DEPARTMENT OF PHYSICS

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Educational Qualification:	• Ph. D. (2011), **Indian Institute of Technology, Roorkee, India** • **Thesis Topics**: "**Quarkonium suppression in nucleus-nucleus collisions"** • M. Tech. (2007), **Indian Institute of Technology, Delhi, India**	
Courses Taught:	• Solid State Physics • Heat and thermodynamics • Waves and Oscillations • Plasma and Space Physics • High energy Physics I • Vector calculus • Heat and Thermodynamics • Planetary Physics • Solar Environment • Experiment Techniques in Physics	
Additional role/ responsibility:	• Associate NCC officer (ANO), CUJ • Department Time Table In-charge and lab in-charge • Member of Proctorial Board (from 2016-to November 2020) • Programme officer-NSS (from 2017- November 2020) • Member of End Term Examination CUJ • Department Time Table In-charge and lab in-charge • Member of Admission committee CUJ(from 2015- dec 2021)	

Professional /Administrative Experience:	• Assistant Professor (August 2012- Present), Department of Physics, Central University of Jharkhand, Ranchi, India • Assistant Professor (January 2012-July 2012), Department of Physics, Galgotias University, Greater Noida, U.P, India
Awards& Honours	• Senior Research Fellowship (2009-2011), Indian Institute of Technology, Roorkee, India • Institute Research Fellowship (2007-2009), Indian Institute of Technology, Roorkee, India
Research Area:	Heavy quark physics, Relativistic nucleus nucleus collisions and early universe
Research Guidance:	**Ph. D.: 04(Awarded), M. Sc.: 42** 1. Quarkonium Dissociation As A Probe of Color Screening in Hot QCD Medium (Indrani Nilima, 2018, Awarded). **2.** Quarkonium Properties in the Presence of Magnetic Field in Hot Quark Gluon Plasma (Manohar Lal, 2024, Awarded) 3. Study of Quarkonium in Hot QCD medium with chemical potential using Quasi Particle Approach (Siddhartha Solanki,2025, Awarded) 4. Quarkonium properties in hot QCD medium using Theoretical Approach (Rishabh Sharma, 2025, Awarded)
Brief introduction:	Lt. Dr. Vineet Kumar Agotiya is actively involved in teaching and Research & Development activity for the development of various types of high energy physics model. He is also involved in R&D in collaboration with IIT and other national importance institutes. Dr. Agotiya has a considerable teaching and research experience of around Thirteen years in various capacities at different levels. He has made immense contributions in the areas of High energy physics. He has published more than twenty research articles in different SCI journals of international and national repute. The four Ph.D., forty two M.sc. students have been awarded thesis dissertation under his guidance.
Project (Completed/ Ongoing)	1. Dr. Vineet Kumar Agotiya (PI) received a research Grant of 24.56 lakhs from DST-SERB EEQ scheme on 2019 for the project entitles "**Study of quarkonium in Hot QCD medium using Quasi Particle Approach**" (Ref. No.: EEQ/2018/000181); Duration: 03 years, Status: Completed. 2. Dr. Vineet Kumar Agotiya (PI) received a research Grant of 6.00 lakh from UGC-BSR scheme on July 2014 for the project entitles "**Some outlook of strongly interacting quark Gluon Plasma**" (Ref. No.: UGC-BSR startup grant); Duration: 02 years, Status: Completed

Articles Published/ Accepted:	**2025** **23.** Siddhartha Solanki, Manohar Lal, and Vineet Kumar Agotiya "Heavy Quarkonium States With Baryonic Chemical Potential" Advances in High Energy Physics Volume 2025, Article ID 6634706, 11 pages, https://doi.org/10.1155/ahep/6634706 **22.** Rishabh Sharma, Siddhartha Solanki and Vineet Kumar Agotiya "Thermodynamics of heavy Quarkonia using the SUSQM method in the presence of baryonic chemical potential 'Journal of Subatomic particle and cosmology" volume 4 , 100130(2025). https://doi.org/10.1016/j.jspc.2025.100130 **21.** Rishabh Sharma, Siddhartha Solanki, Manohar Lal, and Vineet Kumar Agotiya "Heavy quarkonium dissociation in the presence of magnetic field and anisotropy using dissociation energy criterion". *Indian J Phys* (2025). https://doi.org/10.1007/s12648-024-03503-x **2024** 20. Siddhartha Solanki, Manohar Lal, Rishabh Sharma and Vineet Kumar Agotiya, "Dissociation and thermodynamical properties of heavy quarkonia in an anisotropic strongly coupled hot QGP: using parameter μb", Phys. Rev. C 109, 024905 (2024). **https://doi.org/10.1103/PhysRevC.109.024905** 19. Rishabh Sharma, Siddhartha Solanki, Manohar Lal, and Vineet Kumar Agotiya, "Study of heavy quarkonia in the presence of magnetic field by Nikiforov Uvarov method", International Journal of Modern Physics A, 39 2450071(2024). **https://doi.org/10.1142/S0217751X24500714** 18. Rishabh Sharma, Shashanka Shekhar Dash and Vineet Kumar Agotiya, "Effect of strong magnetic field on thermodynamic properties of quarkonia: NUFA method", Eur. Phys. J. plus, 139 998(2024). **https://doi.org/10.1140/epjp/s13360-024-05784-x** 17. Siddhartha Solanki, Manohar Lal, Vineet Kumar Agotiya," Dissociation of *J*/*ψ* and *Y* Using Dissociation Energy Criteria in *N*-Dimensional Space" Advances in High Energy PhysicsVolume 2024, Issue 1, Article ID 1045067, 14 pages. https://doi.org/10.1155/2024/1045067 **2023** 16. Manohar Lal, Siddhartha Solanki, Rishabh Sharma and Vineet Kumar Agotiya," "Anisotropic Behavior of S-Wave and P-Wave States of Heavy Quarkonia at Finite Magnetic Field" Advances in high energy physics, Volume 2023 | article ID 6922729, **https://doi.org/10.1155/2023/6922729** **2022** 15.Siddhartha Solanki, Manohar Lal,Rishabh Sharma and Vineet Kumar Agotiya," Study of quarkonium properties using SUSYQM method with baryonic chemical potential", International Journal of Modern Physics A, Volume 37, Pages -2250196-127(2022). https://doi.org/10.1142/S0217751X22501962 14. Siddhartha Solanki, Manohar Lal,and Vineet Kumar Agotiya, "Study of Differential Scattering Cross-Section Using Yukawa Term of Medium-Modified

Cornell Potential", Advances in High Energy Physics, Volume 2022 | Article ID 1456538 (2022) https://doi.org/10.1155/2022/1456538

13. Manohar Lal, Siddhartha Solanki, Rishabh Sharma and Vineet Kumar Agotiya, "Melting of Quarkonia in Strong Magnetic Field", Indian Journal of Pure & Applied Physics, Vol. 60, 2022, pp.475-482. http://nopr.niscpr.res.in/handle/123456789/59882

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12. Indrani Nilima and Vineet Kumar Agotiya, Equation of states and charmonium suppression in Heavy ion collisions, Advances in High Energy Physics Article ID 9574136, Volume 2019 (2019).
https://doi.org/10.1155/2019/9574136

11. On the fate of quarkonia in quark gluon plasma medium within a Quasi-particle model, V.K. Agotiya, I. Nilima, Indian journal of pure and Applied Physics, Vol. 57,August 2019, PP 531-535.

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9. Mohammad Yousuf Jamal, Indrani Nilima, Vinod Chandra, and Vineet Kumar Agotiya, Dissociation of heavy quarkonia in an anisotropic hot QCD medium in a quasiparticle Model, Phys. Rev. D 97, 094033 – Published 31 May 2018.
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6. Vineet Kumar Agotiya and Indrani Nilima: Charmonium Suppression in Strongly Interacting Quark Gluon Plasma, Review of Applied Physics, 35-39, (2014).

5. Vineet Agotiya, Lata Devi, Uttam Kakade and B. K. Patra, Strongly-interacting QGP and quarkonium suppression at RHIC and LHC energies, International J. of Mod. Phys. A Vol.27, no.2 (2012) 1250009.
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4. B. K. Patra, Lata Devi, Uttam Kakade, **Vineet Agotiya** and V. Chandra $chic_c$ and chi_b states in hot quark gluon plasma, Journal of Modern Physics, 2012, 3, 483-49. 10.4236/jmp.2012.36065

3. B. K. Patra, **Vineet Agotiya**, and V. Chandra Charmonium suppression in the presence of dissipative forces in a strongly coupled quark-gluon plasma, , European Physical Journal C 67, 465, 2010.
https://doi.org/10.1140/epjc/s10052-010-1318-2

2. **Vineet Agotiya**, V. Chandra, B. K. Patra, Dissociation of quarkonium in hot QCD medium: Modification of the inter-quark potential, Phys. Rev. C 80, 025210, 2009. https://doi.org/10.1103/PhysRevC.80.025210 1. 1. K. Pradeesh, C.J. Oton, **V. K. Agotiya**, M. Raghavendra, and G. Vijaya Prakash, Optical properties of Er^{3+} doped alkali-chloro

	phosphate glasses for optical amplifiers". Optical materials, 31, 155 (2008). https://doi.org/10.1016/j.optmat.2008.02.007 .
Seminar/ Workshop/ Conference Participation:	**International Conference/Workshop** **29. Vineet Kumar Agotiya[1]**, Rishabh Sharma, Siddhartha Solanki, Manohar La Quarkonium and Thermodynamical Properties in a Baryon-Rich Anisotropic Medium QGP" at HOT QCD matter (series 3) Conference at IIT Bhilai-04-06 September 2025. **28.** Rishabh Sharma and Vineet Kumar Agotiya"Impact of Magnetic Field on the Properties of Heavy Quarkonia" at HOT QCD matter Conference at IIT mandi published online in IJMPE's Volume No. 34, Issue No. 07, Article No. 2544003, Year 2025. https://doi.org/10.1142/S0218301325440033 **27.** Rishabh Sharma and Vineet Kumar Agotiya "Thermodynamics of Heavy Quarkonia Using the SUSYQM Method in the Presence of Baryonic Chemical Potential" at the 10th Asian Triangle Heavy Ion Conference (ATHIC 2025), held at IISER Berhampur from January 13–16, 2025 **26.** Rishabh Sharma and Vineet Kumar Agotiya "Effects of Strong Magnetic Field on Quarkonium Thermodynamics: NUFA Method" at the International Conference on Frontier of High Energy Physics (ICFHEP-2025), held at IIT Bhilai from February 13–15, 2025. 25. Rishabh Sharma and Vineet Kumar Agotiya "Effect of Dimensionality Number on Thermodynamic Properties of Heavy Quarkonia" at the DAE Symposium on Nuclear Physics, held at IIT Roorkee from December 7–11, 2024. 24. Rishabh Sharma, Siddhartha Solanki, Manohar Lal, and Vineet Kumar Agotiya, "Study of thermodynamic properties and eigen functions for heavy Quarkonia in the presence of magnetic field" in the "Meghnad Saha Memorial International Conference on Frontiers of Physics" (MSMICFP-2023) during November 22-24, 2023 at the Department of Physics, University of Allahabad, Prayagraj U.P. (India). 23. Siddhartha Solanki, Manohar Lal, Rishabh Sharma and Vineet Kumar Agotiya, "Thermodynamical properties in anisotropic medium with strong magnetic field", attended the 2nd International conference on "Advancement in Core and Frontier of Physics (ACFP-2023)" in Hybrid mode organized by department of physics GLA University Mathura (17-19 February 2023). 22. Siddhartha Solanki, Manohar Lal,Rishabh Sharma and Vineet Kumar Agotiya, "Charmonium Suppression in an Anisotropic Hot QCD Medium Using Quasi-Particle Model", ECS Transactions, 107 (1) 2127-2138 (2022).DOI: 10.1149/10701.2127ecst. ISSN:19385862, 19386737 21.Siddhartha Solanki, Manohar Lal, Rishabh Sharma and Vineet Kumar Agotiya, "Dissociation baryonic chemical potential of the QGP at momentum anisotropy wit quasiparticle approach", XXV DAE-BRNS HIGH ENERGY PHYSICS SYMPOSIUM held during 12-16 Dec. 2022 IISER, MOHALI https://doi.org/10.1007/978-981-97-0289-3_166 20 .Rishabh Sharma, Siddhartha Solanki, Manohar Lal,Vineet Kumar Agotiya, "Study of 1P states of Quarkonia using Quasi-Particle approach with Baryonic chemical potential", XXV DAE-BRNS HIGH ENERGY PHYSICS SYMPOSIUM

	held during 12-16 Dec. 2022 IISER, MOHALI 19. Manohar Lal, Siddhartha Solanki, Rishabh Sharma and Vineet Kumar Agotiya, " Effect of Magnetic Field on 1P States of the Heavy Quarkonia", XXV DAE-BRNS HIGH ENERGY PHYSICS SYMPOSIUM held during 12-16 Dec. 2022 IISER, MOHALI . doi.org/10.1007/978-981-97-0289-3_359 18. Manohar Lal, Siddhartha Solanki, Rishabh Sharma and Vineet Kumar Agotiya, "The dissociation temperatures and suppression study of the Bottomonium states for the LHC energy",ECS Transactions, 107(1), 2117-2126(2022). DOI: 10.1149/10701.2117ecst. ISSN:19385862, 19386737 17. Vineet Kumar Agotiya, Siddhartha Solanki and Manohar Lal, "Quarkonium dissociation properties at finite chemical potential in relativistic heavy ion collisions", Journal of Physics: Conference Series 1849(1), 012033(2021). DOI: doi:10.1088/1742-6596/1849/1/012033. 16. Vineet Kumar Agotiya, Siddhartha Solanki and Manohar Lal "Quarkonium dissociation properties at finite chemical potential in relativistic heavy ion collisions" National Conference on Recent Advancement in Physical Sciences (NCRAPS-2020), December 19-20, 2020 held at NIT Uttarakhand. 15.Vineet Kumar Agotiya and Indrani, Nilima "On the fate of Quarkonia in quark gluon plasma medium within a Quasi-Particle Model" International conference on Nuclear Particle and accelerator Physics, October 23-26, 2018 held at CUJ, Ranchi, India. 14.Vineet Kumar Agotiya and Indrani Nilima, Quarkonium Dissociation of an Anisotropic QGP medium in Quasi-Particle Model, National Conference on Innovations in Science and Society, February 05-06, 2017, held at Mathura, India. 13.Indrani Nilima and Vineet Kumar Agotiya, A comparative Study of Heavy Quark Potential with KMS Model in a Hot QCD medium within a Quasi Particle Model, Proceedings of the DAE-BRNS Symp. On Nucl. Phys. 61 (2016). 12. Indrani Nilima and Vineet Kumar Agotiya:Heavy quark potential and Quarkonium Binding Energies in a hot QCD medium within a Quasi-Particle Model, National Conference On Nuclear And Accelerator Physics, October 04-06, 2016, held at CUJ, Ranchi, India 11.Indrani Nilima and Vineet Kumar Agotiya: Quarkonium Dissociation Temperature on hot QCD medium by Quasi Particle Model, CNT QGP Meet, November 16-20, 2015, held at VECC, Kolkata, India 10 .V. Agotiya and B. K. Patra.: J/ψ suppression in the presence of dissipative forces in a sQGP, International conference on Physics and Astrophysics of Quark-gluon Plasma 2010, December 05-10, 2010, held at Goa, India. 9. V.K. Agotiya and B. K. Patra.: Charmonium suppression: medium modification to Cornell potential and strongly interacting QGP, DAE-BRNS Symposium on High Energy Physics, December 13-18, 2010, held at LNM IIT Jaipur, India. 8 .V. K. Agotiya and B. K. Patra.:J/ψ suppression: medium modified heavy quark potential and equation of state, International conference on Physics and Astrophysics of Quark-gluon Plasma 2010, December 05-10, 2010, held at Goa, India. 7. V. K. Agotiya and B. K. Patra.: Strongly interacting quark-gluon plasma and longitudinal expansion of quark-gluon plasma, DAE-BRNS Symposium on Nuclear Physics, December 20-24, 2010, held at BITS Pilani, India. 6. V. K. Agotiya, V. Chandra and B. K. Patra.: On the fate of quarkonium in hot

	QCD medium, International symposium on Nuclear Physics, December 08-12, 2009, held at Bhabha Atomic Research Centre, Mumbai, India. 5. V. K. Agotiya, V. Chandra and B. K. Patra.: Melting of quarkonium in hot QCD medium, DAE-BRNS Symposium on Nuclear Physics, December 22-26, 2008, held at Indian Institute of Technology Roorkee, India, Vol. 53, 617 (2008). 4. B. K. Patra, V. Chandra, V. Agotiya: J/ψ suppression in nucleus-nucleus collisions, DAE-BRNS Symposium on Nuclear Physics, December 22-26, 2008, held at Indian Institute of Technology Roorkee, India December 22-26, 2008, Nucl-th/0901.2084. 3. V. K. Agotiya, V. Chandra and B. K. Patra.: Medium modifications to a three-dimensional Cornell Potential, DAE-BRNS Symposium on High Energy Physics, December 14-18, 2008, held at Banaras Hindu University Varanasi, India. 2. V. K. Agotiya, L. Devi, U. Kakade and B. K. Patra, Upsilon suppression in strongly coupled quark gluon plasma, National Conference on Advanced in Physics, 25-26, February 2012, held at Indian Institute of Technology Roorkee, India. 1. V. K. Agotiya, Dissociation of quarkonium in isotropic hot QCD medium, National Workshop on Radiation , February 13-15, 2013 at Central University of Jharkhand, Brambe, Ranchi, India.