered a lecture on Introduction to semiconductors and PN Junction diodes at PAU Institute, Ludhiana | 26.09.2022 | Students from different colleges | 80 |

Invited Lectures (July 2020-Dec 2021)

| S.No. | Topic | Speaker | Date | No. of Beneficiaries | Proofs |
|------------------------------|--|--|--|----------------------|---|
| Department of Physics | | | | | |
| 1. | One day National Webinar on “Martyrs Day” | Mr. Pritpal Singh Civil Judge, Legal Services Authority, Sri Muktsar Sahib | 23 rd March, 2021 | 150 |  |
| 2. | Conservation of Plant Biodiversity | Dr. Manish Kapoor, Associate Professor, Department of Botany, Punjabi University, Patiala. | 20 th May, 2021 | 125 |  |
| 3. | International Webinar on Reproductive Choice of Women: A Fundamental Right sponsored by NCW, New Delhi | 1. Dr. Renu Mishra, Senior Consultant Obstetrics and Gynecology, Sitaram Bhartia Institute of Science and Research, New Delhi. 2. Advocate Tanu Bedi, Panjab and Haryana Court, Chandigarh 3. Dr. Poonam, Poonam Ayurveda, Sri Muktsar Sahib 4. Dr. Sukhwinder Kaur, School of Legal Studies, Central University of Punjab, Bathinda 5. Dr. Swati Shah, Specialist in reproductive justices in surrogacy, University of Otago, New Zealand. | 11 th December, 20 21 | 250 |  |

Invited Lectures (Jan 2022-Mar 2023)

| Sr. No. | Title | Dates | Resource Persons | No. of Beneficiaries | Proofs |
|------------------------------|---|---------------------------------|---|----------------------|---|
| Department of Physics | | | | | |
| 1. | Material Science and Nuclear Physics | 25 th February, 2023 | Prof. Atul Khanna, Guru Nanak Dev University, Shri Amritsar | 126 |  |
| 2. | Lasers and its Applications | 30 th January, 2023 | Dr. Mamta Rani, Assistant Professor in Physics, D.A.V University, Jalandhar | 126 | |
| 3. | Quantum Mechanics | 30 th January, 2023 | Dr. Rama Gupta, Assistant Professor in Physics, D.A.V University, Jalandhar | 126 | |
| 4. | Fundamentals and Applications of Particle Physics | 7 th March, 2023 | Dr. Navneet Kumar Pruthi, D.A.V College, Chandigarh | 126 | |