

Curriculum vitae



Dr. Gurjot Singh

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Objective: To build a long term career in Science and technology with opportunities for career growth and enhance my skills in a dynamic and suitable workplace.

Personal Details

Date of Birth : 8 Nov, 1987
Sex : Male
Nationality : Indian
Marital Status : Married
Languages : English, Punjabi, Hindi

Academic Qualifications

Exam Passed	Year of Passing	Subjects Studied	Board/ University	%age of Marks
10 th	2003	English, Math, Science, Social Studies, Punjabi, Hindi, Sanskrit	Punjab School Education Board	79.23
10+2 (Non-Medical)	2005	Physics, Chemistry, Math, English, Punjabi	Punjab School Education Board, Punjab	64
Bachelor of Science (Hons. School) Physics	2005-08	Physics(H. S.) course	Guru Nanak Dev University, Amritsar.	58.5
Master of Science (Hons. School) Physics	2008-10	Physics(H. S.) course	Guru Nanak Dev University, Amritsar.	58.8
Master of Philosophy (Physics)	2010-12	Exp techniques, Theoretical tech. in physics, Computational techniques(C++).	Panjab University, Chandigarh.	64
Doctor of Philosophy (Physics)	2012-18	Experimental atomic and nuclear physics	Panjab University, Chandigarh.	Awarded

Ph.D. thesis –

Study of Photon-atom interaction processes in X-ray region and Phytoremediation of Se-contaminated soil using X-ray Fluorescence technique

Supervisors: Prof. Devinder Mehta and Dr. J. S. Shahi.

(EDXRF Laboratory, Department of Physics, Panjab University, Chandigarh, India).

M. Phil. Dissertation-

Elemental Analysis of Legume Plants grown in Se-Contaminated Soils and Ceria-Based Catalytic Particles using X-Ray Fluorescence Technique

Supervisor: Dr. J. S. Shahi

(EDXRF Laboratory, Department of Physics, Panjab University, Chandigarh, India).

M. Sc. Dissertation-

Radon Gas Analysis in Some Drinking Water Samples in Muktsar City Using Active Technique

Supervisor: Prof. Surinder Singh

(SSNTD Laboratory, Department of Physics, Guru Nanak Dev University, Amritsar, Punjab, India).

Achievements and Awards

- Senior Research fellow UGC(Basic Science Research) Meritorious fellowship (April 2014 – March 2016)
- Junior Research fellow UGC(Basic Science Research) Meritorious fellowship (April 2016 – March 2018)
- Gate-2012 (Physical Sciences) Qualified
- Ph.D. Entrance test 2011(Panjab University, Chandigarh) Qualified.
- Ph.D. Entrance test 2010(Guru Nanak Dev University, Amritsar) Qualified.
- **National cadet corps (NCC) ‘C’ Certificate in Air wing** (2-Pb Air Sqn NCC, Amritsar).

Skills

X-ray Spectroscopy, Qualitative and Quantitative elemental Analysis using Energy dispersive X-ray Fluorescence (EDXRF) and Wavelength Dispersive X-ray Fluorescence (WDXRF) techniques, Semiconductor radiation detector handling, Vacuum coating units using Electron Beam gun, X-ray Diffraction, Spectroscopic Techniques, Computer Basics (Windows, Linux), Computer languages, FORTRAN-77.

Teaching Experience

July-2018 onwards	Assistant Professor in Physics (Adhoc). Guru Nanak College For Girls, Sri Muktsar Sahib, Punjab, India
July 2014- June 2016	Teaching Assistant (Physics Practicals) Advanced Practical lab.(M. Sc. Hons. Physics) and Physics Practical

July 2013- Feb 2014	Labs (B. Sc. Hons. Physics and Subsidiary Classes) Resource Person (Teaching Physics at Graduate level), Postgraduate Government college For Girls, Sector-42, Chandigarh.
July 2012- Feb2013	Resource Person (Teaching Physics at Graduate level), Postgraduate Government college For Girls, Sector-11, Chandigarh.

Research Experience

March 2012- July 2018	Research Scholar, EDXRF Laboratory, Department of Physics, Panjab University, Chandigarh, India
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Additional Activities

February-2014	Attended, Science Academies' 56 th Refresher Course in Experimental Physics , Panjab University, Chandigarh
February-2015	Participated in 'Motivational Contact Programme for Talented School Students', held at Department of Physics, Panjab University, Chandigarh.
March-2015	Facilitated Demonstrations for Physics experiments in '1 st DST Inspire Internship Camp' at Panjab University Chandigarh.
September 2016	Facilitated as Resource Person in Science Academies' 79 th Refresher Course in Experimental Physics , Panjab University, Chandigarh.
February 2019	Organized a College development Council, P.U. sponsored National seminar on Emerging research trends in Experimental Physics, as a Co-convener at Guru Nanak College for Girls, Sri Muktsar Sahib.

Conferences attended

- National School cum Workshop in Accelerator Physics (March 2016) held at Department of Physics, Panjab University, Chandigarh .
- Tenth Chandigarh Science Congress (2016) held at Panjab University, Chandigarh.
- Ninth Chandigarh Science Congress (2015) held at Panjab University, Chandigarh.
- Eighth Chandigarh Science Congress (2014) held at Panjab University, Chandigarh.
- India-UK Seminar in Nuclear Physics at ISOLDE (January, 2014), Department of Physics, Panjab University, Chandigarh.
- Seventh Chandigarh Science Congress (2013) held at Panjab University, Chandigarh.
- Workshop on MATLAB (2012) held at ICSSR, Panjab University, Chandigarh.
- Sixth Chandigarh Science Congress (2012) held at Panjab University, Chandigarh.
- International Conference on Advances in Condensed & Nano Materials (ICACNM-2011) held at Panjab University, Chandigarh.
- National Conference on Radioactivity & applications of Radioisotopes held at Guru Nanak Dev University, Amritsar.
- National Conference on Recent Trends in Material Science held at D.A.V. College,

Amritsar.

- National Conference on Advance Materials and Nanotechnology at S.R. Govt. College for Women, Amritsar.
- National Conference on Solid State Nuclear Track Detectors-16 held at Guru Nanak Dev University, Amritsar.

List of Publications

Publications in International Journals

1. **Rayleigh scattering of ${}_{66}\text{Dy-K}$ 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.
2. **Cross section measurements of radiative $KL_{2,3}$ RRS in ${}_{24}\text{Cr}$ and $L_3M_{4,5}$ RRS in ${}_{59}\text{Pr}$ for Mn $K\alpha_{1,2}$ X-rays.** V. Sharma, A. Upmanyu, R. Singh, Gurjot Singh, H. Sharma, S. Kumar and D. Mehta, Radiation Physics and Chemistry 135(2017) 55.
3. **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.
4. **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.
5. **Fabrication of Thin Targets of ${}^{160}\text{Gd}$ by Thermal Evaporation Technique,** Kavita, S.R. Abhilash, D. Kabiraj, K.S. Golda, S. Chopra, S. Ojha, G.R. Umapathy, D. Mehta, Gurjot Singh, S. Kumar, R. Kumar and H. Singh, Vacuum 145 (2017) 11.
6. **Alignment of L_3 subshell vacancy states created without Coster–Kronig decay through the selective photoionization in ${}_{82}\text{Pb}$, ${}_{90}\text{Th}$ and ${}_{92}\text{U}$ 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.
7. **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 ${}_{47}\text{Ag}$, ${}_{48}\text{Cd}$ and ${}_{50}\text{Sn}$ compounds,** H. S. Kainth, R. Singh, Gurjot Singh, D. Mehta., Nuclear Inst. and Methods in Physics Research B 414 (2018) 84.
8. **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.
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)

Publications/Presentations in Symposium/Conferences

1. **Novel technique of making thin target foil of high density material via rolling method**, C. K. Gupta, A. Rohilla, R. P. Singh, **Gurjot Singh**, and S. K. Chamoli, **AIP Conference Proceedings** 1962, 030013 (2018).
2. **Elemental analysis of some ceria based synthesized catalyst particles using EDXRF technique**. **Gurjot Singh**, V. Gupta, G. Singh, S. Mandal, B. Chowdhury, J.S. Shahi and D. Mehta. 2nd National Conference on Advanced Materials & Radiation Physics (AMRP-11).
3. **Selective absorption filters for enhancing detection limit in case of EDXRF analysis using bremsstrahlung radiation**, G. Singh, V. Gupta, **Gurjot Singh**, S. Kumar and D. Mehta. 2nd National Conference on Advanced Materials & Radiation Physics (AMRP-11).
4. **Elemental analysis of some ceria-based synthesized catalytic particles using EDXRF technique**, **Gurjot Singh**, G. Singh, S. Mandal, B. Chowdhury and J.S. Shahi, Sixth Chandigarh Science Congress (2012).
5. **Characterization of fly ash and coal from thermal power plants**, G. Singh, **Gurjot Singh**, V. Gupta and D. Mehta, Seventh Chandigarh Science Congress (2013).
6. **Elemental analysis of Di-ammonium phosphate fertilizer using X-Ray Fluorescence technique**, G. Singh, H. Duggal, **Gurjot Singh**, V. Gupta and D. Mehta, Seventh Chandigarh Science Congress (2013).
7. **Alignment of L_3 subshell vacancy states in ^{80}Pb , ^{90}Th and ^{92}U following selective photoionization and effect of external magnetic fields**, G. Singh, V. Gupta, H. Duggal, **Gurjot Singh** and D. Mehta, Seventh Chandigarh Science Congress (2013).
8. **Contribution of Di-ammonium phosphate fertilizer to ground water contamination**, G. Singh, H. Duggal, **Gurjot Singh**, S. Kumar and D. Mehta, Eighth Chandigarh Science Congress (2014).
9. **Measurements of scattering cross section for 5.895 keV photons from various elements/compounds in liquid phase**, G. Singh, **Gurjot Singh**, S. Kumar and D. Mehta, Eighth Chandigarh Science Congress (2014).
10. **Measurements of Scattering Cross Section for 5.895 keV Photons in various Polymers**, H. Duggal, G. Singh, **Gurjot Singh**, A. Bhalla, S. Kumar, J. S. Shahi and D. Mehta, proceedings of ICXRNO, London (2014).
11. **Measurements of elastic and inelastic scattering cross section for 5.895 keV photon from various polymers**, H. Duggal, G. Singh, **Gurjot Singh**, A. Bhalla, S. Kumar, J. S. Shahi and D. Mehta, Eighth Chandigarh Science Congress (2014).

12. **Differential cross section measurements of elastic scattering of 5.895 keV by various elements/compounds in liquid phase**, G. Singh, **Gurjot Singh**, H. Duggal, S. Kumar and D. Mehta, Ninth Chandigarh Science Congress (2015).
13. **Chemical phase identification of traditional Ayurvedic medicines of Ras family using XRD technique**, H. Duggal, **Gurjot Singh**, A. Upmanyu, R. Singh, S. Kumar, J. S. Shahi and D. Mehta, Tenth Chandigarh Science Congress (2016).

References:

1. Prof. D. Mehta (dmehta@pu.ac.in), Deptt. of Physics, Panjab University, Chandigarh
2. Dr. J. S. Shahi(shahijs@pu.ac.in), Deptt. of Physics, Panjab University, Chandigarh
3. Prof. Nirmal Singh (nsingh@pu.ac.in), Deptt. of Physics, Panjab University, Chandigarh