

Profile

Dr. VIBHA B. VANSOLA

Ph.D. (Nuclear Physics), M.Phil. (Physics), GSET, Qualified
Assistant Professor (GPSC GES-II)

Department of Physics,
Government Science College,
Sector-15, Gandhinagar, Gujarat, India



Personal Details

Email id : vibhagscgandhinagar@gmail.com

Date of Birth : 14th September, 1987

Language Known : Gujarati, English and Hindi

Total teaching experience : 8 Years

Educational Qualification

Qualification	Year of Passing	Percentage	Conducting Authority
S.S.C.	March, 2003	82.86%	GSEB, Gandhinagar
H.S.C.	March, 2005	52.15%	GSEB, Gandhinagar
P.T.C.	April, 2007	82.42%	Buniyadi stree adhyapan mandir, Nardipur, Gandhinagar
B.Sc. (Physics)	March, 2010	76.86%	Gujarat University, Ahmedabad
M.Sc. (Nuclear Physics)	April, 2012	60.40%	M.S. University, Baroda
M.Phil. (Theoretical Condensed Matter Physics)	April, 2014	76.50%	School of Sciences, Gujarat University, Ahmedabad
Ph.D. (Nuclear Physics)	April, 2020	N.A.	M.S. University, Baroda

Projects

B.Sc.

1st year: Detailed information about various plants.

Project guide: Miss Mona

2nd year: Fabricated 0-14 volts variable power supply in electronics.

Project guide: Dulari ma'm

3rd year: Experiment for Moisture measurement of soil using GM counter in Physics.

Project guide: Dr. D. G. Gadani

Shree C.U. Shah Science College, Gujarat University, Ahmedabad

M.Sc.

Range and energy of unknown beta source using Feather's analysis.

Project guide: Dr. N. L. Singh

The Maharaja Sayajirao University, Baroda

M.Phil.

The Study of Superconducting State Parameters of Some Metals Using Pseudopotential

Project guide: Dr. P. R. Vyas

School of Sciences, Gujarat University, Ahmedabad

Ph.D.

Study of Neutron Induced Reaction Cross Sections up to 18 MeV for Advanced Reactor Design

Guide: Dr. Surjit Mukherjee

Dr. H. Naik

The Maharaja Sayajirao University of Baroda, Baroda

BARC-TIFR, Mumbai

Achievements

- Cleared **GPSC** Examination (GES-II, Physics) in **2018**.
- Cleared **GSET** Examination held in **September 2013**.
- College **First in B.Sc.** in 2nd and 3rd year at Shree C.U. Shah Science College, Gujarat University.
- Dr. M. J. Patni Medal for First Rank in in TYBSc in college (Shree C. U. Shah Science college, Ahmedabad) in physics in **2010**.

- School **First in SSC** in Shree D.N.J. Adarsh High school, Deesa in 2003.

Conferences/Workshops Attended

1. **Seminar on Research Orientation** For B.Sc. students Organized by Physics Department on 24th July, 2009.
2. **Science Excellence-2010** on 9th January, 2010, Organized by Department of Botany, Gujarat University, Ahmadabad and Gujarat Council on Science and technology Gandhinagar.
3. **Astronomy Astrophysics and Planetary- Space Sciences** on March 02, 2011, held by C. C. Patel Community Science Center, Sardar Patel University, Vallabh Vidyanagar.
4. **Nuclear Technology for Raising Standard of Living on September 11, 2011**, organized by C. C. Patel Community Science Center jointly with Physics Alumni Association,, Sardar Patel University, Vallabh Vidyanagar.
5. **Open House Science Fair** on 11th and 12th March, 2012, organized by Faculty of science, The Maharaja Sayajirao University of Baroda.
6. **National workshop on Surrogate Reactions and its Applications** on 24-25 January, 2013 Jointly organized by Department of Physics, Faculty of Science, The M. S. University of Baroda, Vadodara & DAE- BRNS.
7. **XXVII Gujarat Science Congress** on 24th February, 2013 at Charotar University of Science and Technology (CHARUSAT), Changa.
8. **One day workshop on Antenna Theory and Design** on September 28, 2013 Conducted by EC Engineering Branch, Department of EE, Institute of Technology and Organized by Centre for Continuing Education (CCE), Nirma University, Ahmedabad.
9. **Workshop on Eyes on ISON** on 19th October, 2013 at Vikram Sarabhai Community Science Centre, Ahmedabad.
10. **National Conference on “Novel Materials for Advanced Technology” (NMAT2013)** on September 13-14, 2013 organized by Department of Physics, NIRT, Bhopal.

- 11. International Conference on “Nanomaterials: Science, Technology and Applications” (ICNM ’13)** during 5-7 December, 2013 held at B. S. Abdur Rahman University, Chennai.
- 12. National Conference on ‘Research Trends in Smart Materials – Igniting Young Minds’** on 3rd & 4th of January 2014 held at Guru Nanak College of Arts, Science & Commerce, G.T.B. Nagar, Mumbai, Sponsored by UGC.
- 13. Workshop on Innovative Experiments in Physics** on 9th March, 2014 Organized by Indian Association of Physics Teachers Regional Council RC-7 (Gujarat) and St. Xavier’s College, Ahmedabad.
- 14. 59th DAE Symposium on Nuclear Physics** on 8-12 December, 2014, organized by Banaras Hindu University, Uttar Pradesh.
- 15. Workshop cum Theme meeting on EXFOR**, 20-24, January 2015, Department of Physics, Bangalore University, Bangalore, India
- 16. 60th DAE-BRNS Symposium on Nuclear Physics** on December 7-11, 2015 organized Sri SathyaSai Institute of Higher Learning, Prasanthi Nilayam, Andhra Pradesh.
- 17. NDPCI-BRNS School on Nuclear Reactions and Applications (NRA-2016)** on 2 to 12 November, 2016 at BARC, Mumbai.
- 18. 61st DAE-BRNS Symposium on Nuclear Physics** on December 5-9, 2016 organized Saha Institute of Nuclear Physics, Kolkata.
- 19. 62nd DAE-BRNS Symposium on Nuclear Physics** on December 20-24, 2017 organized Thapar Institute of Engineering and Technology, Patiala, Punjab.
- 20. Attended 28th online short term course on e-content development** by UGC-HRDC and Gujarat University, from 28/05/2020 to 03/06/2020.
- 21. Attended online course on “Comprehensive online intellectual property rights (IPR)”** from 06/07/2020 to 14/09/2020, organized by Gujarat student start up and innovation hub.
- 22. Attended one month online faculty induction program** by UGC-HRDC and kurukshetra University, from 18/02/2021 to 20/03/2021 and obtained A+ grade.
- 23. Participated in webinar on “Woman empowerment at grassroot level”,** on 23 June, 2021, organized by Hindu kanya college, kapurthala, Punjab.

24. Attended two-week inter disciplinary refresher course on **“environment and human health”** by teaching learning center, department of environmental studies, Ramanujan college, university of delhi under the aegis of ministry of education, pandit madan mohan malaviya national mission on teachers and teaching, from 28/03/2022 to 11/04/2022 and obtained A+ grade.
25. Attended international symposium on **nuclear energy solutions and future aspects (INSNESFA-2023)** organized on 16-17 march, 2023 by department of Physics and Electronics, Hansraj College, University of Delhi and school of Physical Sciences, Jawaharlal Nehru University.
26. Attended **two weeks Refresher Course in Physics & Electronics** organized by UGC-HRDC (Malaviya Mission Teacher Training Center) and University of Jammu, Jammu, from 04/12/2023 to 17/12/2023 and obtained A+ grade.

Teaching Experience

- I have served as adhoc lecturer in Sheth L. H. Science College, MANSA from 1st August to 30th November, 2012.
- I have served as Adhyapak Sahayak in Sir P. T. Sarvajanic College of Science, Surat from 4th March, 2016 to 24th April, 2018.
- I have served as an Assistant Professor in Government Science College, Idar from 25th April, 2018 to 3rd November, 2022.
- I have been serving as an Assistant Professor in Government Science College, Gandhinagar since 4th November, 2022.

Computer Skills

MS office, Linux (Ubuntu), Languages (C, C++, Fortran), Origin, Empire, Talys, web design, google forms, spreadsheets

Journal Papers

1. **The Comparative Study of Superconducting State Parameters for Noble Metals Using Non Local Pseudopotentials**
Vibha Vansola, Gunjan Shah, N. K. Bhatt, P. R. Vyas, V. B. Gohel

2. **Superconducting state parameters for alkaline earth metals using first principle pseudopotentials**
Vansola Vibha, Patel Hiral, N. K. Bhatt, P. R. Vyas, V. B. Gohel
Journal of Chemical and Physical Sciences, Vol. 3 Special Issue-NCRTSM, pages 179-185, ISSN:2319-6602 (2014).
3. **Measurement of $^{197}\text{Au}(n,\gamma)^{198\text{g}}\text{Au}$ reaction cross-section at the neutron energies of 1.12, 2.12, 3.12 and 4.12 MeV**
Vibha Vansola, Reetuparna Ghosh, Sylvia Badwar, Bioletty Mary Lawriniang, Arjun Gopalakrishna, Haladhara Naik, Yeshwant Naik, NileshSubhashTawade, Suresh Chand Sharma, JigneshPravinchandra Bhatt, Shri Krishna Gupta, Shankar Sarode, Surjit Mukherjee, NandLal Singh, Pitambar Singh, and Ashok Goswami
RadiochimicaActa, Vol. 103, Issue 12, Page 817-823, 2015.
4. **Determination of $^{110}\text{Cd}(n,c)^{111\text{m}}\text{Cd}$ and $^{111}\text{Cd}(n,n0)^{111\text{m}}\text{Cd}$ reaction cross-sections at the neutron energies of 1.12–4.12 MeV**
Reetuparna Ghosh, Sylvia Badwar, Bioletty Mary Lawriniang, **Vibha Vansola**, Haladhara Naik, Yeshwant Naik, SaraswatulaVenkata Suryanarayana, Nilesh Subhash Tawade, Sapna Padmakumar, Suresh Chand Sharma, Shri Krishna Gupta, Betylda Jyrwa, Srinivasan Ganesan, Pitamber Singh, Ashok Goswami
Journal of Radio analytical and Nuclear Chemistry, 307(2), 1481-1487, Volume 307, Issue 2, June, 2015.
5. **$^{151}\text{Eu}(n,c)^{152\text{m}}\text{Eu}$ reaction cross-section measurement at the neutron energies of 1.12, 2.12, 3.12 and 4.12 MeV,**
Sylvia Badwar, Reetuparna Ghosh, Bioletty Mary Lawriniang, **Vibha Vansola**, Arjun Gopalakrishna, Haladhara Naik, Yeshwant Naik, Saraswatula Venkata Suryanarayana, Sanjay Yeshwant Salunkhe, Arun Agarwal, Shailaja Ware, Anil Kumar Gupta, Betylda Jyrwa, Srinivasan Ganesan, Pitambar Singh, Ashok Goswami
Journal of Radio analytical and Nuclear Chemistry, 307(2), 1385-1390, Volume 307, Issue 2, 1385-1390 (2015).
6. **Study of (n,γ) reaction cross-section for Mn^{55} at energies 1.12, 2.12, 3.12 and 4.12 MeV, **Vibha Vansola**, S. Mukherjee, H. Naik, S.V. Suryanarayana, R. Ghosh, S. Badwar, B. Lawriniang, Yerraguntla Santhi Sheela**
Radiochimica Acta. Volume 104, Issue 11, Pages 749–755, ISSN (Online) 2193-3405, ISSN (Print) 0033-8230, DOI: <https://doi.org/10.1515/ract-2016-2610> (2016).

7. **Measurement of formation cross-section of ^{99}Mo from the $^{98}\text{Mo}(n,\gamma)$ and $^{100}\text{Mo}(n,2n)$ reactions**, Sylvia Badwara, Reetuparna Ghosha, Bioletty M. Lawriniang, **Vibha Vansola**, Y.S. Sheela, Haladhara Naik, Yeshwant Naik, Saraswatula V. Suryanarayana, Betylda Jyrwaa, Srinivasan Ganesan
Applied Radiations and Isotopes, Vol. 129, pages 117-123 (2017).
8. **Measurements of the cross sections of the $^{186}\text{W}(n,\gamma)^{187}\text{W}$, $^{182}\text{W}(n,p)^{182}\text{Ta}$, $^{154}\text{Gd}(n,2n)^{153}\text{Gd}$, and $^{160}\text{Gd}(n,2n)^{159}\text{Gd}$ reactions at neutron energies of 5 to 17 MeV**, Rajnikant Makwana, S. Mukherjee*, P. Mishra, H. Naik, N.L. Singh, M. Mehta, K. Katovsky, S.V. Suryanarayana, **V. Vansola**, Y. Shanthisheela, M. Karkera, R. Acharya, S. Khirwadkar
Physical Review C, Vol. 96, page 024608 (2017).
9. **Measurement of cross-sections for the $^{93}\text{Nb}(p,n)^{93\text{m}}\text{Mo}$ and $^{93}\text{Nb}(p,pn)^{92\text{m}}\text{Nb}$ reactions up to $\sim 20\text{MeV}$ energy**, B. Lawriniang, R. Ghosh, S. Badwar, **V. Vansola**, Y. Shanthi Sheela, S. V. Suryanarayana, H. Naik, Y. P. Naik, B. Jyrwa
Nuclear Physics A, Vol. 973, Pages 79–88 (2018).
10. **Investigation of (n,p), (n,2n) reaction cross sections for Sn isotopes for fusion reactor applications** Siddharth Parashari, S. Mukherjee, **Vibha Vansola**, Rajnikant Makwana, N. L. Singh, Bhawna Pandey
Applied Radiation and Isotopes 133, 31 (2018).
11. **Measurement of $^{232}\text{Th}(n,\gamma)$ reaction cross-sections in the neutron energy range 11-19 MeV**. Siddharth Parashari, S. Mukherjee, A. P. Singh, **Vibha Vansola**, H. Naik, B. K. Nayak, Rajnikant Makwana, S. V. Suryanarayana, N. L. Singh, Mayur Mehta, Y. S. Sheela, M. karkera, R. D. Chauhan, S. C. Sharma
Physical Review C 98, 014625 (2018).
12. **Measurement of ^{232}Th and ^{238}U neutron capture cross-sections in the energy range 5 to 17 MeV**
S. Mukherjee, **Vibha Vansola**, Siddharth Parashari, R. Makwana, N. L. Singh, S. V. Suryanarayana, S. C. Sharma, B. K. Nayak, H. Naik
Applied Radiation and Isotopes, 143, 72 (2019).

Conference Papers

1. **“The Comparative Study of Superconducting State Parameters for Noble Metals Using Non Local Pseudopotentials”** in National Conference on Novel Materials for Advanced Technology on September 13-14, 2013, Organized by Department of Physics, NIRT-Bhopal

2. **“The Role of Conduction-Core Exchange Potentials in Studying Superconducting State Parameters for Noble Metals Using first Principle Pseudopotentials”** in International Conference on “Nanomaterials: Science, Technology and Applications” (ICNM '13) during 5-7 December, 2013 held at B. S. Abdur Rahman University, Chennai, India.
3. **“Superconducting state parameters for alkaline earth metals using first principle pseudopotentials”** in national conference on ‘research trends in smart materials – igniting young minds’ on 3rd & 4th of January 2014 held at Guru Nanak college of arts, science & commerce, GTB Nagar, Mumbai, sponsored by UGC.
4. **Study of (n,p) and (n, γ) cross-sections for ^{232}Th , ^{231}Pa , ^{233}U isotopes** Vibha Vansola, Bhawna Pandey, Mayur Mehta, S. Mukherjee, Proceedings of the DAE Symp. on Nucl. Phys. 59, pages 548-549 (2014).
5. **Neutron activation and cross-section calculation for tungsten as a Divertor material in Fusion Reactor**, Mayur Mehta, Bhawna Pandey, Rajnikant Makawana, Vibha Vansola, S.S.Khirwadkar, Proceedings of the DAE Symp. on Nucl. Phys. 59, pages 546-547 (2014).
6. **Determination of $^{55}\text{Mn}(n,\gamma)$ reaction cross-section at the neutron energies of 1.12 and 2.12 MeV**, Proceedings of the DAE-BRNS Symp. on Nucl. Phys. 60, pages 496-497 (2015).
7. **Neutron induced cross-section for Sn isotopes of interest in fusion reactor technology**, Vibha Vansola, S. Mukherjee, Rajnikant Makwana, C. M. Vadagama, N. L. Singh, Bhawna Pandey, Proceedings of the DAE-BRNS Symp. on Nucl. Phys. 61, pages 572-573 (2016).
8. **Measurement of $^{232}\text{Th}(n,g)$ reaction cross-section at the neutron energy 5.09 MeV**, Vibha Vansola, S. Mukherjee, R. Makwana, N.L. Singh, S.V. Suryanarayana, P.R. Desai, H. Naik, Proceedings of the DAE-BRNS Symp. on Nucl. Phys. 61, pages 570-571 (2016).
9. **Experimental Cross-section Measurement of $^{nat}\text{Nb}(p,n)^{93m}\text{Mo}$ reaction up to 20 MeV Energy**, B. Lawriniang, R.Ghosh, S. Badwar, V. Vansola, B. Jyrwa, H. Naik, Y. Naik Proceedings of the DAE-BRNS Symp. on Nucl. Phys. 61, pages 548-549 (2016).
10. **$^{238}\text{U}(n,\gamma)$ reaction cross-section at the neutron energy 8.96 MeV**, Vibha Vansola, S. Mukherjee, S. Parashari, R. Makwana, S.V. Suryanarayana, H. Naik, Proceedings of the DAE Symp. on Nucl. Phys. 62, pages 570-571 (2017).

References:

1) Prof. Surjeet Mukherjee
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4) Prof. Bhavin M. Pandya
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Email: dhgadani@gujaratuniversity.ac.in

Research, Innovation and Extension Grant to Government Colleges

The research project titled "**Study of Neutron Induced Reaction Cross Sections**" was sanctioned under the **Research, Innovation and Extension Grant to Government Colleges** scheme by the **Knowledge Consortium of Gujarat (KCG), Ahmedabad**, with a total grant of **₹1.50 lakh per project**. One of the two projects, is being carried out at **Government Science College, Gandhinagar** under the guidance of **Dr. Vibha B. Vansola**, who serves as assistant professor in department of Physics, GSC Gandhinagar and also as a **Principal Investigator** for the aforesaid project.

This project focuses on the study of neutron-induced nuclear reaction cross sections, an important area of nuclear physics with significant applications in nuclear science, reactor technology, radiation shielding and related research fields. It aims to strengthen research activities within the institution while contributing to the advancement of scientific knowledge.

As part of this research initiative, **Chavda Nishant Kumar M.** and **Nigotiya Madhvi P.**, students of **Government Science College, Gandhinagar**, have been selected to work on the project. Their participation provides valuable exposure to research methodology, scientific data analysis and problem-solving, fostering a strong foundation for future academic and research pursuits.

The sanction of the **₹1.50 lakh for this project (total grant received by the college is 5 lacs for research and extension activities)** grant by the **Knowledge Consortium of Gujarat (KCG), Ahmedabad** is a significant milestone for **Government Science College, Gandhinagar**. It reflects the institution's growing emphasis on research, innovation and academic excellence while encouraging meaningful collaboration between faculty members and students to cultivate a vibrant research culture.



