**Dr Nilakanthan V K**

  
Assistant Professor  
Department Postgraduate Studies and Research in Physics

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**Educational Qualification**

* M. Sc. (Physics), National Institute of Technology Karnataka, Surathkal.
* Ph. D. in Theoretical High Energy Physics  from Mangalore University.

**Research  
Area of Research**

1. Theoretical Particle Physics: Nucleon-Nucleon interaction in the framework of Quark models.
2. Hadron Spectra and its decays in the framework of Constituent Quark Models.

**Research Experience:**

* Worked under a project titled “Heavy meson spectra and their radiative decay in the framework of relativistic models” in Mangalore University.
* Completed PhD from Mangalore University on the topic “Study of NN interaction in the Framework of Relativistic Harmonic Model with OPEP”.

**Research Publications**

1. Sneha M., Sreehari M. P., **Nilakanthan V. K.**, "Variation of Pressure in Sound Waves due to Interaction with Gravitational Waves", Al- Shodhana, Vol. XI, No. 2, July 2023.
2. Vishal M. Pinto, M.S. Arya, Niharika**, V.K. Nilakanthan**, K. Kumara, T. Chandra Shekhara Shetty, “Multiferroic bismuth ferrite nanomagnets as potential candidates for spintronics at room temperature”, Materials Today: Proceedings, **55**, 1, (2022), pages 42-45.
3. Bhaghyesh**, Nilakanthan V. K.,** “Decay Constants of S Wave Quarkonia”, International Journal of Theoretical Physics**, 59,** pages 2016–2028 (2020)**.**
4. Raghavendra S., Vanamali Shastry C., **Nilakanthan V. K.**, Vijaya Kumar K. B., “The effect of Confined One Gluon Exchange Potential and Instanton Induced Interaction on Nucleon-Nucleon Interaction.”, Commun. Theor. Phys. **72** (2020) 065301.
5. **V. K. Nilakanthan**, V. C. Shastry, S. Raghavendra, and K. B. Vijaya Kumar, "Role of confined gluons and pions in nucleon-nucleon interaction", Eur. Phys. J. Plus, **134**, 517, (2019).
6. **V. K. Nilakanthan**, C. S. Vanamali, S. Raghavendra, and K. B. Vijaya Kumar, "Investigation of nucleon-nucleon interaction with confined one gluon exchange potential and one pion exchange potential", Indian Journal of Pure and Applied Physics, **57**, 536 (2019).

**Papers presented in conferences, symposia/seminars:**

1. Kiran R., Jayalakshmi K., V. Achuth Shenoy, **V. K. Nilakanthan**, "Hyperfine Splitting in the Ground State of Muonic Hydrogen", Proceedings of the National Conference - Collaborating Across Disciplines Through Interdisciplinary Research organised by Research and Development Cell, St Aloysius College, Mangalore on April 19, 2023.
2. **V K Nilakanthan**, Bhaghyesh, K. B. Vijaya Kumar, “Effect of Strong Coupling Constant on N-N interaction”, Proceedings of the DAE Symp. onNucl. Phys. **65** (2021).
3. **Nilakanthan V K**, Vanamali C S, Raghavendra S, K B Vijaya Kumar,"Investigation of nucleon–nucleon interaction with confined one gluon exchange potential and one pion exchange potential", International Conference on Nulcear, Particle and Accelerator Physics, Central University of Jharkhand, Ranchi, October (2018).
4. Raghavendra S, Vanamali C S, **Nilakanthan V K**, K B Vijaya Kumar,"A study of nucleon–nucleon interaction using confined one gluon exchange potential and instanton-induced interaction", International Conference on Nulcear, Particle and Accelerator Physics, Central University of Jharkhand, Ranchi, October (2018).
5. **V. K. Nilakanthan**, S. Raghavendra, C. S. Vanamali, and K. B. Vijaya Kumar, "Effect of confined one gluon exchange and one pion exchange on nucleon-nucleon interaction", Proceedings of the DAE Symp. onNucl. Phys. **62** (2017).
6. S. Raghavendra, **V. K. Nilakanthan**, C. S. Vanamali, and K. B. Vijaya Kumar, "Study of Confned One Gluon Exchange and Instanton-Induced Interaction for Nucleon-Nucleon Interaction", Proceedings of the DAE Symp. On Nucl. Phys. **62** (2017).
7. K. B. Vijaya Kumar,Bhaghyesh,A. P. Monteiro, and **V. K. Nilakanthan**,"S-wave ̅ spectrum in a semi-relativistic model", Proceedings of the DAE Symp. onNucl. Phys. **57**, (2012).
8. Bhaghyesh, K. B. Vijaya Kumar, A. P. Monteiro, and **V. K. Nilakanthan**, "Properties of charmonium in a semi-relativistic formalism", Proceedings of the DAE Symp. onNucl. Phys. **57**, (2012).

**Resource Person / Guest Lectures delivered**

1. Delivered an invited talk on the topic "What holds the Universe together: Particle Physics, Fundamental Forces and the Evolution of the Universe" at in the National Seminar organized by Gurudev Arts and Science College, Payyanur, Kerala on March 10, 2023.
2. Delivered an invited talk on the "Basics of Quantum Computing" at Yenepoya Institute of Technology, Moodubidri, on February 28, 2023 on the occasion of National Science Day.
3. Delivered a guest talk on "Astroparticle Physics" at the Department of Post Graduate Studies in Physics, S. D. M. College (Autonomous), Ujire on February 20, 2023.
4. Delivered a guest lecture on the topic "Relativity and Cosmology" at Department of Physics, Canara First Grade College, Mangalore on August 03, 2022.
5. Resource person for the National Science Week celebrations at the Regional Science Centre, Pilikula, Mangalore held as a part of the Azadi Ka Amrit Mahotsav in association with Vigyan Prasar, Govt. of India during 22 to 28 March, 2022.
6. Delivered a guest talk on the topic "General Relativity and Applications" at the Post Graduate Department of Physics, Alva's College, Moodubidri, on March 1, 2021 as a part of National Science Day celebrations.
7. Resource person for "Pragathi 2017 - Integral Formation Programme", at St Aloysius College, Mangaluru, July 5-6, 2017.
8. Presented a talk on "Symmetries in Quantum Mechanics”, National Seminar on Physics for Post Graduates, Payyannur College, Kannur, Kerala on March 6, 2017.
9. Resource person for National Science Day celebrations at Regional Science Centre, Pilikula, Mangalore on Feb. 28, 2017.
10. Gave a guest lecture on "Standard Model of Particle Physics and Cosmology" at the Department of Post Graduate Studies in Physics, Alva's College Moodabidri on Nov. 12, 2015.
11. Presented a talk on "Astroparticle Physics and Cosmology" in the "Theory Fest: Celebrating concepts of Theoretical Physics", State level Lecture series conducted by Department of Post Graduate Studies and Research in Physics, SDM College (Autonomous), Ujire, Aug. 29, 2015.

**Short-term courses attended**

1. Winter school on High Energy Physics at Banaras Hindu University, Janurary21-February 12, 2013.
2. Science Academies refresher course on Quantum Mechanics, May 5 to May 18, 2014, Bishop Moore College, Mavelikkara, Kerala.
3. Completed online course on “Remote Sensing and GIS Technology and Applications for University Teachers and Government Officers” conducted by Indian Institute of Remote Sensing (IIRS), ISRO, Dehradun, during 13-06-2020 to 01-07-2020.
4. Completed online course on “Particle Physics an Introduction” conducted by the University of Geneva, Switzerland on Coursera platform.

**Positions held:**

1. Examination superintendent for the Post graduate examinations for the years 2019-2021 in St Aloysius College (Autonomous).
2. Course instructor for students of Cortland College, State University of New York, as a part of foreign students exchange programme for the year 2019-2020 and 2016-2017.
3. Core committee member of the job fair conducted at St Aloysius College (Autonomous).
4. Organizing secretary of National Conference on “Nano, Cryo and Space Physics” organized by the Department of Physics, St Aloysius College (Autonomous), Mangaluru on 15 December, 2017.
5. Convener of various committees for the College Annual Day celebrations from 2014-2020.

**Seminars/Workshops attended**

1. Participated in the 65th DAE symposium on nuclear physics from 1st December to 5th December 2021, held at BARC, Mumbai (online).
2. Participated in the International webinar on “Chemical Ecology” by Prof. P Balram, former director, IISc Bangalore organized by Post Graduate Department of Chemistry, St Aloysius College Mangalore on 04.08.2020.
3. Participated in the International webinar on “Drug Design: Is it really easy” by Prof. Uday Maitra, Dept. of Organic Chemistry IISc, Bangalore organized by Post Graduate Department of Chemistry, St Aloysius College Mangalore on 07.08.2020.
4. Participated in the National webinar on “Molecular Universe: Physics and Chemistry of Interstellar Medium” by Dr Binukumar G, Project Scientist, Indian Institute of Astrophysics, Bangalore organized by St Pius X College, Kasargod on 10.08.2020.
5. Participated in the International Conference on “Zero Dimensional Materials” organized by P C Jabin Science College on 27.08.2020.
6. Participated and chaired a session in the International Virtual Conference on “Physics of Solid State Materials” organized by Post Graduate Department of Physics, St Aloysius College, Mangalore held on 2nd and 3rd September, 2020.
7. Participated in a webinar on “Revised Accreditation framework for Autonomous Colleges” organized by St Aloysius College Mangalore on 07.09.2020.
8. Participated in the National Webinar on “Fundamental Questions in Quantum Theory: Its Philosophical, Physical and Quantum Computational Theoretic Perspective” by Dr S. Aravinda, Post Doctoral fellow at IMSc Chennai on 26.01.2021.
9. Lecture series on “Physics of Materials” organized by the Department of Physics, St Agnes College (Autonomous), Mangaluru on 06 March, 2020.
10. National conference on “Novel Materials and Devices for Future Applications” organized by the Department of Physics, St Aloysius College (Autonomous), Mangaluru on 18 February, 2020 sponsored by the DBT Star College Scheme, Govt. of India and Association of Physics Teachers of Mangalore University.
11. National workshop on “Physics of Toys” organized by the Department of Physics, St Aloysius College (Autonomous), Mangaluru on 13 and 14 December, 2019.
12. “International Conference on Nuclear Particle and Accelerator Physics-ICNPAP 2018” at the Central University of Jharkhand, Ranchi from 23 October to 26 October, 2018.
13. National workshop on “Physics of Living Matter and Physics of Medical Equipments”, on 18 and 19 December, 2018 organized by the Department of Physics, St Aloysius College (Autonomous), Mangaluru sponsored by the DBT-Star College Scheme, Govt. of India.
14. National Seminar on “Applications of Radioisotopes and Radiation Technology in Industry, Healthcare and Agriculture” organized by Department of Physics, St Aloysius College (Autonomous), Mangaluru sponsored by DAE-BRNS and Board of Radiation and Isotope Technology on 10 and 11 September, 2018.
15. National Conference on “Nano, Cryo and Space Physics” organized by the Department of Physics, St Aloysius College (Autonomous), Mangaluru on 15 December, 2017.
16. “DAE-BRNS sponsored symposium on Nuclear Physics” organized by Thapar Institute of Engineering and Technology, Patiala, Punjab from 20 to 24 December, 2017.
17. National conference on Particle Accelerators in Interdisciplinary Research (PAIR), Department of Studies in Physics, Mangalore University, Mangalagangotri, April 11-13, 2017.
18. DST SERB sponsored One Day National Seminar on "Quantum Field Theory and its Applications" at Post Graduate Department of Physics, St Philomena's College, Puttur, March 28, 2017.
19. National Workshop on Computational Physics at Alva's College, Moodabidri, Feb. 9-10, 2017.
20. International Conference on Green chemistry and Nanotechnology opportunities and Challenges, at St Aloysius College, Feb. 27-28, 2017.
21. National level Workshop on Physics of Musical Instruments at St Aloysius College, Dec. 16-17, 2016.
22. National Seminar on Applications of Radiation Technology at St Aloysius College, Nov. 20, 2016.
23. National level Workshop on Planetarium at Regional Science Centre, Pilikula, Mangaluru, April 21-22, 2016.
24. A state level workshop on Innovations in Medical Instrumentation held at St Aloysius College, Mangalore, Feb. 5, 2016.
25. National level Workshop on Theoretical Physics conducted by Department of Post Graduate Studies in Physics, Alva's College, Moodabidri, Feb. 26-27, 2016.
26. 'Saga of Light', National level seminar on Importance of light and light based technologies held at St Aloysius college, Mangalore, Dec. 15, 2015.
27. National seminar on X-Ray Crystallography at St Aloysius College, Mangalore, Dec. 16, 2014.
28. Workshop on Quantum Mechanics and Applications at National Institute of Technology Karnataka, Surathkal, March 22-24, 2013.
29. Attended 4th Conference of Karnataka State Science and Technology Academy held at Mangalore University on the topic "New Horizons of Science and Technology - Challenges and opportunities", Jan. 28-29, 2012.
30. Attended two day UGC sponsored National Level Conference "CAPSRAA – 2011, Current Advancement in Physical Science Research and its applications in the present scenario of empowering science and technology", held at Govinda Dasa First Grade College, Surathkal, Sep. 16-17, 2011.