



NAMRATA DEWAN SONI

Professor

With a distinguished academic background, extensive research contributions, and a proven track record in teaching, I am committed to fostering a deep understanding of the fundamental principles of physics and their real-world applications.



Education History

- PhD (2008) from University of Delhi.
- Thesis Title: "Development of TeO₂+y thin films for sensor applications"
- M. Sc. Physics (2003) from University of Delhi
- **GOLD MEDALIST** (Awarded K S Krishnan Gold Medal)
- B. Sc. (Hons.) Physics (2001) from HANSRAJ COLLEGE, University of Delhi.
- GATE and CSIR NET JRF (in 2003) Qualified



Work Experience

March 2021-till date

Professor at Hansraj College, University of Delhi

August 2017- March 2021

Associate Professor at Hansraj College, University of Delhi

October 2006- August 2017

Assistant Professor at Hansraj College, University of Delhi

August 2006-October 2006

Lecturer at Kalindi College (Permanent), University of Delhi

August 2005-August 2006

Lecturer (Adhoc) at Hansraj College, University of Delhi



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Google scholar link:

<https://scholar.google.com/citations?hl=en&ser=BVgj87sAAAAJ>

ResearchGate link:

<https://www.researchgate.net/profile/Namrata-Soni-2>



AWARDS AND DISTINCTIONS

- Got **K S Krishnan Gold Medal** in Msc
- CSIR NET JRF (in 2003)
- INMAS Travel Grant (2005).
- Best Innovative Idea award for project HR 206.
- Teaching Excellence award for innovation.
- Appreciation for Innovation Project (HR-310).
- Women Prestige Award 2022 for exemplary contribution in Physics
- Dr. Sarvepalli Radhakrishnan Distinguished Professor & Researcher Award 2022



AREAS OF INTEREST / SPECIALIZATION

- Temperature stability of surface acoustic wave (SAW) devices and sensors.
- Theoretical optimization of various properties of an acoustic device using mathematical programming tools.



Publications

Number of Books Authored: 1

E-chapters written: 8

Number of Research Papers Published: 18

Number of Papers in Conference proceedings: 2



BOOK AUTHORED:

Tensors Concepts and Applications with Scilab Programs

(October 2019); ISBN: 9789386768599, Publisher: I K International Pvt Ltd.



E CHAPTERS

1. Maxwell's equation, (virtual learning Environment, Inst. of Lifelong learning, University of Delhi, Delhi). (ISSN 2349-154X, April 2014).
2. Ampere's circuital law, (virtual learning Environment, Inst. of Lifelong learning, University of Delhi, Delhi). (ISSN 2349-154X, April 2014).
3. Circuit analysis, (virtual learning Environment, Inst. of Lifelong learning, University of Delhi, Delhi). (ISSN 2349-154X Published in April 2014).
4. Analysis of AC circuits, (virtual learning Environment, Inst. of Lifelong learning, University of Delhi, Delhi). (ISSN 2349-154X, April 2014).
5. AC Bridges, (virtual learning Environment, Inst. of Lifelong learning, University of Delhi, Delhi). (ISSN 2349-154X Published in April 2014).
6. Errors and Iterative methods, (virtual learning Environment, Inst. of Lifelong learning, Delhi University, Delhi). (ISSN 2349-154X, August 2015).
7. Solution of Algebraic and Transcendental Equation I, (virtual learning Environment, Inst. of Lifelong learning, Delhi University, Delhi). (ISSN 2349-154X, Published in August 2015).
8. Solution of Algebraic and Transcendental Equation II, (virtual learning Environment, Inst. of Lifelong learning, Delhi University, Delhi). (ISSN 2349-154X, Published in August 2015)



INNOVATION PROJECTS

- Development of an Eco-Friendly, Efficient, Portable Lighting Source Utilizing a Renewable Energy Source and a Solid State Lighting Solution - Solar LED Bulb (HR 206), under innovation project scheme, university of Delhi 2013-2015.
- Emergency Management Solutions: Design of Solar based Eco-Friendly, efficient, and Portable lighting/Power, water conditioning and Thermo-electric Solutions", under innovation project scheme, university of Delhi 2015-2016.



UNDERGRADUATE PROJECT GUIDANCE:

Guided undergraduate students for the following projects and advanced practicals:

- Project on Dielectric properties measurement" (2009-2010)
- Project on " Phase shift oscillator"(2010-2011)
- Project on "To construct A 741 & 555 IC Tester" (2011-2012)
- Project on "Fourier Analysis using an OP amp Filter" (2012-2013)
- Project on "Testing Printer port (using electronics circuit and C language programming"(2013-2014)
- Project on "Theory of Errors" (2015-2016)
- Project on "To construct basic Function generator" (2016-17)
- Project on "To quantify sugar concentration" (2016-17; interdisciplinary one)
- Project on "To study RC network response" (2016-17)
- Project on "To find the dielectric constant of a glass" (2016-17; interdisciplinary one).

1. Global Trends in Silicon Carbide Biosensor Research: A Bibliometric Study. Talwar, J., Bhardwaj, A., & **Soni, N. D.** (2023). Journal of Scientometric Research, 12(2), 372-382. <https://doi.org/10.5530/jscires.12.2.033>. (Scopus source ID: 21100983214, IF - 0.8, indexed in WOS)
2. Enhanced acousto-optic properties of Silicon carbide based layered structure. **Namrata Dewan Soni**, Al-Bahir Journal for Engineering and Pure Sciences, 2023. Vol. 3 : Iss. 1 , Article 6. Available at: <https://doi.org/10.55810/2312-5721.1035>
3. A comparative study on the use of physical and e-labs: a case study at University of Delhi. Jyoti Bhola & **Namrata Dewan Soni**, SAMRIDDIH : A Journal of Physical Sciences, Engineering and Technology, 2022, 14(1), 10-16; doi: 10.18090/samriddhi.v14i01.2 (In UGC care 1).
4. A Study on Use of Mathematical Programs for Design of Electronic Circuits in Cybernetic-Physical Learning Environment. **Namrata Dewan Soni**, Jyoti Bhola and Mona Bhatnagar. International Journal of Information and Education Technology, (Scopus Source Id: 21100921050) 2021 ,11(11), 504-509. doi: 10.18178/ijiet.2021.11.11.1557.
5. A Mathematical Reflection of COVID-19 and Vaccination Acceptance in India. Jyoti Bhola, Ashutosh Yadav, Ishita Srivastva, Utcارش Mathur and **Namrata Dewan Soni**, Asian Pacific Journal of Health Science, 2021 ,8(3), 150-157 (In UGC care 1).
6. Trajectory of Corona Epidemic in India: An initial phase predictive mathematical model and the present status. Jyoti Bhola, Vandana Revathi Venkateswaran, Monika Koul and **Namrata Dewan Soni**, Ann. Biost. & Biometric App., 4(2), 2021, pp. 1-9.
7. कोरोना महामारी के दौरान शिक्षण में डिजिटल विकास, Jyoti Bhola and **Namrata Dewan Soni**, Samsamyik Srijan, 11(21), 2021, pp. 105-107.
8. Enhanced Properties of SAW Device Based on Beryllium Oxide Thin Films, **Namrata Dewan Soni** and Jyoti Bhola, Crystals, 11 (2021) 332. (Scopus Source Id: 21100316020) (IF:: 2.404)
9. SAW propagation characteristics of TeO₃/3C-SiC/LiNbO₃ layered structure, **Namrata D. Soni**, Mater. Res. Express, 5 (2018) 046309.(ISSN- 2053-1591) (Scopus Source Id: 21100432452) (IF- 1.929)
10. "Conduction mechanism in amorphous rf-sputtered TeO_{2+y} thin films", **Namrata Dewan** and Vinay Gupta, Mater. Res. Express, 2 (2015) 086301.(ISSN- 2053-1591) (Scopus Source Id: 21100432452) (IF-: 1.9229)
11. "Anomalous elastic properties of rf sputtered amorphous TeO_{2+x} thin film for temperature stable SAW device applications", **Namrata Dewan**, K Sreenivas, Vinay Gupta, IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control, 55(3) (2008), 552-558 , IF 2.812)
12. "Theoretical studies on TeO₂/ZnO/diamond layered structure for zero TCD SAW devices", **Namrata Dewan**, K Sreenivas, Vinay Gupta, Semiconductor Science and Technology, 23(8) (2008) 85002.1-6. (ISSN: 0925-9635)(Impact factor: 2.361)
13. "Comparative studies on TeO₂ and TeO₃ thin film for X-ray sensor application", **Namrata Dewan**, K Sreenivas, Vinay Gupta, Sensors and Actuators A 147(1) (2008) 115-20. (ISSN-0924-4247) (IF 2.904)
14. Influence of temperature stability on the sensing properties of SAW NO_x sensor", **Namrata Dewan**, S P Singh, K Sreenivas, Vinay Gupta, Sensors and Actuators B Vol: 124 (2), 329-335 (2007). (ISSN-0925-4005) (IF 7.1)
15. "Growth of amorphous TeO_x (2 ≤ x ≤ 3) thin film by radio frequency sputtering", **Namrata Dewan**, K Sreenivas, R S Katiyar and Vinay Gupta, Journal of Applied Physics, Vol: 101, 084910 (2007). (ISSN-0021-8979 (Print) 1089-7550 (Online)) (IF: 2.286)
16. "Properties of crystalline X-TeO₂ thin film", **Namrata Dewan**, K Sreenivas, Vinay Gupta, Journal of Crystal Growth, Vol: 305, 237-241 (2007). (ISSN- 0022-0248) (IF: 1.632)
17. "Influence of gamma-radiation doses on the properties of TeO_x: (x = 2-3) thin film", **Namrata Dewan**, K Sreenivas, Vinay Gupta, Journal of Applied Physics, Vol: 102, 044906 (2007). (Also linked in Sept.2007 issue of Virtual J. Nanoscale Sc.& Tech) (ISSN- 0021-8979 (Print) 1089-7550 (Online))(IF: 2.21)
18. "Temperature compensated devices using thin TeO₂ layer with negative TCD", **Namrata Dewan**, K Sreenivas, Vinay Gupta, IEEE Electron Device Letters Vol: 27, NO. 9, 752-754 (2006). (ISSN- ISSN 0741-3106) (IF: 4.221)
19. "Temperature stable LiNbO₃ based Surface Acoustic Wave device with diode sputtered amorphous TeO₂ over-layer", **Namrata Dewan**, Monika Tomar, K Sreenivas, Vinay Gupta, Applied Physics Letters, Vol: 86, 223508(2005). (ISSN-0003-6951 (Print) 1077-3118) (IF: 3.595)



CONFERENCE/ SYMPOSIUM ETC. PAPER PRESENTED

1. "SAW field and Acousto-optical Interaction in ZnO/AlN/Sapphire Structure", L. Rana, V. Gupta, **N. D. Soni** and M. Tomar, Proc. of IEEE held at Germany (21-25 Aug. 2016) (Poster presentation) (Electronic ISBN: 978-1-5090-1871-0).
2. Temperature coefficient of elastic constants of sputtered TeO₂ thin film for zero TCD SAW devices", **Namrata Dewan**, Monika Tomar, K. Sreenivas and Vinay Gupta, Netherlands (18th - 21st September 2005), pp - 1311. (ISBN 0-7803-9382-1) (ISSN: 1051-0117)