

Brief Bio Data of Dr. Vivek Kr. Singh

Dr. Vivek Kr. Singh (D.Phil., Raman Fellow)

Assistant Professor
School of Physics
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Permanent Address	Father's Name: Dr. Markandeya Singh
Vill. & Post: Kachhawa Bazar	Date of Birth: 1st August, 1981
District: Mirzapur 231501, U.P., India	

Education

- D. Phil. (Physics)** University of Allahabad, Allahabad – 22nd March, 2010
Supervisor: **Prof. A.K. Rai**
Title of Thesis: “**Study of Some Biological Specimens by Using Laser Spectroscopic Techniques**”
- M. Sc. (Physics)** University of Allahabad, Allahabad – 2004 (71.45%),
1st Division
Subjects: Physics
Specialization: **Laser and Spectroscopy**
- B. Sc. (Maths & Physics)** University of Allahabad, Allahabad – 2002 (62.96%)
1st Division
Subjects: Mathematics, Physics, Chemistry
- I. Sc.** S.G.V. Inter College, Kachhawa, Mirzapur – 1997 (67.2%)
1st Division
Subjects: Hindi, English, Mathematics, Physics, Chemistry
- H. Sc.** S.G.V. Inter College, Kachhawa, Mirzapur – 1995 (70.84%)
1st Division
Subjects: Hindi, English, Mathematics Two, Science Two, Social Science, Biology
Distinction: Mathematics Two & Science Two

Competitive Exams Qualified

- 1. National Eligibility Test (NET)** accredited by Council of Scientific & Industrial Research (CSIR) New Delhi, Govt. of India on December, 2004.

Awards & Fellowships

1. **Receipients of Award of Raman Fellowship** for the Post Doctoral Research in USA for the year 2015-16 by University Grants Commission (UGC), Govt. of India to work in Lawrence Berkeley National Laboratory (LBNL), University of California, Berkeley, California, USA.
2. **D. Phil. Scholarship** under the University Grants Commission (UGC) fellowship scheme during D.Phil. Degree in University of Allahabad, Allahabad.

Visit to International Universities and Laboratories

1. Lawrence Berkeley National Laboratory (LBNL), California, USA.
2. Institute of Clean Energy Technology (ICET), University, Mississippi, USA.
3. Department of Physics and Astronomy, Mississippi State University, USA.
4. Department of Chemistry and Biochemistry, Jackson State University, USA.
5. Department of Computer Science and Physics, Mississippi College, USA.
6. The Institute of Optics, University of Rochester, Rochester, New York, USA.

Teaching Experience

No. of Years: (i) 9 Yrs. at UG level (*B. Tech.*) and
(ii) 8 Years at PG level (*M.Sc. Physics*)

Courses Taught

UG: Modern Physics, Electrodynamics, Fundamentals of Physics

PG: Laser & Plasma Physics, Electrodynamics and Plasma Physics, Atomic & Molecular Physics, Mathematical Physics, Relativistic Quantum Mechanics

Pre-Ph.D.: Atomic & Molecular Physics

Course Designed: *Atomic, Molecular and Laser Physics for M.Sc. (Physics)* in School of Physics, SMVD University which includes the papers (i) *Atomic and Molecular Structure* (ii) *Molecular Spectra and Structure of Diatomic Molecules*, (iii) *Advanced Laser Spectroscopy* (iv) *Infra-red and Raman Spectra of Polyatomic Molecules* of 4 credits each and the *Special Paper Laboratory* of 8 credits.

Research Area and Interests

1. Lasers and Spectroscopy
2. Elemental characterization of materials of solids and liquids
3. Spectroscopy of biological samples
4. Spectroscopic Investigations on diseased and healthy plants
5. Elemental and molecular studies of gallstones, kidney stones and calcified tissues
6. Absorbance spectroscopy of biological samples
7. Trace and Heavy metal detection in food products
8. Minerals nutrients of agricultural samples and crops
9. Nano-sciences and Nano-technology

Ph.D. Guidance

Three (03) Ph.D. students are working under my Supervision.

Name	Title of Thesis	Status
Mr. Ujval Gupta (11PHDSMY02)	<i>A Study of Molecular Structure and Vibrational Spectra of Molecules</i>	Thesis submitted
Mr. Brij Bir Singh Jaswal (14DPH003)	<i>Spectroscopic Analysis of Gallstones and Kidney Stones and Related Studies</i>	In progress
Ms. Neha Sharma (16DPH001) <i>DST-Inspire Fellow</i>	<i>Spectroscopic Investigations on Selected Diseased and Healthy Plant Samples</i>	In progress

Reviewer of Research Journals

Reviewer of various International Journals such as:

1. Talanta (*Elsevier*),
2. Bulletin of Materials Science (*Elsevier*),
3. Materials Bulletin Research (*Elsevier*)
4. Dyes and Pigments (*Elsevier*)
5. Australasian Physical and Engineering Sciences in Medicine (APES) (*Springer*),
6. Applied Spectroscopy (*Society for Applied Spectroscopy*)
7. Applied Optics (*Optical Society of America*)
8. Journal of Medicine and Medical Sciences
9. Plasma Science and Technology

Editorial

1. Chief Guest Editor of two special issues “*Functional Materials*” Vol. 4 (2015), and “*Advanced Functional Materials: A Modern Perspective*” Vol. 5 (2016) published in International Journal “*Materials Focus*” (American Scientific Publisher).

Membership of Academic/Professional bodies

1. Life Member of Hindi Vigyan Sahitya Parishad, BARC, Mumbai.
2. Life Member of Indian Laser Association (ILA), BARC, Bombay.
3. Life Member of Laser and Spectroscopy Society of India (LASSI), BHU, Varanasi.
4. Life Member of the Indian Science Congress Association, Kolkata.
5. Life Member of the Indian Association of Physics Teachers, Kanpur.
6. Life Member of Indian Society of Atomic and Molecular Physics, Ahmedabad.

Refresher Courses, Training Programmes & Workshops

1. Two-Week Faculty Development Programme on “*Carving Human Recourses: Approaches & Procedures*” organized by Shri Mata Vaishno Devi University, Kakryal, Katra, J&K during 21st December, 2015 to 3rd January, 2016.
2. Two-week ISTE Workshop on Signal and Systems conducted by IIT Kharagpur at Shri Mata Vaishno Devi University, Katra, J&K during 2nd-12th January, 2014.
3. Science Academies’ Two week 52nd Refresher Course on Experimental Physics at Shri Mata Vaisho Devi University, Katra, J&K during October 8-24, 2013.

4. AICTE Sponsored Two week Faculty Development Programme organized by SMVD University, Katra, J&K during May 20-June 02, 2013.
5. Refresher Course in Environmental Science (Interdisciplinary) organized by UGC-Academic Staff College, University of Jammu, J&K during 21st November-11th December, 2012.
6. General Orientation Course organized by UGC-Academic Staff College, University of Jammu, J&K during July 04-31, 2012.
7. Two week AICTE approved Staff Development Programme organized by School of Electronics & Communication Engineering, SMVD University, Katra, J&K during December 16-29, 2011.
8. Laser Based Instrumentation organized by Indian Laser Association at LASTEC, Delhi held on January 6th, 2009.
9. Generation, Characterization and Amplification of Ultra-short Laser Pulses organized by Indian Laser Association at RRCAT, Indore held on December 3rd & 4th, 2006

Member of Academic and Administrative Committees

Members of various academic and administrative committees at School level and University level of SMVD University, Katra, J&K.

1. Member of the Board of Studies
2. Member of School Library Committee
3. Member of Student Faculty Committee.
4. Member of the Mentor and Guardianship Committee
5. Member of School Purchase Committee
6. Faculty In-Charge Library Affairs for SOP
7. Member of Central Facilities Committee
8. Member of "Nano-Technology Cell" of SMVD University
9. Member of Department Research Committee (DRC)
10. Member and Faculty In-charge of Departmental Library Committee
11. Member of Anti-Ragging Squad
12. Member of Flying Squad

Course Coordinator

1. Fundamentals of Physics (B. Tech.)
2. Mathematical Physics (M.Sc. Physics)
3. Atomic and Molecular Physics (M.Sc. Physics)
4. Relativistic Quantum Mechanics (M.Sc. Physics)

Project Guided:

06 M.Sc. (Physics) students (*Specialization: Condensed Matter Physics*) guided for project work (2011-2015).

External Examiner

1. External Examiner to conduct the Physics Practical Examination for B.Sc. II (2013, 2014, 2015) at Dr. Shyama Prasad Mukherji Govt. Degree College and B.Sc. I (2016) at Allahabad Degree College, Allahabad University, Allahabad.
2. Dy. Superintendent in SSRB examination held on dated 17/09/2013 in SMVD University, J&K.
3. Appointed as Ph.D. external examiner by University of the Free State, South Africa.

Member of Organizing Committees in Workshops/Seminars

1. Member of a three day National Science Seminar on the theme “Extensive Applications of Nuclear Technology for Welfare and Public Awareness” held from Feb 25th -27th, 2015 at SMVD University.
2. Member of the Organizing Committee to conduct of “One Day Acquaintance Programme on Accelerator Based Research” at SMVD University on 14th June 2012.
3. Member of the Organizing Committee of National Science Day-2012 held at School of Physics, SMVD University, Katra, J&K on February 28, 2012.

Synergistic Activities

1. “*Rapporteur*” in National Conference for Interdisciplinary Aspects of Plant Sciences and 27th Academy of Plant Sciences (APSI) Scientist Meet organized by SMVD Katra, J&K during 02-04, November, 2017.
2. “Member” of National Organizing Committee in Meghnad Saha Memorial International Symposium-cum-Workshop on Laser induced breakdown spectroscopy (MMISLIBS-II 2018), organized by Department of Physics, University of Allahabad, during February 19-21, 2018.
3. Member of Advisory Committee in Recent Advances in Materials Science and Spectroscopy (NCRAMS 2017) organized by Department of Physics, SMVD University, Katra (J&K) India in collaboration with Laser and Spectroscopy Society of India (LASSI). February 15-17, 2017.

Lectures Delivered in Conferences/Workshops/Seminars/Refresher Courses

Delivered lectures entitled (i) *D.C. Differential Amplifier & Integrator for B-H Curve and Search Coil* (ii) *Dielectric Constant of a Non Polar Liquid* (iii) *Dipole Moment of an Organic Molecule Acetone* (iv) *B-H curve of Ferromagnetic Material* (iv) *Stefan’s Constant of radiation* in “Science Academies’ Two week 66th Refresher Course on Experimental Physics” at SMVD University, Katra, J&K during December 10-25, 2014.

Research Publications in International/National/Referred Journals

1. **V.K. Singh**, V. Singh, A.K. Rai, S.N. Thakur, J.P. Singh, and P.K. Rai, “Quantitative analysis of gallstones using laser–induced breakdown spectroscopy,” *Appl. Opt.*, 47: G38-G47 (2008). **Impact factor: 1.65**
2. **V.K. Singh**, P.K. Rai, P.K. Jindal, and A.K. Rai, “Cross–sectional study of kidney stones by laser–induced breakdown spectroscopy,” *Lasers Med. Sci.*, 24: 749-759 (2009). **Impact factor: 2.299**
3. **V.K. Singh**, N.K. Rai, S. Pandhija, A.K. Rai, and P.K. Rai, “Investigation of common Indian edible salts suitable for kidney disease by laser induced breakdown spectroscopy,” *Lasers Med. Sci.*, 24: 917-924 (2009). **Impact factor: 2.299**
4. **V.K. Singh**, V. Rai, and A.K. Rai, “Variational study of the constituents of cholesterol stones by laser-induced breakdown spectroscopy,” *Lasers Med. Sci.*, 24: 27-33 (2009). **Impact factor: 2.299**
5. **V.K. Singh**, A.K. Pathak, A.K. Rai, P.K. Rai, P.K. Rai, and P.K. Jindal, “LIBS: An efficient technique to study stone formation in human body,” *Bulletin of Laser Spectroscopy Society of India*, ISSN 2229-3752, 18: 50-72 (2009). **ISSN: 2229-3752**

6. **V.K. Singh** and A.K. Rai, "Prospects of laser induced breakdown spectroscopy for biomedical applications: A Review," *Lasers Med. Sci.*, 26: 673-687 (2011).
Impact factor: 2.299
7. A.K. Pathak, **V.K. Singh**, N.K. Rai, A.K. Rai, P.K. Rai, P.K. Rai, S. Rai, and G.D. Baruah, "Study of different concentric rings inside gallstones with LIBS," *Lasers Med. Sci.*, 26: 531-537 (2011).
Impact factor: 2.299
8. **V.K. Singh** and A.K. Rai, "Potential of laser induced breakdown spectroscopy for the rapid identification of carious teeth," *Lasers Med. Sci.*, 26: 307-315 (2011).
Impact factor: 2.299
9. L.N. Rai, P. Rai, and **V.K. Singh**, "An anisotropic cosmological model in self-creation cosmology," *Int. J. Theor. Phy.*, 51:5, 1572-1578 (2012).
Impact factor: 0.964
10. P. Rai, L.N. Rai, and **V.K. Singh**, "Plane symmetric cosmological model in Barber's second self creation cosmology", *International Journal of Pure and Applied Mathematical Sciences*, 5:1, 7-12 (2012).
ISSN 0972-9828
11. L.N. Rai, P. Rai, and **V.K. Singh**, "Some anisotropic homogeneous cosmological models in self-creation cosmology," *Int. J. Theor. Phy.*, 51:8, 2503-2513 (2012).
Impact factor: 0.964
12. L.N. Rai, P. Rai, and **V.K. Singh**, "A plane symmetric cosmological model in self creation cosmology in the presence of a perfect fluid distribution," *Asian Journal of Spectroscopy* (2012) 283-285.
ISSN: 0971-9237
13. P. Rai, L.N. Rai, and **V.K. Singh**, "Bianchi type-I cosmological model filled with viscous fluid in a modified Brans-Dicke cosmology," *Int. J. Theor. Phy.*, 51: 2127-2134 (2012).
Impact factor: 0.964
14. **V.K. Singh** and A.K. Rai, "Spatial distribution of minerals across the mixed gallstones using LIBS," *Asian Journal of Spectroscopy* (2012) 133-137.
15. A.K. Pathak, R. Kumar, **V.K. Singh**, R. Agrawal, S. Rai, and A.K. Rai, "Assessment of LIBS for spectrochemical analysis: A review," *Applied Spectroscopic Reviews*, 47: 1, 14-40 (2012).
Impact factor: 4.254
16. P. Rai, L.N. Rai, and **V.K. Singh**, "Cylindrically symmetric and plane symmetric vacuum cosmological models in Brans-Dicke theory", *Proc. Natl. Acad. Sci., India, Sect. A Phys. Sci.*, 83:1, 55-58 (2013).
Impact factor: 0.425
17. P. Rai, **V.K. Singh**, and L.N. Rai, "A cylindrically symmetric universe filled with viscous fluid in a modified Brans-Dicke cosmology", *Int. J. Theor. Phy.*, 52:2838-2845 (2013).
Impact factor: 0.964
18. A.K. Badyal, V. Kumar, **V.K. Singh**, S.P. Lochab, F. Singh, O.M. Ntwaeaborwa and H.C. Swart, "Thermo-luminescence kinetic parameters of γ -irradiated $\text{Sr}_4\text{Al}_{14}\text{O}_{25}:\text{Eu}^{2+}$, Dy^{3+} phosphors", *Radiation Effects & Defects in Solids*, 168: 1022-1029 (2013).
Impact factor: 0.443
19. **V.K. Singh**, B.B.S. Jaswal, V. Kumar, R. Prakash, and P. Rai, "Application of He-Ne laser to study the variation of refractive index of liquid solutions with the concentration", *J. Integ. Sc. Tech.*, 1:1, 13-18 (2013).
ISSN 2321-4635
20. **V.K. Singh**, J. Sharma, Y. Khajuria, V. Kumar, and P.K. Rai, "Importance and role of major and trace elements in Nephrolithiasis: A review," *Bulletin of Laser Spectroscopy Society of India*, 18-32 (2014).
ISSN: 2229-3752

21. **V.K. Singh**, V. Kumar, and J. Sharma, "Importance of laser-induced breakdown spectroscopy for hard tissues (bone, teeth) and other calcified tissue materials," *Lasers Med. Sci.*, 30:1763-1778 (2014). **Impact factor: 2.299**
22. S. Alam, P. Rai, L.N. Rai, and **V.K. Singh**, "Gravitationally Non-Degenerate Petrov Type-I Cosmological Model filled with Viscous Fluid in Modified Brans-Dicke Cosmology", *Int. J. Theor. Phy.*, 53:2902-2911 (2014). **Impact factor: 0.964**
23. **V.K. Singh**, V. Kumar, J. Sharma, and Y. Khajuria, "Importance of laser induced breakdown spectroscopy for biomedical applications: A comprehensive review," *Materials Focus*, 3:169-182 (2014). **ISSN: 2169-4303**
24. U. Gupta, **V.K. Singh**, V. Kumar, and Y. Khajuria, "Spectroscopic studies of cholesterol: Fourier transform infrared and vibrational frequency analysis," *Materials Focus*, 3:211-217 (2014). **ISSN: 2169-4303**
25. U. Gupta, **V.K. Singh**, and Y. Khajuria, "Theoretical Studies of Molecular Structure and Vibrational Spectra of Acetoxy-4-methyl Phenyl Methyl Acetate," *International Journal of Research and development in Physics (IJRDP)*, 1:1-6 (2014).
26. **V.K. Singh** and P.K. Rai, "Kidney Stone Analysis Techniques and Role of Major and Trace Elements Affecting Their Pathogenesis: A Review", *Biophysical Reviews*, 6:Combined 3-4, 291-310 (2014). **ISSN: 1867-2469**
27. P. Rai, S. Alam, L.N. Rai, and **V.K. Singh**, "A Plane Symmetric Universe Filled with Viscous Fluid in a Modified Brans-Dicke Cosmology," *Reviews in Theoretical Science*, 4: 67-71 (2016). **ISSN: 2327-1523**
28. P. Rai, L.N. Rai, and **V.K. Singh**, "Static Cylindrically Symmetric Disordered Radiation in a Modified Brans-Dicke Theory," *Reviews in Theoretical Science*, 4: 112-116 (2016). **ISSN: 2327-1523**
29. P. Rai, S. Alam, and **V.K. Singh**, "A Plane Symmetric Universe Filled With Viscous Fluid in a Self-Creation Theory of Gravitation," *Asian Resonance*, Vol. III, Issue IV, 98-100 (2014). **ISSN: 0976-8602**
30. U. Gupta, S. Mahajan, **V.K. Singh**, and Y. Khajuria, "Computational Studies on the Molecular Structure, Vibrational Spectra, Natural Bond Orbital, Molecular Electrostatic Potential and UV-Vis Analyses of (E)-3-(4-bromophenyl)-1-(3,4-dichlorophenyl)Prop-2-En-1-One," *Materials Focus*, 3:421-430 (2014) DOI:10.1166/mat.2014.1198 (2014). **ISSN: 2169-4303**
31. U. Gupta, V. Kumar, **V.K. Singh**, R. Kant, and Y. Khajuria, "Spectroscopic studies and quantum chemical investigations of (3,4-dimethoxybenzylidene) propanedinitrile," *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 140:65-73 (2015). **Impact factor: 2.536**
32. Brij Bir S. Jaswal and **V.K. Singh**, "Analytical Assessments of Gallstones and Urinary Stones: A Comprehensive Review of the Development from Laser to LIBS," *Applied Spectroscopic Reviews*, 50:473-498 (2015). **Impact factor: 4.254**
33. U. Gupta, **V.K. Singh**, V. Kumar, and Y. Khajuria, "Experimental and Theoretical Spectroscopic Studies of Calcium Carbonate (CaCO₃)," *Materials Focus*, 4:164-169, (2015). **ISSN: 2169-4303**
34. A.K. Bedyal, V. Kumar, **V.K. Singh**, F. Singh, S.P. Lochab, O.M. Ntwaeaborwa, H.C. Swart, "The influence of Ag⁹⁺ ion irradiation on the structural, optical and luminescence properties of Sm³⁺ doped NaSrBO₃: Stability of color emission," *Nuclear Instruments and Methods in Physics Research B* 351:27-34 (2015). **Impact Factor: 1.109**
35. B.B.S. Jaswal, J. Sharma, V. Kumar, Y. Khajuria, and **V.K. Singh**, and P.K. Rai, "Elemental and Molecular Analysis of Gallstones using Wave-Dispersive X-Ray

- Fluorescence and Fourier Transform Infra-red Spectroscopy.” *Advanced Science Letters* 21:2613-2617 (2015).
ISSN: 1936-6612
36. U. Gupta, **V.K. Singh**, V. Kumar, and Y. Khajuria, “A Combined Experimental and Density Functional Theory Computational Studies on Curcumin: A Bio-Active Ingredient of Rhizome Turmeric.” *Materials Focus* 4:346-356 (2015), doi:10.1166/mat.2015.1272.
ISSN: 2169-4303
37. N. Kumar, **V.K. Singh**, and J. Sharma, “Dynamic light scattering studies of gelatin-glutaraldehyde complexes in water.” *Materials Focus* 4:412-417 (2015).
38. B.B.S. Jaswal, V. Kumar, H.C. Swart, J. Sharma, P.K. Rai, and **V.K. Singh**, “Multi-Spectroscopic Analysis of Cholesterol Gallstone Using TOF-SIMS, FTIR and UV-Vis Spectroscopy”. *Applied Physics B: Laser and Optics*, 121:49-56 (2015).
Impact Factor: 1.696
39. S. Kumar, R. Prakash, and **V.K. Singh**, “Synthesis, Characterization, and Applications of Europium Oxide: A review.” *Reviews in Advanced Sciences and Engineering*, 4: 247-257 (2015).
ISSN: 2157-9121
40. N. Kumar, **V.K. Singh**, and J. Sharma, “Structure and Dynamics of Biopolymeric Hydrogels: A Review.” *Reviews in Advanced Sciences and Engineering* 4:183-199 (2015).
ISSN: 2157-9121
41. Palvi Gupta, A.K. Bedyal, V. Kumar, **V.K. Singh**, Y. Khajuria, O.M. Ntwaeaborwa, H.C. Swart, “Thermoluminescence and glow curves analysis of γ -exposed Eu^{3+} doped $\text{K}_3\text{Y}(\text{PO}_4)_2$ nanophosphors.” *Materials Research Bulletin* 73:111-118 (2016).
Impact Factor: 2.446
42. **V.K. Singh** and Y. Dwivedi, “A Special Issue on Functional Materials and their Applications.” *Materials Focus* 4:325-326 (2015), doi:10.1166/mat.2015.1261.
43. Neharika, V. Kumar, J. Sharma, **V.K. Singh**, O.M. Ntwaeaborwa, H.C. Swart, “Surface and spectral studies of green emitting $\text{Sr}_3\text{B}_2\text{O}_6:\text{Tb}^{3+}$ phosphor,” *Journal of Electron Spectroscopy and Related Phenomena* 206:52-57 (2016).
Impact Factor: 1.661
44. B.B.S. Jaswal, V. Kumar, J. Sharma, P.K. Rai, M.A. Gondal, Bilal Gondal, and **V.K. Singh**, “Analysis of heterogeneous gallstones using laser-induced breakdown spectroscopy (LIBS) and wavelength dispersive X-ray fluorescence (WD-XRF)” *Lasers Med Sci*, 31:573-579 (2016).
Impact factor: 2.299
45. **V.K. Singh**, Y. Dwivedi, J. Sharma, R. Prakash, and A.K. Pathak, “A Special Issue on Advanced Functional Materials: A Modern Perspective” *Materials Focus* 5:183-186 (2016).
ISSN: 2169-4303
46. U. Gupta, V. Kumar, **V.K. Singh**, and Y. Khajuria, “Structural Studies of Bilirubin: Molecular structure, Fourier Transform Infra-Red, Ultraviolet-Visible, and Vibrational Frequency Analysis,” *Materials Focus*, 5:418-419 (2016).
47. Neharika, V. Kumar, **V.K. Singh**, J. Sharma, O.M. Ntwaeaborwa, H.C. Swart, “Synthesis and photoluminescence study of a single dopant near white light emitting $\text{Li}_4\text{CaB}_2\text{O}_6:\text{Dy}^{3+}$ nanophosphor,” *Journal of Alloys and Compounds*, 688:939-945 (2016).
Impact factor: 3.133
48. **V.K. Singh**, A. Gupta, O. Gupta, V. Kumar and M.A. Gondal, “Spectroscopic evaluation of *Cyperus rotundus* rhizomes using WD-XRF, LIBS, FTIR and UV-Vis spectroscopy,” *Materials Focus*, 6:7-14 (2016).
ISSN: 2169-4303
49. B.B.S. Jaswal, P.K. Rai, M.A. Gondal, and **V.K. Singh**, “Spectroscopic Investigations of Calcium Oxalate Kidney stone using Fourier Transform Infra-red Spectroscopy and Laser-Induced Breakdown Spectroscopy,” *Materials Focus*, 6:82-86 (2016).
50. **V.K. Singh**, A. Devi, S. Pathania, V. Kumar, D.K. Tripathi, S. Sharma, D.K. Chauhan, V.K. Singh, V. Zorba, “Spectroscopic investigation of wheat grains

- (*Triticum aestivum*) infected by wheat seed gall nematodes (*Anguina tritici*),” *Biocatalysis and Agricultural Biotechnology*, 9:58-66 (2017). **ISSN: 1878-8181**
51. D.K. Tripathi, A. Tripathi, S. Gaur, S. Singh, Y. Singh, K. Vishwakarma, G. Yadav, S. Sharma, **V.K. Singh**, R.K. Mishra, R.G. Upadhyay, N.K. Dubey, Y. Lee and D.K. Chauhan, “Uptake, Accumulation and Toxicity of Silver Nanoparticle in Autotrophic Plants, and Heterotrophic Microbes: A Concentric Review,” *Frontiers in Microbiology*, 8:7 (2017). **Impact factor: 4.076**
 52. **V.K. Singh**, B.B.S. Jaswal, J. Sharma, and P.K. Rai, “Spectroscopic Investigations on Kidney Stones using Fourier Transform Infra-Red and X-Ray Fluorescence Spectrometry,” *X-Ray Spectrometry*, 46:283-291 (2017). **Impact factor: 1.298**
 53. **V.K. Singh**, D.K. Tripathi, P.K. Rai, S.C. Singh, J.P. Singh, “Application of Wavelength Dispersive X-Ray Fluorescence Spectrometry to Biological Samples,” *Spectroscopy*, 32(7):2-9 (2017). ISSN: 0887-6703 **Impact factor: 0.466**
 54. S. Singh, K. Vishwakarma, S. Singh, S. Sharma, N.K. Dubey, **V.K. Singh**, S. Liu, D.K. Tripathi, and D.K. Chauhan, “Understanding the Plant and Nanoparticle Interface at Transcriptomic and Proteomic Level: A Concentric Overview,” *Plant Gene*, 11:265-272 (2017). **ISSN: 2352-4073**
 55. D. Kumar, D.K. Tripathi, S. Liu, **V.K. Singh**, S. Sharma, N.K. Dubey, S.M. Prasad, and D.K. Chauhan, “*Pongamia pinnata* (L.) Pierre Tree Seedlings Offer a Model Species for Arsenic Phytoremediation,” *Plant Gene*, 11:238-246 (2017).
 56. S. Khurseed, **V.K. Singh**, Vinay Kumar, H.C. Swart, and J. Sharma, “Optical Properties of $\text{Sr}_3\text{B}_2\text{O}_6:\text{Dy}^{3+}$ /PMMA polymer nanocomposites,” *Physica B* (Accepted, 2017). **Impact factor: 1.386**
 57. M. Manhas, R. Prakash, J. Sharma, **V.K. Singh**, V. Sharma, A.K. Badyal, H.C. Swart, and V. Kumar, “A Novel Orange-red emitting $\text{Ba}_2\text{Ca}(\text{BO}_3)_2:\text{Sm}^{3+}$ phosphor to fill the amber gap in LEDs: Synthesis, structural and luminescence characterizations,” *Current Applied Physics*, 17: 1369-1375 (2017). **Impact factor: 1.971**

Papers Published in Proceedings

1. B.B.S. Jaswal, P.K. Rai, M.A. Gondal, and **V.K. Singh**, “Study of Renal Stone using LIBS and FTIR Spectroscopy” in the Proc. of “National Laser Symposium (NLS-25)” organized at Department of Physics, School of Applied Sciences, KIIT University, Bhubaneswar during December 20-23, 2016. **ISBN: 978-81-903321-7-0**
2. **V.K. Singh** and A.K. Rai, “LIBS-A novel technology for the determination of traces in human bones” in the Proc. of “International Conference on Technological Innovations through Modern Engineering Sciences (TIMES-2013) sponsored by Ministry of Earth Sciences, New Delhi and organized by Department of Applied Sciences, Institute of Engineering & Technology, M.I.A., Alwar-301030, Rajasthan, India during February 23-24, 2013, Page 17-19. **ISBN: 978-93-81771-22-8**
3. R. Prakash, S. Kumar, and **V.K. Singh**, “Study of variation of refractive index with concentration of NaCl aqueous solution using Newton’s ring method and its applications” in the Proc. of “International Conference on Technological Innovations through Modern Engineering Sciences (TIMES-2013) sponsored by Ministry of Earth Sciences, New Delhi and organized by Department of Applied Sciences, Institute of Engineering & Technology, M.I.A., Alwar-301030, Rajasthan, India during February 23-24, 2013, Page 49-50. **ISBN: 978-93-81771-22-8**
4. A.K. Pathak, **V.K. Singh**, S. Rai, N.K. Rai, P.K. Rai, P.K. Rai and A.K. Rai, “Classification of gallstones by principal component analysis based on LIBS spectra”

- in the Proc. of “National Laser Symposium, NLS-2009” held at Bhabha Atomic Research Center (BARC), Bombay during January 13-16, 2010.
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 8. **V.K. Singh** and A.K. Rai, “Qualitative study of pigment stones and cholesterol stones by LIBS,” in the Proc. of “National Laser Symposium, NLS-2007” held at M.S. University of Baroda, Vadodara, Gujarat, India, December 17-20 (2007), Page 463-464.
 9. **V.K. Singh**, A.K. Rai, R. Srivastava, and S.P. Singh, “Detection of magnesium in human gallstones using laser-induced breakdown spectroscopy,” in the Proc. of “Progress on Tunable Lasers for Ultrafast Processes and Applications, PTLUPA6” Dec. 21-22, 2006, IIT Madras, Page 122-123. **ISBN: 81-904262-3-0**
 10. **V.K. Singh**, A.K. Rai, S.N. Thakur, and R. Srivastava, “A comparative study of mixed stone and black pigment stone using laser-induced breakdown spectroscopy,” in the Proc. of “National Laser Symposium, NLS-2006” held at CAT Indore, India, December 5-8 (2006), Page 341-342.
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1. J. Sharma, **V.K. Singh**, A. Kumar, R. Shankarayan, and S. Mallubhotla, “*Role of Silver Nanoparticles in Treatment of Plant Diseases*,” Springer Nature Publishers, New York (In Press).
2. A. Koul, A. Kumar, V.K. Singh, D.K. Tripathi, and S. Mallubhotla, “*Exploring Plant Mediated Copper, Iron, Titanium, and Cerium oxide nanoparticles and their Impacts*,” in *Nanomaterials in Plants, Algae and Micro-organism: Concepts and Controversies: Terrestrial Ecosystems*, Elsevier B.V. (In Press)
3. S. Sharma, V.K. Singh, A. Kumar, and S. Mallubhotla, “*Effect of Nanoparticles on Oxidative Damage and Antioxidant Defense System in Plants*” in *Nanomaterials in Plants, Algae and Micro-organism: Concepts and Controversies: Terrestrial Ecosystems*, Elsevier B.V., (In Press)
4. **V.K. Singh**, V. Kumar, R. Prakash, J. Sharma, A. Kumar, and P. Singh, “*Recent Developments and Applications of Novel Analytical Techniques for the Analysis of Plant Materials*,” in *Technological Advances in Plant Science*, Nova Science Publishers, Inc., New York, pp 17-44, 2016. **ISBN: 978-1-53610-021-1**

5. **V.K. Singh**, “*Biomedical Applications of Laser Induced Breakdown Spectroscopy*,” in *Horizons in World Physics*, Nova Science Publishers, Inc., New York, Volume 287, pp 25-67, 2016. **ISBN: 978-1-63484-193-1**
6. P.K. Rai, **V.K. Singh**, A.K. Pathak, A.K. Rai, and P.K. Jindal, “*Applications of laser in renal science*,” in *Emerging Trends in Laser & Spectroscopy and Applications*, pp 108-124, 2010, Allied Publishers Pvt. Ltd., New Delhi. **ISBN: 978-81-8424-626-1**
7. A.K. Pathak, S. Rai, **V.K. Singh**, N.K. Rai, and A.K. Rai, “*PCA of LIBS spectra to differentiate healthy and caries affected part of teeth sample*,” in *Emerging Trends in Laser & Spectroscopy and Applications*, pp 279-286, 2010, Allied Publishers Pvt. Ltd., New Delhi. **ISBN: 978-81-8424-626-1**

Participation and Paper Presentation in Conferences and Symposiums

1. Paper Presentation entitled “X-Ray Fluorescence: An Excellent Technology for Monitoring Heavy Metals in Stones formed inside Human Body” in 4th International Conference on Recent Trends and Advancement in Engineering and Technology organized by SMVD University, Katra, J&K during 03-04, November, 2017.
2. Paper Presentation entitled “Spectroscopic Investigations on Black Turmeric (*Curcuma caesia*) using LIBS, FTIR and UV-Vis Spectroscopy” in National Conference for Interdisciplinary Aspects of Plant Sciences organized by Department of Biotechnology, SMVD University, Katra, J&K during 02-04, November, 2017.
3. Participation in the One day workshop on “Photonic System Design & Simulation using OptiSystem” organized by Department of Electronics and Communication Engineering, SMVD University, Katra, J&K on May 30, 2016.
4. Participation in the National Seminar on Economics of “Make in India” organized by School of Economics, SMVD University, Katra, J&K during September 29-30, 2015.
5. Participation in Two days hands-on training workshop on “Modern Development and Application in Imaging Techniques” organized by School of Biotechnology, SMVD University, Katra, J&K, India from May 26-27, 2015.
6. Participation in ICSSR North-Western Regional Centre Sponsored National Seminar on “Contemporary Business and Economics Opportunities in North-Western Region-Issues and Challenges” held on 6th March, 2015 organized by SMVD University, Katra, J&K, India.
7. Participation in ICSSR Sponsored International Conference titled “Shifting Paradigms in Applied Economics and Management: Course Correction” held on 1st-2nd August, 2014 organized by Faculty of Management, SMVD University, Katra, J&K, India.
8. Participation in Two day workshop on “Recent Advances in Genomics and Proteomics” organized by School of Biotechnology, SMVD University, Katra, J&K from March 26-27, 2014.
9. Paper Presentation entitled “Application of He-Ne laser to study the variation of refractive index of liquid solutions with the concentration” in the “National Conference on Physics of Engineering Materials (NCPem-2013)” organized by DCR University of Science & Technology, Haryana, India, during March 15-17, 2013.
10. Paper Presentation entitled “LIBS-A novel technology for the determination of traces in human bones” in the “International Conference on Technological Innovations through Modern Engineering Sciences” organized by Institute of Engineering & Technology, Alwar, Rajasthan, India during February 23-24, 2013.
11. Participation in One Day Acquaintance Programme on “Accelerator based Research” on June 14, 2012 held at School of Physics, SMVD University, Katra, J&K.

12. Participation in “UGC sponsored National Seminar on Wireless Communication & Networks with Special Emphasis on Adhoc & WSN” during March 24-25, 2012 held at School of Electronics & Communication Engineering, SMVD University, J&K.
13. Participation in “UGC sponsored National Symposium on Interdisciplinary Science” during March 2-3, 2012 organized by GGM Science College, Jammu.
14. Participation in “7th JK Science Congress” organized by University of Jammu, Jammu during October 13-15, 2011.
15. Participation in National Seminar on “Aviation and Outer Space: Science, Economics and Law for Sustainable Development” SMVD University, Katra, J&K during April 24-25, 2011.
16. Participation in “5th J&K Science Congress” organized by University of Jammu, Jammu during February 8-10, 2010.
17. Paper Presentation entitled “Study of kidney stones using laser-induced breakdown spectroscopy” and “Identification of carious teeth by LIBS” in “National Laser Symposium (NLS-08)” held at LASTEC, Delhi during January 7-10, 2009..
18. Paper Presentation entitled “Qualitative and quantitative analysis of gallbladder and kidney stones by using laser-induced breakdown spectroscopy” in “International conference on CONIAPS-X” 2008 held at GGU Bilashpur during January 12-14, 2008.
19. Paper Presentation entitled “Qualitative study of pigment stones and cholesterol stones by LIBS” in “National Laser Symposium (NLS-07)” held at M.S. University of Baroda, Vadodara, Gujarat, India, December 17-20, 2007, P-12.16.
20. Participation in “Indo-Polish Workshop on Liquid crystals: Synthesis, Characterization and Molecular engineering” organized by Physics Department, University of Allahabad, Allahabad on 12th December, 2007.
21. Participation in “9th Conference of the International Academy of Physical Sciences” organized by Mathematics, Dr. BR Ambedkar University, Agra and International Academy of Physical Sciences, Allahabad during February 3-5, 2007.
22. Paper Presentation entitled “Elemental and chemical analysis of gallstones via LIBS and UV-Visible spectroscopy” in “National symposium on Atomic, Molecular and Laser Physics (NSAMLP-2007)” held at BHU Varanasi, March 17-19, 2007.
23. Paper Presentation entitled “A comparative study of mixed stone and black pigment stone using laser-induced breakdown spectroscopy” in “National Laser Symposium (NLS-06)” held at CAT Indore, India, December 5-8, 2006.
24. Paper Presentation entitled “In-situ analysis of human bones using laser-induced breakdown spectroscopy” in “15th National Symposium on Ultrasonics” held at Allahabad University, Allahabad, India, November 1-3, 2006.
25. Paper Presentation entitled “Chemical characterization of gallstones using laser-induced breakdown spectroscopy” in International conference on “Lasers and Nanomaterials (ICLAN)” held at Calcutta, November 30- December 2, 2006.
26. Participation in “International Workshop on Frontiers in Nano-biotechnology” IWFN-2006 held at Center of Biotechnology, Allahabad University, Allahabad, 1st December, 2006.
27. Paper Presentation entitled “Biological application of laser-induced breakdown spectroscopy” National Symposium on, “Recent trends in Fluorescence Spectroscopy & its application” held at Nainital, India, December 1-3, 2005.