



# **PG Department of Physics**




## **Faculty Achievements 2023-24**

## LIST & PROOFS OF PUBLICATIONS (April 2023-Mar 2024)




### A. Paper Publication in Peer Reviewed Journals

Sr. No.	Title	Journal	DOI No.	Proof
<b>Dr. Anita Rani</b>				
1.	Electronic and Magnetic Properties of Cr and V Doped Ca (Z = S, Se)	Crystals	<a href="https://doi.org/10.3390/cryst13071069">https://doi.org/10.3390/cryst13071069</a>	
2.	Effect of strain on the spin-polarization, mechanical and magnetic properties of Co <sub>2</sub> TiGe Heusler alloy: A First Principle Study	Memories-Materials, Devices, Circuits and Systems	<a href="https://doi.org/10.1016/j.memori.2023.100046">https://doi.org/10.1016/j.memori.2023.100046</a>	

### B. Chapter in a Book

S.No.	Title	Publisher	ISBN	Year	Level	Proof
<b>Dr. Anita Rani</b>						
1.	Theoretical Study of AlP using Density Functional Theory	JS University, Manipuri Road, Shikohabad, Firozabad (U.P)	978-93-91535-72-8	2023	International	
2.	Ab-Initio study of ScN using density functional theory	JS University, Manipuri Road, Shikohabad Dist. Firozabad	978-93-91535-72-8	2023	International	
3.	Title: DFT Study of Structural and Electronic Properties of Pure AlAs in Zinc Blende Phase	JS University, Manipuri Road, Shikohabad Dist. Firozabad	978-93-91535-72-8	2023	International	

**Ms.RajveerKaur**

<b>1.</b>	Theoretical Study of AlP using Density Functional Theory	JS University, Manipuri Road, Shikohabad, Firozabad (U.P)	978-93-91535-72-8	2023	International	
<b>2.</b>	Ab-Initio study of ScN using density functional theory	JS University, Manipuri Road, Shikohabad Dist. Firozabad	978-93-91535-72-8	2023	International	
<b>3.</b>	Title: DFT Study of Structural and Electronic Properties of Pure AlAs in Zinc Blende Phase	JS University, Manipuri Road, Shikohabad Dist. Firozabad	978-93-91535-72-8	2023	International	






### C. Research Projects

S.No.	Title	Status	Role	Funding Agency	Duration	Year of completion
<b>Dr. Anita Rani</b>						
1.	Electronic and Magnetic Properties of Cr and V doped CaZ (Z = S, Se)	Research Project Completed	Co-PI	King Abdulaziz University, Saudi Arabia	1 year	2023

### D. Invited Talk


S.No.	Title	Conference	Venue	National/ International	Date	Proof
<b>Dr. Anita Rani</b>						
1.	Structural Stability and Ferromagnetism in Ga <sub>0.875</sub> Cr <sub>0.125</sub> P: DFT Study	2nd International Conference on Recent Trends in Materials Science and Devices 2023	Kabir Institute of Technology & Management Bahadurgarh, Haryana, India	International (Within Country)	31 December, 2023	



### E. Paper presentation

S.No.	Title	Conference	Venue	National/ International	Date	Proof
<b>Dr. Anita Rani</b>						
1.	Title : DFT study of electronic and magnetic properties of $\text{Ca}_{1-x}\text{Cr}_x\text{S}$ and $\text{Ca}_{1-x}\text{Cr}_x\text{Se}$ at $x=0.125$	Chascon-2023	Panjab University, Chandigarh	National	14 October, 2023	
2.	Title: Structural and Magnetic properties of $\text{Ca}_{0.875}\text{Cr}_{0.125}\text{S}$ and $\text{Ca}_{0.875}\text{Cr}_{0.125}\text{Se}$ : DFT Study	4 <sup>th</sup> National Conference in materials and devices	Teerthanker Mahaveer University Moradabad	National	29 December, 2023	
3.	Title: Ab-Initio study of ScN using Density Functional theory	RISEMH-2023	JS University, Shikohabad, Uttar Pradesh	International (Within Country)	16 December, 2023	
<b>Ms. Rajveer Kaur</b>						
4.	Theoretical Study of AIP using Density Functional Theory	RISEMH-2023	JS University, Shikohabad, Uttar Pradesh	International (Within Country)	16 December, 2023	
5.	Advancement in Solar Cell Technology: A review	4 <sup>th</sup> National Conference in materials and devices	Teerthanker Mahaveer University Moradabad	National	29 December, 2023	

**List of training courses/workshops attended by the faculty (April 2023-Mar 2024)**

<b>Sr. No.</b>	<b>Title</b>	<b>Date</b>	<b>Proof(certificates)</b>
<b>Department of Physics</b>			
<b>Dr. Anita Rani</b>			
1.	Attended extension lecture on particle physics delivered by Dr. Navneet Kumar Pruthi, Assistant Professor in Physics, D.A.V college, Chandigarh	09-03-2024	
2.	Attended hands on training workshop for physics practicals conducted by Dr. Sukhvinder Singh, Coordinator, NIERT, Patiala	05-02-2024 to 10-02-2024	
3.	Attended workshop on Arduinio board for physics practicals conducted by Dr. Sukhvinder Singh, Coordinator, NIERT, Patiala	14-03-2024 to 16-03-2024	
4.	Attended extension lecture on X-ray diffraction from basics to applications delivered by Dr. Rajesh Kumar, Department of Physics, Panjab University, Chandigarh	18-03-2024	
5.	Attended extension lecture on emerging trends and future directions thermoelectric materials research delivered by Dr. Ranjan Kumar, Department of Physics, Panjab University, Chandigarh	18-03-2024	
6.	Attended webinar on radiation detection and measurements delivered by Dr. Sarbjit Singh, Ex-scientific officer, BARC	21-03-2024	
7.	Attended mentorship program delivered by Dr. Vimal Mehta, assistant Professor, SGTB, Khalsa college, Sri Anandpur Sahib	23-03-2024	
8.	Attended one day seminar on open source softwares delivered by Dr. Subhash Chander, Associate professor, University College, Jaito	26-03-2024	
9.	Attended one day seminar on Digital Electronics delivered by Dr. Navdeep Goel, professor, Department of Engineering, Punjabi University, Guru Kashi Campus, Talwandi Sabo	26-03-2024	
10	Attended international Webinar on Understanding our Universe with Particle Physics	28-03-2024	
11	Attended workshop on ethical hacking delivered by Mr. Mohit Yadav	27-03-2024 to 29-03-2024	
12	Attended International Webinar on Nanotechnology and Experimental Techniques	30-03-2024	
<b>Dr. Prabhjeet Kaur</b>			
1.	Attended hands on training workshop for physics practicals conducted by Dr. Sukhvinder Singh, Coordinator, NIERT, Patiala	05-02-2024 to 10-02-2024	
<b>Ms. Rajveer Kaur</b>			






1.	Attended extension lecture on particle physics delivered by Dr. Navneet Kumar Pruthi, Assistant Professor in Physics, D.A.V college, Chandigarh	09-03-2024	
2.	Attended hands on training workshop for physics practicals conducted by Dr. Sukhvinder Singh, Coordinator, NIERT, Patiala	05-02-2024 to 10-02-2024	
3.	Attended workshop on Arduni board for physics practicals conducted by Dr. Sukhvinder Singh, Coordinator, NIERT, Patiala	14-03-2024 to 16-03-2024	
4.	Attended extension lecture on X-ray diffraction from basics to applications delivered by Dr. Rajesh Kumar, Department of Physics, Panjab University, Chandigarh	18-03-2024	
5.	Attended extension lecture on emerging trends and future directions thermoelectric materials research delivered by Dr. Ranjan Kumar, Department of Physics, Panjab University, Chandigarh	18-03-2024	
6.	Attended webinar on radiation detection and measurements delivered by Dr. Sarbjit Singh, Ex-scientific officer, BARC	21-03-2024	
7.	Attended mentorship program delivered by Dr. Vimal Mehta, assistant Professor, SGTB, Khalsa college, Sri Anandpur Sahib	23-03-2024	
8.	Attended one day seminar on open source softwares delivered by Dr. Subhash Chander, Associate professor, University College, Jaito	26-03-2024	
9.	Attended one day seminar on Digital Electronics delivered by Dr. Navdeep Goel, professor, Department of Engineering, Punjabi University, Guru Kashi Campus, Talwandi Sabo	26-03-2024	
10.	Attended international Webinar on Understanding our Universe with Particle Physics	28-03-2024	
11.	Attended workshop on ethical hacking delivered by Mr. Mohit Yadav	27-03-2024 to 29-03-2024	
12.	Attended International Webinar on Nanotechnology and Experimental Techniques	30-03-2024	
<b>Ms. Gaganjot Kaur</b>			
1.	Attended extension lecture on particle physics delivered by Dr. Navneet Kumar Pruthi, Assistant Professor in Physics, D.A.V college, Chandigarh	09-03-2024	
2.	Attended hands on training workshop for physics practicals conducted by Dr. Sukhvinder Singh, Coordinator, NIERT, Patiala	05-02-2024 to 10-02-2024	
3.	Attended workshop on Arduni board for physics practicals conducted by Dr. Sukhvinder Singh, Coordinator, NIERT, Patiala	14-03-2024 to 16-03-2024	
4.	Attended extension lecture on X-ray diffraction from basics to applications delivered by Dr. Rajesh Kumar,	18-03-2024	
	Department of Physics, Panjab University, Chandigarh		

5.	Attended extension lecture on emerging trends and future directions thermoelectric materials research delivered by Dr. Ranjan Kumar, Department of Physics, Panjab University, Chandigarh	18-03-2024	
6.	Attended webinar on radiation detection and measurements delivered by Dr. Sarbjit Singh, Ex-scientific officer, BARC	21-03-2024	
7.	Attended mentorship programme delivered by Dr. Vimal Mehta, assistant Professor, SGTB, Khalsa college, Sri Anandpur Sahib	23-03-2024	
8.	Attended one day seminar on open source softwares delivered by Dr. Subhash Chander, Associate professor, University College, Jaito	26-03-2024	
9.	Attended one day seminar on Digital Electronics delivered by Dr. Navdeep Goel, professor, Department of Engineering, Punjabi University, Guru Kashi Campus, Talwandi Sabo	26-03-2024	
10	Attended workshop on ethical hacking delivered by Mr. Mohit Yadav	27-03-2024 To 2024	
<b>Ms. Sandeep Kaur</b>			
1.	Attended extension lecture on particle physics delivered by Dr. Navneet Kumar Pruthi, Assistant Professor in Physics, D.A.V college, Chandigarh	09-03-2024	
2.	Attended hands on training workshop for physics practicals conducted by Dr. Sukhvinder Singh, Coordinator, NIERT, Patiala	05-02-2024 to 10-02-2024	
3.	Attended workshop on Arduni board for physics practicals conducted by Dr. Sukhvinder Singh, Coordinator, NIERT, Patiala	14-03-2024 to 16-03-2024	
4.	Attended extension lecture on X-ray diffraction from basics to applications delivered by Dr. Rajesh Kumar, Department of Physics, Panjab University, Chandigarh	18-03-2024	
5.	Attended extension lecture on emerging trends and future directions thermoelectric materials research delivered by Dr. Ranjan Kumar, Department of Physics, Panjab University, Chandigarh	18-03-2024	
6.	Attended webinar on radiation detection and measurements delivered by Dr. Sarbjit Singh, Ex-scientific officer, BARC	21-03-2024	
7.	Attended mentorship programme delivered by Dr. Vimal Mehta, assistant Professor, SGTB, Khalsa college, Sri Anandpur Sahib	23-03-2024	
8.	Attended one day seminar on open source softwares delivered by Dr. Subhash Chander, Associate professor, University College, Jaito	26-03-2024	
9.	Attended one day seminar on Digital Electronics delivered by Dr. Navdeep Goel, professor,	26-03-2024	



	Department of Engineering, Punjabi University, Guru Kashi Campus, Talwandi Sabo		
<b>10</b>	Attended workshop on ethical hacking delivered by Mr. Mohit Yadav	27-03-2024 to 29-03-2024	

**Training/Workshops/Seminars organized (April2023-Mar2024)**

<b>S.No</b>	<b>Name of Activity</b>	<b>Resource Person</b>	<b>No.of beneficiaries</b>	<b>Date</b>	<b>Proof</b>
<b>Department of Physics</b>					
<b>1.</b>	Bridge Course	Dr. Anita Rani Ms. Kirandish Kaur Dr. Harpreet Kaur Dr. Sukhvinder Kaur Dr. Mandeep Kaur Dr. Prabhjeet Kaur Ms. Rajveer Kaur	50	01-06-2024 to 05-06-2024	
<b>1.</b>	Handson Training workshop for Physics Practicals (for students, non-teaching and faculty members)	Er. Sukwinder Singh, Coordinator, NIERT Patiala	105	5-02-2024 to 10-02-2024	
<b>2.</b>	Workshop on Arduino Board ((for students, non-teaching and faculty members)	Er. Sukhwinder Singh, Coordinator, NIERT Patiala	105	14-03-2024 to 16-03-2024	
<b>3.</b>	National Science Day (Project/ Model Demonstration, Powerpoint presentation, poster presentation, leaf-art, rangoli making and quiz Competition)	Judges: Dr. Manish Kumar, Assistant Professor in botany, Dev Samaj College for Women, Ferozpur Dr. Bhawandeep Kaur Uppal, Assistant professor, University College, Jaito	150	18-03-2024	
<b>4.</b>	Workshop on Ethical Hacking	Mr. Mohit Yadav, Founder, Director at CRAW Security	105	27-03-2024 To 29-03-2024	

### Books purchased (April2023-Mar2024)

#### Department of Physics









1. Journal Subscribed: Nil


2. List of Books(TotalBooks:81)

S.No.	BookName	Author	QTY.
1.	Mechanics	Soni	1
2.	WavesAndOscillations	Subrahmany	2
3.	IntroductiontoElectrodynamics	Griffiths	2
4.	ThermalPhysics	Garg	2
5.	Optics	Ghatak	3
6.	PhysicsforDegreeStudents	AroraCL	3
7.	LaserFundamentals,2ndEdition(South Asian Edition)	Silfvast	3
8.	Lasers&Non-LinearOptics	Laud	3
9.	ATextbookofOptics	Subrahmanyam	3
10.	Conceptsof Physics	Beiser	3
11.	Principlesof Physics	Halliday	3
12.	PhysicsforDegreeStudents	Arora	3
13.	IntroductiontoSolidStatePhysics	Kittel	3
14.	ElementsofModernPhysics	Patil	3
15.	SolidState Physics	Pillai	2
16.	PhysicsforDegreeStudents	AroraCL	3
17.	ElementarySolidStatePhysics	Omar	3
18.	Electronicdevices&circuit theory	Boylestad	2
19.	ElectronicPrinciples	Malvino	3
20.	SolidStateElectronicDevices	Streetman B.G.	3
21.	BasicElectronicsandLinearCircuits	BHARGAVA	2

22.	Electronics	Chattopadhyay	2
23.	Fundamentals of Nuclear Physics	Varma	2
24.	Mathematical methods for Physicists	Arfken	3
25.	Basic Electronics	Anand	2
26.	Nuclear Physics	Roy	2
27.	The Special Theory of Relativity	Morris	2
28.	Mathematical Physics	Balakrishnan V	1
29.	Introductory Nuclear Physics	Krane	2
30.	Fundamentals of Physics (2016)	Giambattista A	2
31.	Undergraduate Physics	French	1
32.	Introduction to atomic spectra	White A	1
33.	Atomic & Nuclear Physics	Subrahmanyam	1
34.	Statistical Mechanics	Pathria	2
35.	Nuclear Physics	Patel	1
36.	Introduction to High Energy Physics (2000)	Perkins	1
37.	Introduction to Quantum mechanics	Griffiths D.	1

**Outreach Interdisciplinary Activities(April2023-Mar2024)**

S.No.	Name Of Activity	Date	Participant s	Proofs
<b>Department of Physics</b>				
1.	Educational Visitto MRSPTU, Bathinda	12-03-2024	73	
2.	Workshop on hands on training workshop for school students	20-03-2024	50 (Guru Nanak Collegiate Sen. Sec. School, Sarvhitkari Sen. Sec. School, Sri Muktsar Sahib)	
3.	Ms. Rajveer Kaur delivered special talk on fundamentals of electronics at Govt. Sen. Secondary school at Gulabewala, Sri Muktsar Sahib	04-12-2023	25	
4.	Dr. Anita Ranid delivered special talk on crystal lattice at Guru Nanak Sen. Sec. School, Sri Muktsar Sahib	01-02-2024	50	
5.	Ms. Rajveer Kaur delivered special talk on semiconductors and its applications at Guru Nanak Sen. Sec. School, Sri Muktsar Sahib	01-02-2024	50	
6.	Blood checkup camp	19-03-2024	40	
7.	Poster presentation by students of B.Sc. Non Medical at DAV College Bathinda	01-02-2024	04	
8.	Participation of students in different competitions of world Science Day held at Baba Farid College, Deon, Bathinda	28-02-2024	06	

9	Educational visit of Students of different schools of the area in science laboratories of the college	20-10-2023	35	
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### Invited Lectures (April2023-Mar2024)

S.No.	Topic	Speaker	Date	No. of Beneficiaries	Proofs
<b>Department of Physics</b>					
1.	ParticlePhysics	Dr. Navneet Kumar Pruthi, Assistant Professor,DAVCollege, Chandigarh	09-03-2024	105	
2.	X-ray diffractionfrom basics to applications	Dr. Rajesh Kumar, DepartmentofPhysics, Panjab University, Chandigarh	18-03-2024	105	
3.	Emergingtrends and future directions thermoelectric materials research	Prof. Ranjan Kumar, DepartmentofPhysics, Panjab University, Chandigarh	18-03-2024	105	
4.	Radiation detectionand Measurement (online mode)	Dr.SarbjitSingh,Ex-Scientific Officer, BARC	21-03-2024	105	
5.	Mentorship Programme (onlinemode)	Dr. Vimal Mehta, Assistant professor SGTB,KhalsaCollege, SriAnandpurSahib	23-03-2024	14	
6.	OpenSource Softwares	Dr.Subhash Chander, Associate Professor, UniversityCollegeJaito	26-03-2024	105	
7.	Digital Electronics	Dr. Navdeep Goel, Professor, Department ofEngineering,Punjabi University, Guru Kashi Campus,Talwandi Sabo	26-03-2024	105	
8.	Understanding our universe with Particle Physics(online mode)	Dr. Shivali Malhotra, Post-doctorateresearch associate Texas A & M university, Qatar	28-03-2024	105	
9.	Nanotechnology andexperimental techniques (online mode)	Deep Shikha, Assistant ProfessorSGTB,Khalsa College, Sri Anandpur Sahib	30-03-2024	105	

