

Dr. Prashant Singh

Assistant Professor (Physics)

Government Degree College Gosaikheda

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DOB: October 10, 1983

EDUCATION

- Ph. D.** Physics in the year of 2012, Research topic entitled “**Modeling and Simulation of Chemical Identification System Based on Transient Signal Processing of Surface Acoustic Wave Sensors**” from Department of Physics, Faculty of Science, **Banaras Hindu University**, Varanasi- 221005, U.P., India
- M. Sc.** Physics, Specialization in Electronics in year 2005 with 63.0% marks from Tilak Dhari P.G. College, Jaunpur affiliated to **V.B.S. Purvanchal University** Jaunpur, 222002, U.P., India
- B. Sc.** (Physics, Mathematics and Chemistry) in year 2003 with 61.89% marks from Tilak Dhari P.G. College, Jaunpur affiliated to **V.B.S. Purvanchal University** Jaunpur- 222002, U.P., India.
- Intermediate** (Mathematics Group) in 2000 with 69.4% marks from Tilak Dhari Inter College, Jaunpur- 222002, **U.P. Board, Allahabad**, U.P., India.
- High School** (Science Stream) in 1998 with 66.67% marks from Tilak Dhari Inter College, Jaunpur-222002, **U.P. Board, Allahabad**, U.P., India.

Technical SKILLS

Scientific Applications

MATLAB, Python

Computer Language

Basic knowledge of C/C++

Operating Systems

MSDOS, Windows XP/Vista

Office Applications

Microsoft PowerPoint, Excel, Word

LANGUAGE PROFICIENCY

Hindi and English

RESEARCH AREA

Modeling and Simulation of SAW chemical Sensor, Data Mining and Signal Processing, Temperature Sensor/ Sensor Array, Data Fusion, Classification, Quantification, and Simulation of SAW chemical sensor, Conducting Polymer based Sensor, Signal Processing for Atmospheric Data, Sensors and Sensor Array Intelligence, Sensors Assisted Disease Detection, Development of Pattern Recognition Methods for Disease Identification

RESEARCH EXPERIENCE

4.5 Years

Project Scientist at SCDT/NCFLXE, IIT Kanpur

TEACHING EXPERIENCE

7.5 Years

Teerthanker Mahaveer University, Moradabad, U.P., India

Lecturer (Physics)

February 2013 – September 2014

Shri Ram Murti Smarak College of Engineering and Technology, Unnao, U.P., India

Assistant Professor (Physics)

July 2015 – December 2016

Government Degree College Gosaikheda, Unnao U.P. India

Assistant Professor (Physics)

October 2021- Present

AWARDS AND HONORS

UGC Fellowship Aug. 2007 to Mar. 2008, University Grant Commission, Gov. of India

DST Project - JRF Mar. 2008 to Dec. 2009 in DST sponsored research project for development of electronic nose.

CSIR- SRF Apr. 1, 2011- Feb. 26, 2013, Council of Scientific and Industrial Research, New Delhi, Gov. of India.

MEMBERSHIP of PROFESSIONAL BODIES-

Indian Physics Association- Life Time

REVIEWER

1. International Journal of Electrical Power and Energy Systems (Elsevier)
2. IEEE Int. Conf. on Signal Propagation and Computer Technology, (ICSPCT-2014)
3. Instrumentation Science and Technology Journal
4. International Conference on Artificial Intelligence and Industrial Engineering (AIIE-2015), Phuket, Thailand
5. International Conference on Electrical and Electronics Engineering (ICEEE-2015), Paris, France.
6. Instrumentation Science and Technology (Taylor and Francis Online)

PROJECT GUIDED

PG Level Minor Project

1. Principal Component Analysis: Multivariate Statistical Method for Pattern Identification
2. Investigation of Chemical Sensors for Detection of Volatile Organic Compounds

PG Level Major Project

1. Disease Identification by Support Vector Machine Classifier- **Neha Sharma** (TEN1245004), T.M.U. Moradabad, U.P.

2. Vapour Identification by Self Organizing Map (SOM) Based on Surface Acoustic Wave (SAW) Sensor Transient- **Nikita Yusuf** (TEN1245015), T.M.U. Moradabad, U.P.

PATENT

Title-

Reference Number 202011055304 (PD0400001IN-SC)

Techniques for Cancer Determination

LIST OF PUBLICATIONS

JOURNAL PAPERS

- [1] **Prashant Singh** and RDS Yadava, “Feature Extraction by Wavelet Decomposition of Surface Acoustic Wave Sensor Array Transients”, *Defence Science J.*, vol. **60(4)**, pp. 377-386, 2010.
- [2] **Prashant Singh** and RDS Yadava, “Effect of Film Thickness and Viscoelasticity on Separability of Vapour Classes by Wavelet and Principal Component Analyses of Polymer-Coated Surface Acoustic Wave Sensor Transients”, *Measurement Science and Technology*, vol. **22**, 025202 (15pp), 2011. <http://dx.doi.org/10.11088/0957-0233/22/2/025202>.
- [3] **Prashant Singh** and RDS Yadava, “A Fusion Approach to Feature Extraction by Wavelet Decomposition and Principal Component Analysis in Transient Signal Processing of SAW Odor Sensor Array”, *Sensors and Transducers J.*, vol. **126(3)**, pp. 64-73, 2011.
- [4] **Prashant Singh** and RDS Yadava, “Enhancing Chemical Identification Efficiency by SAW Sensor Transients Through a Data Enrichment and Information Fusion Strategy – A Simulation Study”, *Measurement Science and Technology*, vol. **24**, 055109, (13pp), 2013. doi:10.1088/0957-0233/24/5/055109.
- [5] **Prashant Singh** and RDS Yadava, “Using Parametric Nonlinearity in SAW Sensor Transients and Information Fusion for Improving Electronic Nose Intelligence”, *International Journal of Computation and Intelligence Research*, vol. **6(4)**, pp. 919-927, 2010.
- [6] **Prashant Singh** and RDS Yadava, “Viscoelastic Effects in Polymer Coated SAW Sensors –Bane or Boon?”, 16th National Seminar – Physics, Technology and Sensors, NSPTS-2011, *Lucknow J. of Science*, vol. **8(1)**, pp. 368-373, 2011.
- [7] Gaurish Tripathi, Ashutosh Kumar Singh, **Prashant Singh**, Abhay Kumar Singh, “Response of low-latitude lower ionosphere during solar flare events over the complete solar cycle 24” *Springer Acta Geogaetica et Geophysica* , vol. **60**, pp. 115-136, 2025. <https://doi.org/10.1007/s40328-025-00461-6>
- [8] **Prashant Singh**, “Policy Framework for Climate Change: A View”, *Idealistic Journal of Advanced Research in Progressive Spectrums (IJARPS)*, vol. **4**, pp. 136-142, 28 Feb 2025, eISSN 2583-6986.
- [9] **Prashant Singh**, and Punam Chauhan, “Higher Education, Research, and Innovation in India- Drivers of National Growth and Global Competitiveness”, *Idealistic Journal of*

Advanced Research in Progressive Spectrums (IJARPS), pp. 143-147, 31 May, 2025.
eISSN 2583-6986.

BOOK CHAPTERS

- [1] **Prashant Singh** and RDS Yadava, “Wavelet Based Fuzzy Inference System for Simultaneous Identification and Quantitation of Volatile Organic Compounds Based on SAW Sensor Transients”, *Springer 2011 International Conference on Swarm, Evolutionary and Memetic Computing, SEMCCO-2011, Part II, Lecture Notes in Computer Science, (LNCS)*, vol. **7077**, pp. 319-327, 2011.
- [2] **Prashant Singh** and RDS Yadava, “Transient Feature Extraction Based on Phase Space Fusion by Partial-Least-Square Regression Analysis of Sensor Array Signals”, IEEE Xplore, *International Conference on Emerging Trends in Electrical and Computer Technology, ICETECT-2011*, pp. 676-681, 2011
- [3] **Prashant Singh** and RDS Yadava, “Discrete Wavelet Transform and Principal Component Analysis Based Vapor Discrimination by Optimizing Sense-and-Purge Cycle Duration of SAW Chemical Sensor Transients”, IEEE Xplore, *IEEE National Conference on Computational Intelligence and Signal Processing, CISP-2012*, Guwahati, India, doi. 10.1109/NCCISP.2012.6189680, pp. 71-75, 2012.
- [4] **Prashant Singh** and RDS Yadava, “Quantitative Identification of Volatile Organics by SAW Sensor Transients– Comparative Performance Analysis of Fuzzy Inference and Partial-Least-Square-Regression Methods”, *Springer Advances in Intelligent Systems and Computing (FICTA-2013)*, vol. **247**, pp. 9-16, 2013.
- [5] **Prashant Singh**, Prabha Verma, Vivek Kumar Verma and RDS Yadava, “Quantitative Recognition of Volatile Organics by Fuzzy Inference System Based on Discrete Wavelet Transform of SAW Sensor Transients”, IEEE Xplore, *International Conference on Signal Propagation and Computer Technology (ICSPCT-2014)*, pp. 355-360, 2014.
- [6] Prabha Verma, **Prashant Singh** and R.D.S. Yadava, “A Fuzzy-GRNN Classifier for Pattern Recognition”, IEEE Xplore *2nd International Conference on Signal Processing and Integrated Networks (SPIN-2015)*, pp. 659-661, 2015.
- [7] Prabha Verma, **Prashant Singh** and RDS Yadava, “Fuzzy c-Means Clustering Based Outlier Detection for SAW Electronic Nose”, IEEE Xplore, *International Conference for Convergence of Technology*, pp. 513-519, 2017.
- [8] **Prashant Singh**, Prabha Verma and S. Panda, “Wavelet Assisted Phase Space Analysis for Improved VOCs Discrimination Using SAW Sensor Transients”, *Springer Advances in Intelligence Systems and Computing*, vol. **1118**, pp. 403-411, 2020.
- [9] Prabha Verma, **Prashant Singh** and S. Panda, “Fuzzy Assisted PLS Regression for Enhancing Quantification Efficiency of Electronic Nose”, *Springer Advances in Intelligence Systems and Computing*, vol. **1118**, pp. 393-401, 2020.

BOOK EDITED

- [1] Prashant Singh (Co-Editor), Prof. Deepti Khare, Dr. Punam Chauhan (Editor) **Unnati Ek Prayas**, pp. 1-131, 2025. ISBN- 9-789-36559-0975

RESEARCH PAPERS PRESENTED IN CONFERENCES

- [1] **Prashant Singh**, Vivek Kumar Verma, Preeti Verma and RDS Yadava, “Sensing Cycle Based Information Fusion for Improving the Chemical Identification Efficiency by SAW Sensor Transients”, *National Conference on Future Trends in Electronics and Communication, NCFTEC-2013*, Moradabad, India, 11th May 2013.
- [2] **Prashant Singh**, Vivek Kumar Verma and RDS Yadava, “Wavelet and PLSR Based Simulation Study of Identification and Quantification of Organic Vapors by SAW Sensor Transients”, *National Conference on Contemporary Computing, NC3-2013*, Moradabad, India, 17th May, 2013.
- [3] **Prashant Singh**, Prabha Verma and RDS Yadava, “Electronic Nose Development through Parametric Nonlinearity Based on SAW Sensor Transients”, *3rd International Conf on Emerging Trends in Engineering and Technology*, Moradabad, 9-10 May, 2014, pp. 1-5, ISBN 978-93-5174-119-0.
- [4] Nikita Yusuf and **Prashant Singh**, “Self Organizing Map- An Unsupervised Learning Algorithm”, *3rd International Conf on Emerging Trends in Engineering and Technology*, Moradabad, 9-10 May, 2014 Teerthanker Mahaveer University, Moradabad
- [5] Nikita Yusuf and **Prashant Singh**, “SOM Application for Vapor Classification based on SAW Sensor Transients”, *2nd National Conference on Contemporary Computing, NC3-2014*, Moradabad, India, 20th May, 2014.
- [6] Neha Sharma and **Prashant Singh**, “Liver Disease Identification by SVM Classifier”, *2nd National Conference on Contemporary Computing, NC3-2014*, Moradabad, India, 20th May, 2014.
- [7] **Prashant Singh** and Versha Gupta, “Enhancing Electronic Nose Odor Recognition Efficiency by Imparting Parametric Nonlinearity Based on SAW Sensor Transient”, *National Conference on Research and Innovation in Engineering and Technology, Unnao*, pp. 186-192, 6-7 November, 2015. ISBN No.- 978-93-5254-335-9

CONFERENCE ORGANIZED (Technical Support Committee Member)

1. Research and Innovation in Engineering and Technology, RIET-2015, Shri Ram Murti Smarak College of Engineering and Technology, Unnao, 209859, 6-7 November, 2015.

COURSES ATTENDED

1. SERC School on Applications of Novel Artificial Intelligence and Machine Learning Techniques, sponsored by C-DAC and MIT Pune, held at Maharashtra Institute of Technology, Pune from 28 Dec. 2009 to 2 Jan. 2010.
2. SERC School on Nonlinear Programming and Soft Computing Techniques for Chemical Engineering, sponsored by Department of Science and Technology held at Chemical Engineering Department, NIT Durgapur from 12 to 16 Dec. 2011.
3. Latex Training Programme sponsored by Department of Science and Technology – Centre of Interdisciplinary Mathematical Sciences (CIMS), Banaras Hindu University from 19 to 24 March, 2012.
4. ISBA Regional Meeting and International Workshop on Bayesian Theory and Applications, 6-10 January 2013, Department of Statistics, Banaras Hindu University, Varanasi, Uttar Pradesh, India.
5. Workshop on Data Mining and Its Industrial Applications, 21-23 February 2013, Indian Statistical Institute Kolkata, West Bengal, India.
6. Faculty Induction Programme/ Guru Dakshata, 2-31 August 2022, Organized by UGC Human Resource Development Centre, University of Lucknow.
7. Refresher Course in Physics, 18 September to 03 October 2023, UGC-HRDC, Kumaun University, Nainital

Research Citations Till Date

84 (According to Google Scholar)