

DEPARTMENT OF BASIC SCIENCES

FACULTY ACHIEVEMENTS

Research Publications

1. Dr. Anita Rani

1. **Rani A** , Kumar R., “Adsorption of H-atoms inside C_{20} ” Proceedings of 54th Solid State *DAE Symposium Baroda* (Gujrat), 2009
2. **Rani A.**, Kumar R., “Stability of nitrogen substituted C_{20} fullerene: DFT calculations” proceedings of Chandigarh Science Congress, 2010.
3. **Rani A** ,Kumar R., “Structural and Electronic Properties of Si_nC_{20-n} ” in the proceedings of *American Institute of Physics* (ISSN 1551-7616) 2011.
4. Kumar R., **Rani A.**, “Structural and Electronic Properties of $H_n@C_{20}$ ” *Physica B* **406** (2011) 1173.Q
5. **Rani A**, Kumar R “Structural and electronic properties of N doped C_{20} ” in proceedings of *National Conference on Nano-materials (3-4, December 2012)* Tamil Naidu.
6. **Rani A**, Kumar R., “Ab Initio Study Of Nitrogen-Multi substituted Neutral and Positively Charged C_{20} Fullerene (C-411)” in the Proceedings of international journal AIP (*American Institute of Physics*), (ISSN-1551-7616) 2013
7. **Rani A**, Kumar R., “Stability and electronic properties of $Cd_{0.75}Mn_{0.25}S$ and $Cd_{0.75}Mn_{0.25}Se$ ” in B3 phase in journal of *Appl.Phys. A* (**2015**)
8. **Rani A**, Kumar R., “DFT Study of Diluted Magnetic Semiconductor $Cd_{1-x}Cr_xS$ at $x=3.125\%$ ” in *Journal of Materials today* (2015).
9. **Rani A**, Kumar R., “Study of GaAs and GaP Semiconductor” Proceedings of international journal AIP (*American Institute of Physics*), (ISSN 1551-7616) (2015).
10. **Rani A**, Kumar R. “ $Cd_{0.9375}Mn_{0.0625}S$ Diluted Magnetic Semiconductor: A DFT Study” Proceedings of international journal AIP (*American Institute of Physics*), (ISSN 1551-7616)(2015)
11. Kaur K., **Rani A**, Kumar R., “Thermoelectric properties of Al doped Mg_2Si is Published in Proceedings of international journal AIP (*American Institute of Physics*), (ISSN 1551-7616) (2015)
12. **Rani A**, Kumar R., “Effect of Hydrostatic Pressure on the Structural and Electronic Properties of $Cd_{0.75}Cr_{0.25}S$ ” Proceedings of international journal AIP (*American Institute of Physics*), (ISSN 1551-7616) (2015).

13. Dhiman S., **Rani A**, Kumar R., “DFT Study of Al doped armchair single valued carbon nanotube Proceedings of international journal AIP (*American Institute of Physics*), (ISSN 1551-7616) (2015).
14. **Rani A.**, Kumar R., Emergence of half-metallic ferromagnetism in $Ga_{1-x}Cr_xAs$, *Appl.Phys. A* (ISSN 0947-8396) (2016) 10.1007/s00339-016-0270-x.
15. **Rani A.**, Kumar R., Study of half-metallic ferromagnetism and elastic properties of $Cd_{1-x}Cr_xZ$ ($Z=S, Se$) *Applied Physics A* (Dec. 2016)
16. Rani A., Kumar R., DFT Study of Diluted Magnetic Semiconductor $Cd_{1-x}Cr_xS$ at $x=3.125\%$, in proceedings of American Institute of Physics (Dec. 2016).
17. **Rani A.**, Kumar R., LDA + U Study of Induced Half Metallicity in Cr-Doped GaN *Journal of Superconductivity and Novel Magnetism* (Dec. 2016)
18. **Rani A.**, Kumar R., DFT Study of Hydrostatic Pressure Effect on $Cd_{1-x}Z_xX$ ($Z = Cr, Mn; X = S, Se$) *DMSs Journal of Superconductivity and Novel Magnetism* (Feb. 2017).
19. Hydrostatic Pressure Effect on $Ga_{0.75}Cr_{0.25}As$ DMS: DFT Study in *Journal of Superconductivity and Novel Magnetism* (Apr 2017)
20. Kaur K., **Rani A**, DFT Study of Structural, Electronic, Magnetic and Elastic Properties of GaP and $Ga_{0.75}X_{0.25}P$ ($X=Cr, Mn, Fe$), published in journal of *Applied Physics A* (2017).
21. Ab-Initio study of structural and Electronic Properties of GaP and $Ga_{0.875}Fe_{0.125}P$ using first principal calculations, published in *International journal of Advance Research in Science and Engineering*, Vol 06, issue 10 on October 2017.
22. **Rani A.**, Kumar R “Ab-Initio study of Hydrostatic Pressure effect on the Structural Electronic and Magnetic Properties of $Ga_{0.75}Cr_{0.25}N$ and $Ga_{0.75}Mn_{0.25}N$, published in journal of *Material Research Express* (Feb. 2018).
23. **Rani A.**, Kumar R , Structural stability and magnetism in $Cd_{0.875}Mn_{0.125}Z$ ($Z = S, Se$) *Applied Physics A* (2019)
24. Rani A., Pruthi N.K., Hydrostatic Pressure study of Structural, Electronic and Magnetic Properties of $Ga_{0.75}Mn_{0.25}As$, published in proceedings of American Institute of Physics (July 2019).
25. Pruthi N.K., Rani A., Ab-Initio study of II-VI Diluted Magnetic Semiconductor $Cd_{0.9375}Mn_{0.0625}Se$ published in proceedings of American Institute of Physics (July 2019).

26. Pruthi N.K., Rani A., LDA+U study of ferromagnetism in $\text{Ga}_{1-x}\text{Mn}_x\text{N}$ accepted for publication in proceedings of American Institute of Physics (Dec 2019).
27. K. Kaur, Rani A. Study of effect of hydrostatic pressure on Structural, Electronic and Magnetic properties of $\text{In}_{0.75}\text{Cr}_{0.25}\text{P}$ accepted for publication in proceedings of American Institute of Physics (Dec 2019).
28. Rani A., Pruthi N.K., Emergence of half-metallic ferromagnetism in $\text{Ga}_{1-x}\text{Mn}_x\text{As}$ ($x=0.25, 0.125$ and 0.0625) accepted for publication in proceedings of American Institute of Physics (Dec 2019).
29. S. Kaur, **K. Kaur**, S. Sharma, A. Rani, “Emergence of Ferromagnetism in Vanadium doped Aluminium Phosphide: DFT Study” Communicated to in Journal of Material Today: Proceeding 2020.
30. Structural, Electronic and Magnetic Properties of $\text{In}_{0.75}\text{Mn}_{0.25}\text{P}$ using Density Functional Theory” accepted to publish in Journal of Material Today: Proceeding 2020.

2. Ms. Kirandish Kaur

1. S. Singhal, **K. Kaur**, J. Sheenu, B. Santosh “Structural and Magnetic Properties of $\text{BaCo}_x\text{Fe}_{12-x}\text{O}_{19}$ ($x=0.2, 0.4, 0.6$ & 1.0) Nanoferrites Synthesized Via Sol-Gel Method” published in World Journal of Condensed Matter Physics, 2011 (1) 101.
2. B. Santosh, **K. Kaur**, S. Singhal, Paper entitled “Structural, Magnetic, Electrical and Optical Properties of $\text{Co}_{0.6}\text{Zn}_{0.4}\text{Fe}_2\text{O}_4$ prepared via Sol-Gel Auto combustion Route” published in AIP conference Proceedings 1393 (1) (2011) 297.
3. **K. Kaur**, Rani A. “DFT Study of Structural, Electronic, Magnetic and Elastic Properties of GaP and $\text{Ga}_{0.75}\text{X}_{0.25}\text{P}$ ($\text{X}=\text{Cr}, \text{Mn}, \text{Fe}$)” published in Applied Physics A: Materials Science and Processing 123 (2017) 791.
4. **K. Kaur**, Rani A. “Ab-Initio study of structural and Electronic Properties of GaP and $\text{Ga}_{0.875}\text{Fe}_{0.125}\text{P}$ using first principal calculations” published in International Journal of Advance Research in Science and Engineering 2017 (6) 1736.
5. **K. Kaur**, S. Sharma, A. Rani “Study of Effect of Hydrostatic Pressure on Structural, Electronic and Magnetic Properties of $\text{In}_{0.75}\text{Cr}_{0.25}\text{P}$ in AIP” accepted to publish in conference proceeding 2020.

6. **K. Kaur**, S. Sharma, A. Rani “Emergence of half-metallic ferromagnetism in $Ga_{1-x}Mn_xAs$ ($x=0.25, 0.125$ and 0.0625)” accepted to publish in AIP conference proceeding 2020.
7. **K. Kaur**, S. Sharma, A. Rani, S. Kaur “Study of Effect of Hydrostatic Pressure on Structural, Electronic and Magnetic Properties of $In_{0.75}Mn_{0.25}P$ using Density Functional Theory” accepted to publish in Journal of Material Today:Proceeding 2020.
8. S. Kaur, **K. Kaur**, S. Sharma, A. Rani, “Emergence of Ferromagnetism in Vanadium doped Aluminium Phosphide: DFT Study” Communicated to in Journal of Material Today:Proceeding 2020.

3. **Dr. Harpreet Kaur**

1. Kaur, H., Gupta, A., Kumari, S. and Gupta, R.C. 2010. Meiotic Studies in *Poa annua* L. from different altitudinal ranges of North India. *Cytologia* 75(3): 313-318.
2. Kaur, H., Gupta, R.C. and Kumari, S. 2010. Effect of cytomixis on male meiosis in different populations of *Polypogon fugax* Nees ex Steud. from district Kangra (Himachal Pradesh). *Bionature*. 30(2): 83-88.
3. Kaur, H., Kumari, S. and Gupta, R.C. 2011. New chromosome numbers reported in grasses from Himachal Pradesh (India). *Chromosome Botany*. 6: 13-16.
4. Kaur, H., Mubarik, N., Kumari, S. and Gupta, R.C. 2011. In ‘IOPB Chromosome Number Reports’. *Taxon*. 60(4): 1221.
5. Kaur, H., Gupta, R.C. and Kumari, S. 2011. In ‘IOPB Chromosome Number Reports’. *Taxon*. 60(6): 1789.
6. Kaur, H., Singh, H., Mubarik, N., Kumari, S., Gupta, R.C. and Saggoo, M.I.S. 2011. Cytomorphological studies in some species of *Setaria* L. from different phytogeographical parts of India. *Cytologia*. 76(3): 1-10.
7. Kaur, H., Kumari, S. and Gupta, R.C. 2013. Cytomorphological studies in some members of tribe Paniceae (Poaceae) from district Kangra of Himachal Pradesh (Western Himalayas). *Cytology and Genetics*. 47(2): 93-106.
8. Kaur, H., Kumari, S. and Gupta, R.C. 2014. In ‘IOPB Chromosome Number Reports’. *Taxon*. 63(6): 2.

9. Kaur, H., Mubarik, N., Kumari, S. and Gupta, R.C. 2014. Appraisal of Chromosome Numbers and Basic Chromosome Numbers prevalent in the Monocotyledonous genera from Western Himalayas (India). *Acta Biologica cracoviensia series Botanica*. 56/1:1-11.
10. Kaur, H., Mubarik, N., Kumari, S. and Gupta, R.C. 2014. Meiotic studies in some species of *Pennisetum* L. Rich (Poaceae) from Western Himalayas. *Cytologia*. 79: 1-13.
11. Kaur, H., Kumari, S. and Gupta, R.C. 2017. Addition to the cytology of Monocots from district Kangra (H.P.) of Western Himalayas, India. *International Journal of Advance Research in Science and Engineering*. 6(03): 332-345.
12. Mubarik, N., Kaur, H., Kumari, S. and Gupta, R.C. 2017. In 'IOPB Chromosome Number Reports'. *Taxon*. 66(5): 1250.
13. Kaur, H. 2017. Study of cytomorphological variations in genus *Poa* L. from district Kangra (Himachal Pradesh). *International Journal of Advance Research in Science and Engineering*. 6(10): 1741-1749.
14. Kaur, H. 2018. Cytological Studies on some members of *Commelinaceae* Mirb. from Kangra Valley (Himachal Pradesh) with a short summary of karyological data on the analyzed genera. *Acta Biologica cracoviensia series Botanica*. 60(1): 95-103.

4. Ms. Sharnjeet Kaur

1. K. Kaur, S. Sharma, A. Rani, S. Kaur "Study of Effect of Hydrostatic Pressure on Structural, Electronic and Magnetic Properties of $\text{In}_{0.75}\text{Mn}_{0.25}\text{P}$ using Density Functional Theory" accepted to publish in *Journal of Material Today:Proceeding 2020*.
2. S. Kaur, K. Kaur, S. Sharma, A. Rani, "Emergence of Ferromagnetism in Vanadium doped Aluminium Phosphide: DFT Study" Communicated to in *Journal of Material Today:Proceeding 2020*

5. Dr. Sukhvinder Kaur

1. Paper entitled 'A comparative study of the drinking water quality of Tubewell and Tap water of Dehradun City' Jr. *Ecophysiol. Occup. Health*1 (2001) 195-201 (R.K. Pande and Sukhvinder Kaur).

2. Paper entitled 'Studies on Hematological Parameters of Rat under the stress of exhaust Pipe Emission from Scooter'. *Jr. Nat Con.*14 (1) (2002) 141-145 (R.K. Pande and Sukhvinder Kaur).
3. Paper entitled 'Stomatal responses of Lemon to exhaust emission from vehicles using different types of fuels'. *Jr. Pollution Research*23 (3) (2004) 451-454 (Sukhvinder Kaur)
4. Paper entitled 'Studies on Haematological and Histopathological parameters of male rat under the impact of Exhaust pipe emission from two-stroke engine vehicles'. *Jr. Pollution Research* 24 (4) (2005) 891-897 (R.K. Pande and Sukhvinder Kaur).
5. Paper entitled 'Studies on Haematological parameters of female rat under the stress of Exhaust pipe emission from petrol and diesel vehicle in summer season'. *Jr. Pollution Research* 25 (1) 63-66 (2006) (Sukhvinder Kaur and R.K. Pande).
6. Paper entitled 'Studies on Impact of Exhaust Pipe Emission from Petrol and Diesel Vehicle on Haematological Parameters of Male Rat in Summers'. *J. Ecophysiol. Occup. Hlth.* 6 149-152 (2006) (Sukhvinder Kaur and R.K. Pande).
7. Paper entitled 'Studies on impact of exhaust pipe emission from diesel vehicle on haematological parameters of female rat during winter season'. *J.Punj. Acad. of Sci.* 13-14(1&2) 83-86 (2016) (Sukhvinder kaur).
8. Paper entitled 'Studies on stomatal responses of Jamun (*Syzygium cuminii*) to exhaust pipe emissions from vehicles using different types of fuels. *Eco, Env. & Cons.*2017(1)207-210., (Sukhvinder kaur).
9. Paper Entitled "Renewable Energy Technologies – Present and Future Prospects in Indian Economy". *AGU International Journal Of Research in Social Sciences & Humanities.*2017 (5) (Sukhvinder Kaur).
10. Paper Entitled "Effects of automobile exhaust pollution (from 2- stroke and 4-stroke Engine vehicles) on the haematological parameters of female rat during winter season." *Eco.Env.&Cons.*24(2):2018,pp.(196-200).
11. Paper Entitled " Studies on changes in chlorophyll content of Jamun in response to exhaust Pipe Emissions from Petrol and diesel Using vehicles" *Procc.Zool.Soc.India.*18(1): 53-56 (2019) Membership

6. Dr. Prabhjeet Kaur

1. Si nanoripples: A growth dynamical study, Prabhjeet Kaur Dhillon, Subhendu Sarkar, Alexis Franquet, Alain Moussa, Wilfried Vandervorst, Applied Surface Science, Pages 9579-9583, Volume 258, Issue 24, (2012)
2. Non-monotonic roughening at early stages of isotropic Si etching, Prabhjeet Kaur Dhillon and Subhendu Sarkar, Applied Surface Science, Pages 569-574, Volume 284, (2013)
3. Topographical length scales of hierarchical superhydrophobic surfaces, Prabhjeet Kaur Dhillon, P.S. Brown, J.P.S. Badyal and Subhendu Sarkar, Applied Surface Science, Pages 1068-1074, Volume 317, (2014)
4. Erosion dynamics of faceted pyramidal surfaces, Prabhjeet Kaur Dhillon and Subhendu Sarkar, Current Applied Physics, Pages 956-62, Volume 16, (2016)
5. Understanding Clipping Circuits Finely, Prabhjeet Kaur Dhillon, Physics Education, Pages 1-3, Volume 35, Issue 1, (2019)

6. Dr. Gurjot Singh

1. Trace elemental profile of School Chalk from a few Companies in Punjab areas by WDXRF Technique, H.S.Kainth, R. Singh, Gurjot Singh, A. Upmanyu, D. Mehta, J.S. Shahi, D. Joseph. International Journal of Modern Sciences and Engineering Technology (IJMSET), 3 (2016) 6.
2. Rayleigh scattering of ^{66}Dy -K X-rays in elements with $22 \leq Z \leq 90$. Gurjot Singh, A. Upmanyu, P. Singh, H. S. Kainth, J. S. Shahi, R. Singh and S. Kumar, Radiation Physics and Chemistry 141 (2017) 257.
3. Cross section measurements of radiative KL_{2,3} RRS in ^{24}Cr and L_{3M_{4,5}} RRS in ^{59}Pr for Mn K α _{1,2} X-rays. V. Sharma, A. Upmanyu, R. Singh, Gurjot Singh, H. Sharma, S. Kumar and D. Mehta, Radiation Physics and Chemistry 135(2017) 55.
4. Measurement of large angle Rayleigh scattering cross sections for 39.5, 40.1 and 45.4 keV photons in elements with $26 \leq Z \leq 83$, A. Upmanyu, Gurjot Singh, H. Duggal, H.S. Kainth, A. Bhalla and S. Kumar, Applied Radiation and Isotopes 128 (2017) 125.

5. Measurements of elastic scattering cross sections for 25.2, 28.5, 37.4, 36.8, and 42.2 keV X-ray photons in elements with $22 \leq Z \leq 83$, A. Upmanyu, Gurjot Singh H. S. Kainth, D. Mehta, J. S. Shahi, S. Kumar, X-Ray Spectrometry 47(6) (2018) 459-474.
6. Fabrication of Thin Targets of ^{160}Gd by Thermal Evaporation Technique, Kavita, S.R. Abhilash, D. Kabiraj, K.S. Golda, S. Chopra, S. Ojha, G.R. Umamathy, D. Mehta, Gurjot Singh, S. Kumar, R. Kumar and H. Singh, Vacuum 145 (2017) 11
7. Alignment of L3 subshell vacancy states created without Coster–Kronig decay through the selective photoionization in ^{82}Pb , ^{90}Th and ^{92}U and effect of external magnetic field, G. Singh, Gurjot Singh, A. Upmanyu, H. S. Kainth, S. Kumar and D. Mehta, Eur. Phys. J. D 71 (2017) 248.
8. Chemical shift in $L\alpha$, $L\beta_1$, $L\beta_{3,4}$, $L\beta_{2,15}$, $L\gamma_1$ and $L\gamma_{2,3}$ emission lines of ^{47}Ag , ^{48}Cd and ^{50}Sn compounds, H. S. Kainth, R. Singh, Gurjot Singh, D. Mehta., Nuclear Inst, and Methods in Physics Research B 414 (2018) 84.
9. Contribution of flyash from coal-fired thermal power plants to uranium contamination of ground water, G Singh, G Singh, N Rani, A Bhalla, A Upmanyu, S Kumar, D Mehta, Journal of Radioanalytical and Nuclear Chemistry 318 (2) (2018), 857
10. Evaluation of positional accuracy of the Varian's Exact-arm and R-arm support EPID using IMRT graticule phantom. R. Singh, H. S. Kainth, Sachin, Gurjot Singh, D. Mehta, J. S. Shahi, B. Singh and T. Verma, accepted in Journal of Cancer Research and Therapeutics 15 (2019) 204.
11. Fabrication of isotopic ^{127}I target from potassium iodide for heavy ion nuclear reactions, SS Tiwary, HP Sharma, S Chakraborty, C Majumder, Gurjot Singh, D Mehta, S Kumar, SR Abhilash, D Kabiraj, RP Singh, S Muralithar, Accepted in Vacuum (2019)

12. Dr. Navpreet Kaur

1. Research Paper entitled, “ Study of rs699 SNP of hypertensive patients with gold surface immobilized molecular beacon biosensor” in International Journal of Research Scientific Research.
2. Review Paper entitled, “ Molecular Beacons: Fundamental Aspects and applications” communicated to Biosensors and Acutators.

3. Research paper entitled, "Application of molecular beacon based biosensor against rs699 SNP in hypertensive and non- hypertensive Punjabi population" published in International Journal of Pharmacognosy.

13. Ms. Harpreet Kaur

1. Kaur H, Sidhu A and Bala A. One pot synthesis of fluorinated carbamodithioato copper complexes as antifungal agents. Int. J. Chem. Studies. 2017; 5(6): 557-563