Curriculum Vitae

Full Name	Dr. Vivek Sharma	
Designation	Assistant Professor	
Department	Physics	
Campus	Birla Chauras Campus	
Telephone		
Mobile	+91 8130618832	
Email	vsharma.phys@gmail.com	
Education Qualification	Ph.D. (2018), Banaras Hindu University, Varanasi	

Teaching Experience	4 Years	**Research Experience**	15 Years

Areas of Interest/ Specialization
1. Neutrino Physics
2. Dark Matter Searches
3. Ionization Detectors

Honours & Awards
1. Institute of Physics, Academia Sinica (Taiwan), Fellowship, 2018
2. Ministry of Science and Technology (Taiwan) Fellowship, 2019
3. Taiwan Physical Society Oral Presentation Award (TPS Meeting), 2020

Member of Academic Institutions
None

Membership of Scientific Organization
1. TEXONO Collaboration

Research Supervision
Registered: 1
Awarded: None

Research Projects/ MoU undertaken
None

Administrative Experience
1. Convener of Institutional Innovation Council, HNBGU (2024-25)
2. Member of Board of Studies, Department of Physics, HNBGU (2024-25)
3. Department Coordinator of RTI Cell, HNBGU (2024 onwards)
4. Member and Department Coordinator of Placement and Counseling Cell, HNBGU (2023 onwards)

Workshop/Seminar/School Organised

- **Workshop on Gravitational Waves and LIGO India**, *Role: Organising Secretary, H.N.B. Garhwal University, India (May 2025).*
- **Workshop on Astronomical Telescope Making**, *Role: Organising Secretary, H.N.B. Garhwal University, India (March 2025).*
- **Workshop on Assimilating the Concepts of Physics through Hands-on Experiments, Demonstration Experiments, Workshops and Kit Making for PGT Physics**

in Uttarakhand, *Role: Organising Secretary, H.N.B. Garhwal University, India (Feb. 2024).*

- **Securing Research Funding: A Workshop on Proposal Writing, IPR and Other Related Issues**, *Role: Member, H.N.B. Garhwal University, India (Dec. 2023).*
- **Vigyan Mahotsav (Science Week)**, *Role: Coordinator, H.N.B. Garhwal University, India (Feb. 2023).*
- **Getting Involved With Physics (Student Interaction Program)**, *Role: Organising Secretary, H.N.B. Garhwal University, India (Dec. 2022).*
- **General Physics Lecture Series (Monthly)**, *Role: Co-Organising Secretary, H.N.B. Garhwal University, India (Nov. 2022).*

International Conference/Meeting/School Attended

- *PIRE-GEMADARC collaboration Meeting, Taipei, Taiwan (2023).*
- *PIRE-GEMADARC Summer School, Academia Sinica, Taipei, Taiwan (2023).*
- *The Magnificent CEνNS Workshop, (Online), U.S.A. (2021).*
- *17th International Conference on Topics in Astroparticle and Underground Physics, (Online), Spain (2021).*
- *28th International Workshop on Weak Interactions and Neutrinos, (Online), U.S.A. (2021).*
- *The Magnificent CEνNS Workshop, (Online) (2020).*
- *40th International Conference on High Energy Physics, (Online), Prague (2020).*
- *Annual Meeting of the Physical Society of the Republic of China, Pingtung, Taiwan (2020).*
- *16th International Conference on Topics in Astroparticle and Underground Physics, Toyama, Japan, (2019).*
- *Annual Meeting of the Physical Society of the Republic of China, Hsinchu, Taiwan (2019).*
- *5th International Workshop on Dark Matter, Dark Energy and Matter-AntiMatter Asymmetry, NTHU, Hsinchu and Fo-Guang Shan, Kaoh-Siung, Taiwan (2019).*
- *PIRE-GEMADARC Summer School, Sichuan University, Chengdu, China (2018).*
- *The 2nd PIRE-GEMADARC collaboration meeting, Xichang, China (2018).*
- *NCTS Workshop on Dark Matter, Particles and Cosmos, NDHU, Hualien, Taiwan (2017).*
- *13th Rencontres Du Vietnam, Exploring the Dark Universe, Quy Nhon, Vietnam (2017).*
- *13th Rencontres Du Vietnam, Neutrinos, Quy Nhon, Vietnam (2017).*
- *4th International Workshop on Dark Matter, Dark Energy and Matter-AntiMatter Asymmetry, NTHU, Hsinchu, Taiwan (2016).*
- *Asia Europe Pacific School for High Energy Physics, Beijing, China (2016).*
- *Summer Institute on Phenomenology of Elementary Particle Physics and Cosmology, Xi Tou, Taiwan (2016).*
- *1st KEK-KIAS-NCTS Joint Workshop on Particle Physics Phenomenology, NTHU, Hsinchu, Taiwan (2016).*
- *NCTS school on Atomic Theory for Low Energy Detector Responces, NDHU, Hualien, Taiwan (2016).*

- *Annual Meeting of the Physical Society of the Republic of China, Kaohsiung, Taiwan (2016).*
- *International Conference on Massive Neutrinos, Nanyang Technological University, Singapore (2015).*
- *The second Institute of Advance Studies School on Particle Physics, Cosmology and Implications for technology, Nanyang Technological University, Singapore (2015).*

National Conference/Meeting/School Attended

- *National Conference on Advanced Instrumentation for Nuclear Physics, High-Energy Physics, and Medical Imaging 2026, Central University of South Bihar, India (2026).*
- *16th DAE-BRNS Symposium on High Energy Physics, Banaras Hindu University, India (2024).*
- *65th DAE-BRNS Symposium on Nuclear Physics, (Online), India (2021).*
- *24th DAE-BRNS Symposium on High Energy Physics, (Online), India (2020).*
- *62nd DAE-BRNS Symposium on Nuclear Physics, Thapar University, Patiala, India (2017).*
- *International Workshop on Applied Antineutrino Physics, BARC, Mumbai, India (2017).*
- *10th One day Conference at Department of physics Banaras Hindu University Varanasi, India (2017).*
- *INO (Indiabased Neutrino Observatory) Collaboration meeting, BARC, Mumbai, India (2013).*
- *Winter School on High Energy Physics, Banaras Hindu University, Varanasi, India (2013).*
- *INO Collaboration meeting, BARC, Mumbai, India (2012).*
- *57th DAE-BRNS Symposium on Nuclear Physics, University of Delhi, India (2012).*
- *International Conference on Recent Trends in Nuclear Physics (ICRTNP), Chitkara University, Barotiwala, India (2012).*
- *6th One day Conference at Department of physics Banaras Hindu University Varanasi, India (2012).*
- *5th One day Conference at Department of physics Banaras Hindu University Varanasi, India (2011).*

Oral Presentations/Invited Talks

1. **"Status of Coherent Elastic Neutrino-Nucleus Scattering at Reactors"**,
   "National Conference on Advanced Instrumentation for Nuclear Physics, High-Energy Physics, and Medical Imaging 2026, India, 2026"
2. **"Coherency Effects in Neutrino-Nucleus Elastic Scattering"**,
   "16th DAE-BRNS Symposium on High Energy Physics, India, 2024"
3. **"Probing the Neutrino-Nucleus Elastic Scattering with Point Contact Germanium detectors and its Quantum-Mechanical Coherency Effects"**,
   "65th DAE-BRNS Symposium on Nuclear Physics, India, 2021"
4. **"Probing the Neutrino-Nucleus Elastic Scattering with Point Contact Germanium**

detectors and its Quantum-Mechanical Coherency Effects",
"The Magnificent CEνNS, U.S.A., 2020"

5. **"Probing the Neutrino-Nucleus Elastic Scattering with Point Contact Germanium detectors and its Quantum-Mechanical Coherency Effects"**,
"17th International Conference on Topics in Astroparticle and Underground Physics, Spain, (2021)"

6. **"Studies of Quantum Mechanical Coherency Effects in Neutrino-Nucleus Elas- tic Scattering"**,
"40th International Conference on High Energy Physics (ICHEP2020), Prague, 2020"

7. **"Studies of Neutrino Nucleus Elastic Scattering at Reactors"**,
"The Annual Meeting of the Physical Society of Taiwan, Pingtung, Taiwan, 2020"

8. **"Coherency in Neutrino-Nucleus Elastic Scattering"**,
"16th International Conference on Topics in Astroparticle and Underground Physics, Toyama, Japan, 2019"

9. **"Status of Neutrino-Nucleus Scattering experiment at Kuo-Sheng Reactor Neutrino Laboratory"**,
"Annual Meeting of the Physical Society of the Republic of China, Hsinchu, Taiwan, 2019"

10. **"Coherency in Neutrino-Nucleus (νA_{el}) Scattering"**,
"5th International Workshop on Dark Matter, Dark Energy and Matter-AntiMatter Asymmetry, NTHU, Hsinchu and Fo-Guang Shan, Kaoh-Siung, Taiwan, 2019"

11. **"Initial testing and characterization from Electric cooling Ge detectors"**,
"The 2nd PIRE-GEMADARC collaboration meeting, Xichang, China, 2018"

12. **"Coherent Elastic Neutrino-Nucleus Scattering"**,
"DAE Symposium on Nuclear Physics, Patiyala, 2017"

13. **"Status of Neutrino-Nucleus Coherent Elastic Scattering measurement from TEXONO"**,
"International Workshop on Applied Antineutrino Physics, Mumbai, 2017"

14. **"Coherent scattering of neutrinos with nucleus"**,
"13th Rencontres Du Vietnam, Neutrinos, Quy Nhon, Vietnam, 2017"

15. **"Neutrino-Nucleus Coherent Elastic Scattering ($\nu \mathbf{A}_{el}$) at TEXONO"**,
"NCTS Workshop on Dark Matter, Particles and Cosmos, NDHU, Taiwan, 2017"

16. **"Towards Observation of Neutrino-Nucleus Coherent Scattering with Point-Contact Germanium Detector at Kuo-Sheng Reactor Neutrino Laboratory"**,
"4th International Workshop on Dark Matter, Dark Energy and Matter-AntiMatter Asymmetry, NTHU, Hsinchu, Taiwan, 2016"

17. **"Coherency in Neutrino-Nucleus Elastic Scattering"**,
"1st KEK-KIAS-NCTS Joint Workshop on Particle Physics Phenomenology, NTHU, Hsinchu, Taiwan, 2016"

18. **"Towards Observation of Neutrino-Nucleus Coherent Scattering with Point-Contact Germanium Detector at Kuo-Sheng Reactor Neutrino Laboratory"**,
"Annual Meeting of the Physical Society of the Republic of China, Kaohsiung, Taiwan, 2016"

Poster Presentations

1. **"Low Threshold Germanium Detectors for Neutrino-Nucleus Elastic Scattering and the Studies of its Quantum-Mechanical Coherency Effects"**,
   "17th International Conference on Topics in Astroparticle and Underground Physics, Spain, 2021."
2. **"Low Threshold Detectors for Neutrino-Nucleus Elastic Scattering and the Studies of its Quantum-Mechanical Coherency Effects"**,
   "28th International Workshop on Weak Interactions and Neutrinos, USA, 2021."
3. **"Quantum Mechanical Coherency Effects in Neutrino-Nucleus Elastic Scattering"**,
   "24th DAE-BRNS Symposium on High Energy Physics, NISER-Odisha, 2020"
4. **"Studies of Quantum Mechanical Coherency Effects in Neutrino-Nucleus Elastic Scattering"**,
   "Neutrino, 2020"

List of Publications

1. **New Limits on the Coherent Neutrino-Nucleus Elastic Scattering Cross Section at the Kuo-Sheng Reactor-Neutrino Laboratory**,
   S. Karmakar et al.,
   Phys. Rev. Lett. **134**, 121802 (2025)
2. **Dark matter annual modulation analysis with combined nuclear and electron recoil channels**,
   H. B. Li et al.,
   Phys. Rev. D **111**, 083035 (2025).
3. **Constraints on new physics with light mediators and generalized neutrino interactions via coherent elastic neutrino nucleus scattering**,
   S. Karadag et al.,
   Phys. Rev. D **112**, 035038 (2025).
4. **Projections of discovery potentials from expected background**,
   M. K. Singh et al.,
   Phys. Rev. D **109**, 032001 (2024).
5. **Search for new physics with reactor neutrino at Kuo-Sheng neutrino laboratory**,
   S. Karmakar et al.,
   Indian J. of Phys. **99**, 1845 (2024).
6. **Heavy hexaquarks in the flux tube model**,
   D. G. Sindhu et al.,
   Mod. Phys. Lett. A **39**, 2450008 (2024).
7. **Constraints on sub-GeV dark matter boosted by cosmic rays from the CDEX-10 experiment at the China Jinping Underground Laboratory**,
   R. Xu et al.,
   Phys. Rev. D **106**, 052008 (2022).

8. **Constraints on Sub-GeV Dark Matter–Electron Scattering from the CDEX-10 Experiment**,
Z. Y. Zhang et al.,
Phys. Rev. Lett. **129**, 221301 (2022).

9. **Search for neutrinoless double-beta decay of ^{76}Ge with a natural broad energy germanium detector**,
W. H. Dai et al.,
Phys. Rev. D **106**, 032012 (2022).

10. **Studies of the Earth shielding effect to direct dark matter searches at the China Jinping Underground Laboratory**,
Z. Z. Liu et al.,
Phys. Rev. D **105**, 052005 (2022).

11. **Studies of Quantum-Mechanical Coherency Effects in Neutrino-Nucleus Elastic Scattering**,
V. Sharma et al.,
Phys. Rev. D **103**, 092002 (2021).

12. **First experimental constraints on WIMP couplings in the effective field theory framework from CDEX**,
Y. Wang, et al.,
Science China (Phys., Mech. & Astro.) **64**, 8 281001 (2021).

13. **Direct Detection Constraints on Dark Photons with the CDEX-10 Experimentat the China Jinping Underground Laboratory**,
Z. She, et al.,
Phys. Rev. Lett. **124**, 111301 (2020).

14. **Improved limits on solar axions and bosonic dark matter from the CDEX-1B experiment using the profile likelihood ratio method**,
Y. Wang, et al.,
Phys. Rev. D **101**, 052003 (2020).

15. **Exposure-background duality in the searches of neutrinoless double beta decay**,
M. K. Singh, et al.,
Phys. Rev. D **101**, 013006 (2020).

16. **Required sensitivity in the search of neutrinoless double beta decay in ^{124}Sn**,
M. K. Singh, et al.,
Indian J. of Phys. **1–8**, (2019).

17. **Search of Light-Weakly-Interacting-Massive-Particle Dark Matter by annual modulation analysis with a point-contact germanium detector at the China Jinping Underground Laboratory**,
L. T. Yang, et al.,
Phys. Rev. Lett. **123**, 221301 (2019).

18. **Constraints on Spin-Independent Nucleus Scattering with sub-GeV Weakly Interacting Massive Particle Dark Matter from the CDEX-1B Experiment at the China Jinping Underground Laboratory**,
Z. Z. Liu, et al.,
Phys. Rev. Lett. **123**, 161301 (2019).

19. **Constraints on Bosonic Dark Matter with Low Threshold Germanium Detector at Kuo-Sheng Reactor Neutrino Laboratory**,
M. K. Singh, **V. Sharma*** et al.,
Chinese J. of Phys. **58**, 63 (2019).

20. **Constraints on millicharged particles with low-threshold germanium detectors at Kuo-Sheng Reactor Neutrino Laboratory**,
L. Singh, et al.,
Phys. Rev. D **99**, 032009 (2019).

21. **Performances of a prototype point-contact germanium detector immersed in liquid nitrogen for light dark matter search**,
H. Jiang, et al.,
Science China (Phys., Mech. & Astro.) **62**, 031012-1 (2018).

22. **Neutron background measurements with a hybrid neutron detector at the Kuo-Sheng Reactor Neutrino Laboratory**,
A. Sonay, et al.,
Phys. Rev. C **98**, 024602 (2018).

23. **Status of the search of coherent neutrino nucleus elastic scattering at KSNL**,
V. Sharma et al.,
Indian J. of Phys. **92**, 1145 (2018).

24. **Limits on light WIMPs with a 1 kg-scale germanium detector at 160 eVee physics threshold at the China Jinping Underground Laboratory**,
Li-Tao Yang, et al.,
Chinese Phys. C **42**, 023002 (2018).

25. **Limits on Light Weakly Interacting Massive Particles from the First 102.8 kg×day Data of the CDEX-10 Experiment**,
H. Jiang et al.,
Phys. Rev. Lett. **120**, 241301 (2018).

26. **Characterization of the sub-keV Germanium detector**,
M. K. Singh, et al.,
Indian J. of Phys. **92**, 401-408, (2018).

27. **Bulk and surface event identification in p-type germanium detectors**,
L. T. Yang, et al.,
Nucl. Inst. and Meth. in Phys. Res. A **886**, 13-23 (2018).

28. **Background rejection of TEXONO experiment to explore the sub-keV energy region with HPGe detector**,
M. K. Singh, et al.,
Indian J. of Phys. **91**, 1277–1291 (2017).

29. **Constraints on axion couplings from the CDEX-1 experiment at the China Jinping Underground Laboratory**,
S. K. Liu, et al.,
Phys. Rev. D **95**, 052006 (2017).

30. **The first result on ^{76}Ge neutrinoless double beta decay from CDEX-1 experiment**,
Wang. Li, et al.,
Science China (Phys., Mech. & Astro.) **60**, 7 (2017).

31. **Design and Performance of a Hybrid Fast and Thermal Neutron Detector**,
M. K. Singh, et al.,
Nucl. Inst. and Meth. in Phys. Res. A **868** , 109-118 (2017).

32. **Search of low-mass WIMPs with a p-type point contact germanium detector in the CDEX-1 experiment**,
W. Zhao, et al.,
Phys. Rev. D **93**, 092003 (2016).

33. **Characterization and performance of germanium detectors with sub- keV sensitivities for neutrino and dark matter experiments**,
A. K. Soma, et al.,
Nucl. Inst. and Meth. in Phys. Res. A **836**, 67-82 (2016).

34. **Coherency in neutrino-nucleus elastic scattering**,
S. Kerman, **V. Sharma**, et al.,
Phys. Rev. D **93**, 113006 (2016).

35. **Differentiation of bulk and surface events in p-type point-contact germanium detectors for light WIMP searches**,
H. B. Li, et al.,
Astroparticle Physics **56**, 1-8 (2014).

List of Articles Published in Conference Proceedings

1. 16th DAE-BRNS High Energy Physics (HEP) Symposium, Varanasi, India (2024),
"Coherency Effects in Neutrino-Nucleus Elastic Scattering",
V. Sharma et al.,
Springer Proceedings in Physics, **432** (2026).

2. 17th International Conference on Topics in Astroparticle and Underground Physics, Spain (2021),
"Probing the Neutrino-Nucleus Elastic Scattering with Point Contact Germanium detectors and its Quantum-Mechanical Coherency Effects",
V. Sharma et al.,
J. Phys.: Conf. Ser. **2156**, 012206 (2021).

3. 40th International Conference on High Energy physics (ICHEP2020),
"Studies of Quantum Mechanical Coherency Effects in Neutrino-Nucleus Elastic Scattering",
V. Sharma et al.,
Proceedings of Science **390**, (2021).

4. 16th International Conference on Topics in Astroparticle and Underground Physics, Toyama, Japan (2019),
"Coherency in Neutrino-Nucleus Elastic Scattering",
V. Sharma et al.,
J. Phys.: Conf. Ser. **1468**, 012149 (2020).

5. ^{62th}DAE Symposium on Nuclear Physics 2017,
"Coherent Elastic Neutrino-Nucleus Scattering",

V. Sharma et al.,
DAE Symp. Nucl. Phys. **62**, 19 (2017).

6. ^{61th}DAE Symposium on Nuclear Physics 2016,
"Study of neutrino properties at TEXONO",
M. K. Singh, **V. Sharma** et al.,
DAE Symp. Nucl. Phys. **61**, 914 (2016).

7. ^{61th}DAE Symposium on Nuclear Physics 2016,
"Coherency in Low Energy Neutrino Nucleus Elastic Scatterings",
V. Sharma et al.,
DAE Symp. Nucl. Phys. **61**, 888 (2016).

8. ^{60th}DAE Symposium on Nuclear Physics 2015,
"Need of Internal Amplification and Germanium Detector for Investigation of Rare Physics Processes",
V. Singh, **V. Sharma** et al.,
DAE Symp. Nucl. Phys. **60**, 1004 (2015).

9. ^{60th}DAE Symposium on Nuclear Physics 2015,
"Energy Calibration and Measurement using Signal Amplitude for various Germanium detectors",
V. Singh, **V. Sharma** et al.,
DAE Symp. Nucl. Phys. **60**, 846 (2015).

10. ^{58th}DAE Symposium on Nuclear Physics 2013,
"Impedance Measurement of Suitable Materials for INO RPC detector Pickup Strip Panels",
M. K. Jaiswal, **V. Sharma** et al.,
DAE Symp. Nucl. Phys. **58**, 814 (2013).

11. ^{58th}DAE Symposium on Nuclear Physics 2013,
"Study of cosmic ray muons momentum and charge asymmetry spectra",
V. Sharma et al.,
DAE Symp. Nucl. Phys. **58**, 814 (2013).

12. ^{57th}DAE Symposium on Nuclear Physics 2012,
"Study of Surface Resistivity of Resistive Plate Chamber Detectors",
M. K. Jaiswal, **V. Sharma** et al.,
DAE Symp. Nucl. Phys. **57**, 640 (2012).

13. ^{57th}DAE Symposium on Nuclear Physics 2012,
"China Jin-Ping Deep Underground Laboratory: Status and Plan",
A. K. Soma, **V. Sharma** et al.,
DAE Symp. Nucl. Phys. **57**, 640 (2012).

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