

BIO-DATA



1. Name : V. K. Mittal

2 Designation : Reader

3 Department : Physics

4 Date of Birth : 12th Oct, 1952

5 Address for Correspondence :

Dr. V. K. Mittal

Department of Physics

Punjabi University, Patiala 147 002

Phone : 0172-2771647

Mobile : 9815804910

Fax : Nil

E-Mail : Vijay_52_Mittal@yahoo.com

6 Area of Specialisation : Nuclear Physics, Computational
Physics, Material Science

7 Academic Qualifications :

8 Membership of Professional Bodies/ Organisations

Sr. No.	Degree Held	Year	University	% of marks	Division	Subjects taken
1	B. Sc.	1972	Panjab	62.7	1 st	Physics, Chemistry, Mathematics
2	M. Sc.	1974	Punjabi	60.4	1 st	Physics
3	Ph. D.	1980	Panjab			

- i) Life Member, Indian Society of Radiation Physics
- ii) Life Member, Indian Academy of Forensic Sciences

9. Medals/Awards/Honours/Received

- i) Appointed as Visiting Associate of Nuclear Science Centre, New Delhi

10. Scholarships: Nil

11. Details of Experience:

S. No.	Name of the Inst./Employer	Position Held	Duration	Major Job Responsibilities and Nature of Experience
1.	Panjab University, Chandigarh	Research Associate	1982-1983	Research
2.	Punjabi University, Patiala	Lecturer	1983-1996	Teaching and Research
3.	Punjabi University, Patiala	Reader	1996-2004	Teaching and Research
4.	Punjabi University, Patiala	Professor	2004 – till to date	Teaching and Research

12. Published Work :

- a Research Papers i) National 18

- ii) International 39
 - b Conferences 52
 - c Books
 - i) Original 2
 - ii) Edited Nil
- 13 R & D projects
 - i) U G C Major Project: Computer Aided Instructions for Elementary Quantum Mechanics
 - ii) C S I R Major Project: Stopping power of Polymers for Protons Near Bragg Peak.
 - iii) Punjab State Council for Computer Aided Development of Science and Instructions for Teaching Technology Project: Physics
 - iv) DRDO Project: Exploding Wire Phenomena (EWP), Premelt Dynamics, Plasma Properties and Shock Wave Propagation
 - v) U G C Minor Project: Trace Elements in Ground Water of Ambala Cantt (Haryana)
 - vi) U G C Minor Project: Stopping powers of Fullerece for Heavy Ions near Bragg Peak

14 Ph. D. Students guided/ under guidance:

S. No.	Name of the Student	Title of Thesis	Year of Completion
1	Dr. H K Sharma	Application of Nuclear Techniques to Groundwater Pollution Monitoring	1989
2	Dr. G. P. S. Sahota	Investigation of decay characteristics of some nuclei	1990
3	Dr. B. Singh	A Study of Trace Elements in Biological and Environmental Samples Using Nuclear Techniques	1992

4	Dr. G. Misra	Application of some Analytical Techniques to Forensic Samples	1992
5	Mr. B. P. Mohanti	Particle induced X-ray cross-section measurements and PIXE analysis of forensic samples	Presently working

15 M. Phil. Students guided:

S. No.	Name of the Student	Title of Thesis	Year of Completion
1	Ms. Maninder Pal Kaur	Calibration of HPGe Detector for Field Gamma Spectrometry	1988
2	Ms. Jasbir Kaur	Review of Neutron Activation Process	1989
3	Ms. Harpreet Kaur	Computer - Aided Instructions (CAI) in Quantum Mechanics	1992
4	Mr. Manoj Kumar	Special Mathematical Functions and Their Applications to Quantum Mechanics through PC	1993
5	Ms. Naina	Development of Thin Films and Measurement of Thickness of Thin Films	2002
6	Mr. Pushpinder Singh	Trace Element Analysis of Some Herbal Plants Using Neutron Activation Analysis	2004

16 List of Papers/ Courses taught at PG and UG Level:

S. No.	Paper	Class
1	Radiation Physics	M. Sc. II
2	Computer Methods and Simulation	M. Sc. II
3	Mathematical Physics	M. Sc. II
4	Nuclear Physics	M. Sc. I
5	Techniques in Experimental Physics	M. Phil.

17 Technical Proficiency:

Worked on various Particle Accelerators like 8 MeV Cyclotron Chandigarh, 8 MV Tandem Accelerator at Uppsala University, Sweden, LINAC at GSI, Germany, 15 UD Pelletron at New Delhi etc. Used various types of gamma ray detectors, Charged particle Detectors, different type of SSB detector telescopes, used main frame, and PC's for analyzing data, written many programs in FORTRAN, BASIC and C languages. Developed software in C language to teach Elementary Quantum Mechanics to B. Sc. students.

18 List of Papers published:

- 1 Lifetime measurement of excited states in ^{109}Cd . D. K. Avasthi, V. K. Mittal and I. M. Govil, Phys.Rev C26 (1982) 1310.
- 2 Study of low-lying levels in ^{59}Ni . V. K. Mittal, D. K. Avasthi and I. M. Govil, J.Phys.G: Nucl Phys. 9(1983)91.
- 3 Lifetimes of ^{28}Si states. V. K. Mittal, D. K. Avasthi and I. M. Govil, Indian J of Pure and Applied Physics 21 (1983) 546.
- 4 Lifetime measurements of excited states in ^{57}Co . D. K. Avasthi, V. K. Mittal and I. M. Govil, Acta Physica Polonica B14 (1983) 115.
- 5 Radiative capture cross-sections of isotopes of Gd, Sm and V between 1 and 3 MeV. M. Afzal Ansari, R. K. Yaiskul Singh, M. L. Sehgal, V. K. Mittal, D. K. Avasthi and I. M. Govil, Ann. Nucl. Energy 11 (1984) 173.
- 6 Isomeric cross-sections of In and Rh at neutron energies of a few MeV. M. Afzal Ansari, R. K. Yaiskul Singh, M. L. Sehgal, V. K. Mittal, D. K. Avasthi and I. M. Govil, Ann. Nucl Energy 11(1984)605.
- 7 Radioisotope production facility at Chandigarh VEC. V. K. Mittal, Gulzar Singh, K. P. Singh, D. K. Avasthi, K. C. Jain, S. R. Bahadur, T. S. Cheema, I. M. Govil and H. S. Hans, Indian J Physics 58A (1984) 527.

- 8 Rotational bands in some odd mass $1f_{7/2}$ nuclei. D. K. Avasthi, K. C. Jain, I. M. Govil and V. K. Mittal. *Acta Physica Polonica B15* (1985) 847.
- 9 Coulomb excitation of ^{105}Pd with protons. D. C. Tayal, K. P. Singh, V. K. Mittal, Gulzar Singh and H. S. Hans, *Phys.Rev. C32* (1985) 1882.
- 10 Neutron capture cross-sections by comparative gamma-activation. H. S. Sahota, V. K. Mittal and N. P. S. Sidhu, *Ann Nucl Energy* 13(1986)287.
- 11 Lifetime measurement of excited states in ^{105}Ag . V. K. Mittal and I. M. Govil, *Phys.Rev. C34* (1986) 1994.
- 12 Gamma-ray spectroscopy in ^{103}Pd . K. C. Jain, S. S. Datta, D. K. Avasthi and I. M. Govil and V. K. Mittal, *Phys.Rev. C35*(1987)534.
- 13 Lifetimes of energy levels in ^{30}Si . V. K. Mittal, D. K. Avasthi and I.M. Govil, *Ind J Physics* 61A(1987)101.
- 14 Neutron activation analysis of trace elements in cancerous human breast tissue. N. P. S. Sidhu, V. K. Mittal and H. S. Sahota, *Indian J Physics* 61A (1987) 170.
- 15 Comparison of environmental radioactivities at Chandigarh and Tokyo. G. Lal, V. K. Mittal and H. S. Sahota, *Theoretical and Applied Climatology* 38 (1987) 114.
- 16 Neutron activation analysis of trace elements in the human hair: Effect of dietary and environmental factors. G. Lal, N. P. S. Sidhu, Inderjit Singh, V. K. Mittal and H. S. Sahota, *Int. J of Appl. Rad. and Insrtum. Part B Nucl. Med. Biol.* 14 (1987) 499.
- 17 Trace element analysis of hair of mentally retarded children. H. P. S. Bhandari, G. Lal, N. P. S. Sidhu, V. K. Mittal and H. S. Sahota, *J Radioanal. and Nucl. Chem. (Letters)* 119/1987/379

- 18 Level Studies in $^{107,109}\text{Ag}$ from Coulomb excitation measurements., K. P. Singh, D. C. Tayal, D. K. Avasthi, V. K. Mittal, I. M. Govil and H. S. Hans, Acta Phys. Slov. 37 (1987) 316.
- 19 Quadrupole Collective Properties of ^{114}Cd . C. Fahlander, A. Backlin, L. Hasselgren, A. Kavka, V. Mittal, L. E. Svensson, B. Varnestig, D. Cline, B. Kotlinski, H. Grein, E. Grosse, R. Kulesa, G. Michel, W. Spreng. H. J. Wollersheim and J. Stachel, Nucl. Phys. A485(1988)327
- 20 Impact of Lagoons on Groundwater Quality. H. K. Sharma, G. S. Lodha, K. J. S. Sawhney, B. S. Grewal, V. K. Mittal and H. S. Sahota Nucl Geo-Phys 2(1988)269.
- 21 Measurement of pair production cross sections in the 1.21 - 11.775 MeV energy range and systematic of up to 100 MeV in Ge. V. K. Mittal and H. S. Sahota. App. Radiat. and Isotopes, Vol 40 No 8 (1989) 683.
- 22 The Study of Intra Gamma and Gamma to Ground State Band Transitions in ^{160}Dy . H. S. Binarh, S. S. Ghumman, V. K. Mittal and H. S. Sahota, J. Physical Soc Japan 58 (1989) 838.
- 23 XRF and Physico- Chemical Studies of Drinking Waters of Patiala City. H. K. Sharma, V. K. Mittal and H. S. Sahota. Ind. J Environ. Prot. 9 (1989) 252.
- 24 Toxic Elements in Groundwaters of Patiala City. H. K. Sharma, V. K. Mittal and H. S. Sahota. Ind. J Environ. Prot. 9 (1989) 451.
- 25 Activation and Chemical Analysis of Drinking Waters. H. K. Sharma, V. K. Mittal and H. S. Sahota. Nuclear Geo-Physics 3, (1989) 141.
- 26 Elemental Concentration and Chemical Parameters of Drinking Water of Patiala City India. H. K. Sharma, B. Singh, V. K. Mittal and H. S. Sahota. Nucl. Geophysics 3(1989) 289.

- 27 Lifetime measurements of Excited States in $^{121,123}\text{Te}$. K. C. Jain, G. Singh, S. S. Datta, I. M. Govil and V. K. Mittal. Phys. Rev. C41 (1990) 1282.
- 28 Prospecting for Silver in Groundwater. H. K. Sharma, H. S. Binarh, V. K. Mittal and H. S. Sahota. Nucl. Geophys. 4(1990) 371
- 29 Preliminary Study of Indian Nail Polish by Source Excited X-ray Fluorescence. G. Misra, K. J. S. Sawhney, G. S. Lodha, V. K. Mittal and H. S. Sahota. J. Indian Academy of Forensic Sciences 29(1990) 15.
- 30 Physico-Chemical Analysis and Correlations among Chemical Parameters of Drinking Water of Ambala Cantt. B. S. Pallah, Harjinder Singh, V. K. Mittal, H. S. Sahota. Ind J Environ Protection 10(1990) 695
- 31 Groundwater Contamination Alongside a Sewage Channel and Waste Water Lagoon. H. K. Sharma, H. Singh, A. Kaur, V. K. Mittal and H. S. Sahota. Ind. J. of Environ Prot. 10(1990) 583.
- 32 Activation and Chemical Analysis of Drinking Water from Shallow Aquifers. H. K. Sharma, V. K. Mittal and H. S. Sahota. J Radioanal Nucl Chem 152 (1991) 237.
- 33 Correlations among Trace Elements and Chemical Parameters. B. S. Pallah, V. K. Mittal and H. S. Sahota. Ind J Environ Protection 11 (1991) 124.
- 34 Physico-Chemical and Neutron Activation Analysis of Drinking water at Ambala Cantt., India. J Nucl Geo Physics 5 (1991) 563.
- 35 The Structure of ^{75}Se . G. P. S. Sahota, V. K. Mittal, S. D. Sharma, H. S. Sahota, G. Singh, S. S. Datta and I. M. Govil, Phys. Rev. C 44 (1991) 987

- 36 Preliminary 'EDXRF' and 'INAA' study of staples of some Indian and Foreign make. G. Misra, K. J. S. Sawhney, G. S. Lodha, Amarjit Kaur, V. K. Mittal and H. S. Sahota. J. Ind Acad Foren Sci 30(1991)27
- 37 Application of EDXRF to the analysis of cosmetic Evidence in Indian Nail polishes G. Misra, K. J. S. Sawhney, G. S. Lodha, V. K. Mittal and H. S. Sahota. Appl. Radiat. Isot. 43 (1992) 609.
- 38 Comparative Study of some samples of Indian Lipsticks by Thin Layer Chromatography and Colorimetry. G Misra, LS Rana, DPS Cheema, G Misra, VK Mittal and HS Sahota. Indian J of Forensic Science, 6(1992)75.
- 39 Elemental Analysis of Chips/Films of Nail Polishes by EDXRF. G Misra, VK Mittal and HS Sahota, Indian J Forensic Science 6(1992)79.
- 40 Lifetimes of the levels of ^{90}Zr excited by the $^{89}\text{Y}(p,\gamma)^{90}\text{Zr}$ reaction. G P S Sahota, V K Mittal and H S Sahota J Phys Soc Japan 62(1993)2958.
- 41 Design and Development of CAI Package on Quantum Mechanics, V. K. Mittal, Arvind Gupta, B. R. Sood, S. S. Sawhney and S. C. Gupta. Bull. IAPT May 1994, 144.
- 42 Study of secondary electron emission from various targets due to 100 MeV Si^{7+} beam, RS Chauhan, VK Mittal, TK Nandi, A Mandal and DK Avasthi. Vacuum 48 (1997) 1031.
- 43 Activation Analysis of Groundwater of Chandigarh, VK Mittal, Commun. Indian Journal of Environ. Prot. 18 (1998) 729
- 44 Microscopic Complex Potential Description of Elastic, Inelastic Cross Section in the Coulomb - Nuclear Interference in ^{28}Si on ^{28}Si System. Sumit Mandal, T. Madhusoodhanan, Subinit Roy, S. Ray, H. Majumdar, S. Datta, V. Ram Devraj, V. K. Mittal, D. Kabiraj, S. Ghosh, A. Tripathi, A. Mandal, D. K. Avasthi and S. K. Datta,

- 45 Hydrogen loss under heavy ion irradiation in polymers, V. K. Mittal, S. Lotha and D. K. Avasthi, Radiat. Effects and Defects in Solids 147 (1999) 199.
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- 47 Stopping Power of Mylar for Heavy Ions upto Copper, Annu Sharma, Shyam Kumar, S. K. Sharma, P. K. Diwan, N. Nath, V. K. Mittal, S. Gosh and D. K. Avasthi, Nucl. Instrum. Methods B 170(2000) 323.
- 48 EDXRF Study of some Indian Nailpolishes, K. S. Jain (Midha), V. K. Mittal, H. S. Sahota and P. Goyal, J of Indian Academy of Forensic Sciences Vol 39 (2000)49.
- 49 Slowing down of MeV heavy ions with $Z = 6-29$ in PEN (C₇H₅O₂), P. K. Diwan, S. Kumar, V. Sharma, S. K.Sharma, V. K. Mittal, B. Sannakki, R. D. Mathad, K. Uday Kumar, S. A. Khan and D. K. Avasthi, Nucl. Instrum. and Methods B 201(2003) 389.
- 50 Studies of Electronic Sputtering of Fullerence Under Swift Heavy Ion Impact, S. Ghosh, D. K. Avasthi, A. Tripathi, S. K. Srivastava, S. V. S. Nageswara Rao, T. Som, V. K. Mittal, F. Gruner and W. Assmann, Nucl. Instrum. Methods B 190(2002) 169.
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- 52 Electronic Sputtering from HOPG : A study of Angular Dependence, A. Tripathi, S. A. Khan, S. K. Srivastva, M. Kumar, S. Kumar, S. V. S. N. Rao, G. B. V. S. Lakshmi, Azhar M. Siddiqui, N. Bajwa, H. S. Nagaraja, V. K. Mittal , A. Szokefalvi, M. Kurth, A. C. Pandey, D. K. Avasthi and H. D. Carstanjen, Nucl. Instrum. and Methods B 212(2003) 402.

- 53 Trace Element in Typical Herbs as an Indicator of Environmental Pollution, Pushpender Singh and V. K. Mittal, Indian J. Environmental Protection, Vol. 23(2003) 1114.
- 54 Neutron Activation Analysis of Lipsticks using γ -ray spectrometry, G. Misra and V. K. Mittal, J. of Applied Spectroscopy, Vol. 71 no. 2 March 2004, pp 270- 274.
- 55 Energy loss straggling of Li, C and O ions in mylar and polycarbonate absorber foils. P. K. Diwan, V. Sharma, S. Aggarwal, S. Kumar, S. K. Sharma, V. K. Mittal, B. Sannakki, . D. Mathad, S. A. Khan and D. K. Avasthi. Nucl. Instrum. and Methods B 244(2006) 289.
- 56 Dependence off Hydrogen released on the Charge State of Incident Ions, D. P. Gupta, R. S. Chauhan, Shyam Kumar, P. K. Diwan, S. A. Khan, Ambuj Tripathi,Fouran Singh, Santanu Ghosh, D. K. Avasthi and V. K. Mittal, Radiat. Effects and Defects in Solids 161 (2006) 331.
- 57 A new Method for Developing of Ultrathin Self-Supporting Polymer films. Naina Bhardwaj, N. P. Singh, Raj Mittal, S. C. Gupta and V. K. Mittal, J. Instrum Soc. India 36 (2006) 133.

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Vijay Kumar Mittal