Dr. Virendra Singh

Assistant Professor, Physics
G.B. Pant University of Agriculture &Technology,
Pantnagar

Date of Joining	26.11.2015
Date of Birth	07.04.1984
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TEACHING / RESEARCH EXPERIENCE:

S. N.	Designation	Organization	From	To	Duration	Nature of work
1.	Assistant Professor	G.B.Pant University of Ag. & Tech., Pantnagar	Nov, 2015	currently working		Teaching cum Research
2.	Assistant Professor	ICFAI University, Dehradun	Sept, 2012	Nov, 2015	3 Y	Teaching cum research
3.	Assistant Professor	BIT, Meerut	Jan 2012	July, 2012	7 M	Teaching
4.	Teaching Personnel	G.B.Pant University of Ag. & Tech., Pantnagar	Sept, 2009 July, 2011	Nov, 2009 Dec, 2011	04 M 06 M	Teaching

SUBJECTS TAUGHT:

Undergraduate	Postgraduate
1. Electromagnetic Fields and waves 2. Analog & Digital Electronics 3. Control Systems, 4. Modern Physics 5. Engineering Physics I & II [Physics I & Physics II] 6. Semiconductor Physics 7. Wave optics and introduction to Quantum Mechanics 8. Oscillations, waves and optics	1. Electronics 2. Linear and Digital IC II 3. Electromagnetism 4. Physics for Agrometerologists 5. Experimental Physics 6. Agrometerological Instrumentation 7. Statistical Physics 8. Advanced Statistical Physics

ADMINISTRATIVE RESPONSIBILITIES / STUDENT AFFAIR:

- Incharge, Biophysics Unit, CBSH, GBPUAT
- Warden, Shastri Bhawan Hostel, March 2019 to December 2024, GBPUAT
- Member, P.G. Society, GBPUAT
- Incharge, Maintenance and repair, CBSH, GBPUAT
- Member, Extension Program Committee and General Maintenance Committee, CBSH, GBPUAT
- Incharge RITL, CBSH, December, 2022 to January, 2023, CBSH, GBPUAT

RESEARCH INTERESTS:

Energy materials, Nano-composites, Waste valorization, Water Remediation, Glass for radiation shielding, X-Ray fluorescence

RESEARCH SUPERVISION:

Role	Ph.D. Students (Number)	P.G. Students (Number)
Advisor	2	15
Joint Supervision	6	28

RESEARCH PROJECT:

'Development of SilverNanowires/ Polypyrrole (AgNWs/Ppy) Composite Electrode for Fabrication of Supercapacitor of High Energy Density', sanctioned by UCOST, Dehradun, Imlemented: January, 2024 (P.I. of the project)

PUBLICATIONS:

(i) Research Papers:

1. Adhikari, Himanshu, Arun Kumar, Rajat Kumar Sharma, **Virendra Singh**, Siddharth Jain, and Akarsh Verma. "Optimizing biochar for heavy metal adsorption: an AI-driven predictive modeling approach with Gamma testing." Biofuels (2026): 1-21.
2. Singh, Neeraj, **Virendra Singh**, Neeraj Bisht, Puneet Negi, Archana Dhyani, Rajat Kumar Sharma, and B. S. Tewari. "A comprehensive review on supercapacitors: Basics to recent advancements." Journal of Energy Storage 121 (2025): 116498.

3. **Virendra Singh**, Chaitanya Chauhan, Neeraj Singh, Arvind Kumar, Diwakar Padalia, and Shri Ram. "Effect of the Concentration of PVP Capping Agent on Silver Nanowires Synthesized via CuCl2 · 2H2O Mediated Polyol Route." *Physics of Metals and Metallography* 125, no. 13 (2024): 1569-1577.
4. Rautela, Manish Singh, **Virendra Singh**, and Neeraj Singh. "Investigating the effect of gamma irradiation on structural and optical properties of (55-x) TeO2-20ZnO-25B2O3-xEr2O3 radiation shielding glass: influence of Er3+ ions." Radiation Physics and Chemistry 224 (2024): 112071.
5. Basant Kumar Yadav, **Virendra Singh**, Rajat Gangwar, and Neeraj Bisht. "*Study of optical, structural and radiation shielding properties of (55− x) TeO2–20ZnO–25B2O3–x Er2O3 glass matrix."* International Journal of Materials Research 115, no. 4 (2024): 291-302.
6. Anuj Saraswat, Shri Ram, Rajeew Kumar, Veer Singh, **Virendra Singh**, Aakash Salar, and Shubham Anil Durgude. *"Synthesis and Characterization of Chitosan Encapsulated Zinc Oxide Nanoparticles and its Application in Maize under Zinc Deficit Soil."* International Journal of Plant & Soil Science 36 (2024): 393-401.
7. **Virendra Singh**, Nidhi Pant, Rajat Kumar Sharma, Diwakar Padalia, Pankaj Singh Rawat, Rabina Goswami, Praveen Singh, Akhilesh Kumar, Prabhakar Bhandari, Alam Tabish, and et al. 2023. *"Adsorption Studies of Pb(II) and Cd(II) Heavy Metal Ions from Aqueous Solutions Using a Magnetic Biochar Composite Material"* Separations 10, no. 7: 389. https://doi.org/10.3390/separations10070389
8. Durgude, Shubham A., Shri Ram, Rajeew Kumar, Shiv Vendra Singh, **Virendra Singh**, Anil G. Durgude, Biswajit Pramanick, Sagar Maitra, Ahmed Gaber, and Akbar Hossain. "Synthesis of Mesoporous Silica and graphene-based FeO and ZnO nanocomposites for nutritional biofortification and sustained the productivity of rice (Oryza sativa L.)." *Journal of Nanomaterials* 2022 (2022).

9. Anamika, **Virendra Singh** and Basant K Yadav, "*Adsorption study of Heavy Metals from Aqueous Solutions using Magnetite Nanoparticles*" Journal of Physics: Conference Series, IOP Publishing 1504 (2020) 012011
10. Harshita Gangwar, **Virendra Singh**, B. S. Tewari, Himanshu Gupta, L.P.Purohit, *"Study of zinc doped tellurite glasses using XRD, UV-Vis and FTIR"* Materials Today: Proceedings, 17, 329–337, 2019.
11. **Virendra Singh,** G.C. Joshi, Dinesh C. Bisht, "*EDXRF Analysis of Soil in the Vicinity of Industrial Areas and Heavy Metal Pollution Assessment"* Journal of Applied Spectroscopy, vol. 84 (2), 2017.
12. **Virendra Singh,** Diwakar Padalia, Kamal Devlal, "*Determination of Cu, Zn, Mn & Fe Metals in Soil Employing the EDXRF & FAAS Techniques and Comparative Study of Results"* Journal of Nuclear Physics, Material Sciences, Radiation and Applications, vol. 2, pp 1-9, 2017.
13. Chanyal, B. C., S. K. Chanyal, **Virendra Singh**, and A. S. Rawat. *"Proca-Maxwell Equations for Dyons with Quaternion."* Applied Mathematics 4, no. 1 (2016): 9-15.
14. **Virendra Singh**, H.M. Agrawal, *"Characterization of the solubility of Aluminum in soil by x-ray diffraction"* Analytical Letters, vol. 48, pp. 503-512, 2015.
15. **Virendra Singh**, H.M. Agrawal, *"Qualitative soil mineral analysis by EDXRF, XRD and AAS probes"* Radiation Physics and Chemistry 81, 2012, pp 1796-1803.

16. **Virendra Singh**, H.M. Agrawal, *"Edxrf Analysis Of Soil Samples To Study The Role Of Trace Elements In Optimizing The Yield",* Int. J. Modern Engineering Res., 2 (2012) 1454-1458.
17. **Virendra Singh**, H.M. Agrawal, G.C. Joshi, M. Sudarshan and A.K. Sinha, "*Elemental profile of agricultural soil by the EDXRF technique and use of the Principal Component Analysis (PCA) method to interpret the complex data",* Applied Radiation and Isotopes, 69 (2011) 969–974.

(ii) Books / Book Chapters:

1. Neeraj Singh, **Virendra Singh**, Jaspreet Singh Aulakh (communicated, 2026). Nanotechnological advancements for energy generation and storage: A review. In *Recent Trends in Nanoscience and Naotechnology for Future Sustainability*, Cambridge Scholar Book
2. Beyond The Track: The Extended Arena of Sports, **Co-editor**, Ocean Publications, India, 2026, ISBN: 978-93-91664-91-6.
3. **Virendra Singh** and Neeraj Bisht, 2026. The Biomechanics of Sports: The hidden Science Behind Speed, Strength and Skill. In *Beyond The Track: The Extended Arena of Sports*, Ocean Publications, India.
4. Diwakar Padalia, Archana Dhyani, and **Virendra Singh**, 2026. Plasmonics in radiation sensing and thermal imaging. In *Applied Nanoplasmonics: Applications in Chemical Sensing and Radiation Detection*, Elsevier Publications, ISBN: 978-0443292781
5. Archana Dhyani, Neelima Mahato, **Virendra Singh**, Diwakar Padalia, and Bhagya Sindhu Tewari, 2026. Plasmonics tweezers. In *Applied Nanoplasmonics: Applications in Chemical Sensing and Radiation Detection*, Elsevier Publications, ISBN: 978-0443292781
6. **Virendra Singh**, Rajat Kumar Sharma, Neeraj Bisht, Neeraj Singh, and Akarsh Verma, 2025. Applications of Biochar Composites in Packaging: Benefits and Limitations. In *Polymers and Composite Materials for Packaging: Smart Food Packaging and Solutions*, pp. 435-448. Singapore: Springer Nature Singapore.
7. Sharma, Rajat Kumar, **Virendra Singh**, Deepshikha Azad, Devendra Kumar, and Akarsh Verma, 2025. Valorization of Agricultural Crop Residues for Biodegradable and Eco-friendly Food Packaging Applications. In *Polymers and Composite Materials for Packaging: Smart Food Packaging and Solutions*, pp. 465-478. Singapore: Springer Nature Singapore.
8. Dash, A.K., Tripathy, S., Naveenkumar, A., Bhoi, T.K., Kumari, A., Latare, A.M., Nandipamu, T.M.K., **Singh, V.**, Raza, M.B., Saraswat, A. and Bhadha, J., 2024. Biochar for pollutants bioremediation from soil and water ecosystem. In *Biochar production for green economy* (pp. 433-452). Academic Press.
9. Bisht, N., Kumar, H., Singh, V., Chauhan, S. (2022). Effect of Geometrical Parameters on Branched Cracks: A Finite Element Method-Based Computational Approach. In: Verma, A., Mavinkere Rangappa, S., Ogata, S., Siengchin, S. (eds) *Forcefields for Atomistic-Scale Simulations: Materials and Applications. Lecture Notes in Applied and Computational Mechanics*, vol 99. Springer, Singapore.

10. **Virendra Singh and H.M. Agrawal** "Analytical Spectroscopy for Environmental Assessment" , LAMBERT Academic Publishing, 2013, ISBN: 978-3-8473-2233-7.

CONFERENCES / SYMPOSIA / SEMINARS (Paper presented / Abstract):

- **Virendra Singh**, Neeraj Singh, Urmila Mehra, '*Nanostructured WrGO/PPy Electrodes from Upcycled Plastics for High-Efficiency Supercapacitors'* International conference in Advance in Science and Technology (ICAST-2025), Institute of Technology and Management, Dehradun, 23-25 June, 2025.
- **Virendra Singh**, *'Boron-Doped Bismuth Zinc Erbium Tellurite (TBBZE) Glass Matrix for Radiation Shielding Applications'* 17th Biennial DAE-BRNS Symposium on Nuclear and Radiochemistry, BARC, Mumbai, 2025.
- **Virendra Singh**, 'Study of Nano Zero-Valent Iron-Biochar (n-ZVIBC) Nanocomposites Adsorbent Material for the Effective Removal of Methylene Blue Dye for Wastewater Remediation' 17th Agricultural Science Congress (ASC) & ASC Agri Expo, organized by the National Academy of Agricultural Sciences (NAAS), February 20–22, 2025, GB Pant University of Agriculture and Technology (GBPUA&T) in Pantnagar, Uttarakhand.
- Neeraj Singh, **Virendra Singh, '***Development and Performance of Solid Plastic Waste-Derived Reduced Graphene Oxide and Polypyrrole (WrGO/PPy) Nanocomposite Electrode for Supercapacitors'* International Conference on Futuristic Aspects in Science & Engineering, The ICFAI University Jaipur, 06-07 Feb, 2025.
- Neeraj Singh, **Virendra Singh,** Uma Devi Sharma, '*Fabrication of waste-derived reduced graphene oxide/polypyrrole (WrGO/PPy) composite material electrodes for supercapacitor applications',* 3rd International conference on Electrochemical Science and Technology, CSIR-NPL New Delhi, 18-20 September 2024
- **Virendra Singh**, '*Nano Zero Valent Iron-Biochar (nZVI-BC) Nanocomposite adsorbent material for Methylene Blue Dye removal from aqueous solutions',* International conference on Advanvcement in Functional Materials, Prof Rajendra Singh Physical Sciences for Study and research, Jaunpur, 8-10 Feb 2024.
- Rabina Goswami, **Virendra Singh**, '*Tellurite glass for high energy radiation shielding and effect of erbium on shielding properties'* 16th Biennial DAE-BRNS symposium on Nuclear and Radiochemistry, BARC Mumbai, 1-5 May, 2023
- M.S. Rautela, **Virendra Singh**, N. Bisht, D. Kumar, C. Chuahan, D. Padalia, '*Structural Characterization of Erbium doped Zinc Boro-Tellurite Glass for High Energy Radiation Shielding Material and Evaluation of Shielding parameters using WinXCOM Program'* 23rd National Symposium on Radiation Physics, University of Mysore, 19-21 Jan, 2023
- **Virendra Singh**, *'Elemental characterization of Ocimum sanctum and Ocimum gratissium medicinal plants by x-ray fluorescence with brief translocation study'* 14th Biennial DAE-BRNS symposium on Nuclear and Radiochemistry, BARC Mumbai, 2019.

- Basant K Yadav, Harshita Gangwar and **Virendra Singh**, '*Study of zinc tellurite glass system using UV-Vis spectroscopy*', 9th conference of Indian Science Congress on 'Future India: Science And Technology', Pantnagar, October 2018.

- **Virendra Singh,** 'EDXRF study of wheat grain samples in investigating the relation between nutrients status in soil and grains', National conference on 'Progressive Science & Engineering', Chamoli, October, 2016

- **Virendra Singh**, "Atomic Absorption Spectroscopy Analysis of Water Samples and Interpretation of Obtained Dataset y PCA Approach" 10th Uttrakhand State Science & Technology Congress, 2016.

- Kulbhushan, S. K. Singhal, G.C. Joshi, **Virendra Singh**, Madan Singh, Dinesh Yadav and M. Sharma, '*Effect of varying magnetic field and time exposure on the germination of seeds of wheat'* National workshop on **Green Chemistry Practices in Teaching, Research & Industry**, pp. 99-104, March 30, 2016.

- S. K. Singhal and **V. Singh, "***Extraction of p-wave gamma ray strength functions by using Bilpuchformalism"*, National Conference On Advances in Material Science for Energy Applications (AMSEA), UPES dehradun, Oct 2014.

- **Virendra Singh**, H.M. Agrawal "*Edxrf in multidisciplinary research and equation fitting using ridge regression model*" 8th Uttrakhand State Science & Technology Congress, 2013.

- **V. Singh,** "*PRINCIPAL COMPONENT ANALYSIS (PCA): A MULTIVARIATE METHOD OF ANALYZING THE COMPLEX DATASET*", National seminar on Pesticides, Food Safety and Environment" ", G.B.Pant University of Agriculture & Technology, Pantnagar, November 2011.

- **Virendra Singh**, *'EDXRF and XRD study on the elemental and phase composition of mollisols'* 5th Uttrakhand State Science & Technology Congress, 2010.

EDITORIAL BOARD MEMBER:

- *International Journal of Research and Discovery (IJRD)*

REVIEWER:

- International Journal of Environmental Analytical Chemistry
- African Journal of Biotechnology
- Applied Radiation and Isotopes
- International Journal of Biological Macromolecules
- Desalination and Water Treatment
- Journal of Radiation Research and Applied Sciences
- Current Journal of Applied Science and Technology

MEMBERSHIP OF PROFESSIONAL SOCIETIES:

✧ Indian Association of Nuclear Chemists and Allied Scientists (IANCAS) [LM No.-1699]

AWARDS / HONOURS:

- Qualified Radiological Safety Officer, awarded by Bhabha Atomic Research Centre (BARC), Mumbai, September 2021
- Topper of MOOC Course 'Teaching and Learning in General Programmes (TALG), awarded by Indian Institute of Science (IISc) Bangalore through SWAYAM portal, August, 2023.
- Best Research Paper in 'International Conference on Advances in Science & Technology' ITM, Dehradun, June 2025
- UGC-CSIR NET, December 2008

INVITED SPEAKER / RESOURCE PERSON/ CONFERENCE COMMITTEE:

- **Invited Speaker**, International Conference on Advances in Science & Technology, ITM Dehradun, June 2025
- **Resource Person**, Lecture Series: Basic Electronics for Physicists, organized by Eternal University, H.P., June, 2024.
- **Chaired Poster Session**, National Conference on Advancement in Polymer Materials, 25-26 April, 2023, Department of Chemistry, GBPUAT
- **Co- Organizer**, 7th international conference on Innovative Approaches in Basic and Applied Sciences for Societal Development, 24-24 March, 2023, GBPUAT
- **Co-Chairperson** in scientific session, 7th international conference on Innovative Approaches in Basic and Applied Sciences for Societal Development, 24-24 March, 2023, GBPUAT
- **Resource Person**, ICAR SC-SP Programme, 01 Jan -15 March 2021 (Online mode)
- **Resource Person**, Virtual workshop, Uttarakhand Open University, 31.08.2020
- **Resource Person**, Virtual workshop, Uttarakhand Open University, July 06- July 19, 2020
- **Invited Speaker**, National conference on 'Status of Upcoming Trends in Biodiversity Conservation', January 06, 2019, Chaman Lal Mahavidhyalaya, Roorkee

PARTICIPATION IN DEVELOPMENT OF PROFESSIONAL COMPETENCE [WORKSHOPS / TRAINING / CONCLAVE]:

- **'Nurturing Future Leadership Programme (NFLP)'**, under the aegis of Malaviya Mission Teacher Training Programme (MMTTP), conducted by Indian Institute of Management (IIM) Kashipur, December 2024.
- **'NEP 2020 Orientation & Sensitization Programme',** UGC-MMTTC, Kumaun University Nainital, 26 Feb – 06 March, 2024.

- NPTEL-AICTE **FDP in 'Teaching and learning in General programs,** July-August, 2023, conducted by IISC Bangalore
- NPTEL Online Certification course in 'Teaching and learning in General programs, July-August, 2023, conducted by IISC Bangalore
- **'Refresher Course in Physics'**, 13-22 September, 2022, UGC-HRDC, Kumaun University, Nainital
- **'Training cum RSO Certificate Course on Radiation Safety Aspects of Gamma Irradiation Chamber'**, July 5-14, 2021, Government of India, Bhabha Atomic Research Centre
- Two day online training on ' **Pedagogy of online teaching: Philosophy and Methods**' GBPUAT, Pantnagar, 23-24 October, 2020
- '**Science Leadership Workshop**' University of Punjab , 22 June-28 June, 2020

- Three days International Webinar series on '**Modern Analytical Methods in Chemistry**' GBPUAT, June 15-june 17, 2020
- **One week Short Term Course on 'Advanced Functional Materials,** Characterization & Applications, Organized by Department of Physics, MNIT Jaipur, 29 Feb- 04 March, 2020.

- Four week **'Orientation Programme' ,** UGC-HRDC, Kumaun University, Nainital, from 23 May 2018 to 20 June 2018.

- Two week **'Refresher Course in Experimental Physics',** 20 June 2017 to 05 July 2017.
- **National Workshop (91st BRNS-IANCAS) on "Radiochemistry and Applications of Radioisotopes"** conducted by IANCAS & GBPUAT, 22 Feb-27 Feb, 2016.

- **'Induction Training Programme for Newly Recruited Assistant Professors'**, Organized by GBPUAT, 21 Dec- 27 Dec, 2015.

- Conclave on **'Renaissance of Science in Uttarakhand'** organized by School of Science, Uttarakhand Open University, Dehradun, 12 June 2014.

- **'High Impact Teaching Skills workshop',** DALE CARNEGIE TRAINING, 20-21 March, Bharat Institute of technology, March 2012.

- **"Mission 10X workshop"** Bharat Institute of technology, March 2012.