

## **BRIEF BIO-DATA**

- 1. NAME:** Dr. S. N. Pandey
- 2. DESIGNATION:** Professor
- 3. DATE OF BIRTH:** July 30, 1965
- 4. NATIONALITY:** Indian
- 5. ADDRESS:** Department of Physics  
Motilal Nehru National Institute of Technology  
Allahabad, Prayagraj - 211 004, India
- 6. TELEPHONE:** +91-532- 2271269 (O), 2271679 (R)  
+91- 9450957095, 9415124952
- 7. FAX:** +91-532-2545677, 2545341
- 8. E-MAIL:** snp@mnnit.ac.in, snpandey12@gmail.com,  
snpandey1@yahoo.com

**9. EDUCATION:**

High School to M. Sc. (Physics) in first division, Ph. D. (Physics) -1992.

**10. RESEARCH SPECIALITY:**

- A) **Experimental:** Nanostructured thin films, functional oxide nanomaterials, carrier transport in thin films, gas sensors, nanomaterials for energy storage, supercapacitors and device fabrications.
- B) **Theoretical:** Dynamics of nonlinear and damped systems, symmetry and integrability, fractal and multi-fractal analysis, quantum computing: entanglement dynamics.

**11. HONOURS/ AWARDS/ VISITING FELLOWSHIPS:**

1. SERC Visiting Fellowship.
2. JNCASR Visiting Fellowship.
3. Visiting Fellowship of the Mehta Research Institute of Mathematics & Mathematical Physics, Allahabad.
4. University Grants Commission (UGC) Research Award.
5. Associateship of The Institute of Mathematical Sciences (Dept. of Atomic Energy), Chennai for three years.
6. Summer Fellowship of the Indian Academy of Sciences.
7. IASc-INSA-NASI Summer Fellowship (two times).

8. Mentor, "Innovation in Science Pursuit for Inspired Research (**INSPIRE**)" Programme, Department of Science & Technology (DST), India.
9. Coordinator of Madhava Mathematics Competition (Funded by National Board of Higher Mathematics).

**12. REASECH PROJECTS:**

1. "Symmetry and integrability of certain nonlinear dynamical systems" sponsored by DST, Govt. of India worked as Principal Investigator.
2. "Investigation of chemical gas sensors based on low cost thin films of metal-oxide semiconductors" sponsored by DST, Govt. of India worked as Co-Investigator.

**13. NO. OF PH. D. GUIDED: 04**

| S. No. | Name of the Ph. D. Scholar | Title of Ph. D. Thesis   |
|--------|----------------------------|--|
| 1.     | Ajeay Kumar Tiwari         | Symmetry and Integrability aspects of a class of nonlinear dynamical systems   |
| 2.     | Pramod Nagaragadde         | Preparation and characterization of metal ion doped In <sub>2</sub> O <sub>3</sub> thin films for optical and gas-sensing applications |
| 3.     | Mohan Chandra Mathpal      | Investigations of structural and optical properties of plasmonic meta materials and titanium nanostructures                            |
| 4.     | Kapil Kumar Sharma         | Entanglement dynamics in bipartite quantum systems under Dzyaloshinskii-Moriya interaction   |

**14. NO. OF POST-DOCTORAL FELLOWS: 02**

SERB-National Post Doctoral Fellowship, N-PDF, Completed:  
Dr. Ram Pratap Yadav, Dr. Hari Pratap Bhaskar.

**15. RESEARCH SCHOLARS WORKING FOR PH. D. DEGREE: 03**

Ms. Kavyashree, Ms. Shama Parveen and Suneel Kumar Sharma.

**16. SOME RECENT RESEARCH PAPERS PUBLISHED IN INTERNATIONAL JOURNALS:**

| S. No. | Authors   | Title of the paper  | Journal, Volume, Page Nos.                                     | Year | Publisher                                    |
|--------|---|---|--|------|--|
| 1      | Shama Parveen, Kavyashree, S. N. Pandey   | Embedded coral reef sponge like structured $\text{Al}(\text{OH})_3/\text{FeOOH}$ composite for flexible solid-state symmetric supercapacitor  | <i>Journal of Power Sources</i> , <b>44</b> , 227304 (1-12)    | 2020 | Elsevier<br>I.F.: 7.467                      |
| 2      | Kavyashree, R. P. Yadav, Shama Parveen, Leela Pradhan Joshi, S. N. Pandey   | Fractal characterization of flakes covered tuberose structured $\text{Cu}:\text{Sr}(\text{OH})_2$ thin film as supercapacitive electrode  | <i>Materials Research Bulletin</i> , <b>120</b> , 110574 (1-8) | 2019 | Elsevier<br>I.F.: 3.335                      |
| 3      | Shama Parveen, Kavyashree, S. N. Pandey   | Electrochemical study of 3D hierarchical dandelion-fiber flake-like structure of $\text{Al}(\text{OH})_3/\text{MnO}_2$ nanocomposite thin film for future supercapacitor applications | <i>Electrochimica Acta</i> , <b>319</b> , 832-842              | 2019 | Elsevier<br>I.F.: 5.383                      |
| 4      | Kavyashree, Shama Parveen, S. S. Raut, M.K. Tiwari, B. R. Sankapal, S. N. Pandey                                    | Flexible iron-doped $\text{Sr}(\text{OH})_2$ fibre wrapped tuberose for high-performance supercapacitor electrode   | <i>Journal of Alloys and Compounds</i> , <b>781</b> , 831-841  | 2019 | Elsevier<br>I.F.: 3.779                      |
| 5      | Kavyashree, R. K. Pandey, R. P. Yadav, Manvendra Kumar, H. P. Bhaskar, A. K. Mittal, A. C. Pandey, S. N. Pandey     | Substrate effect on the evolution of surface morphology of $\text{BaF}_2$ thin films: A study based on fractal concepts   | <i>Applied Surface Science</i> , <b>466</b> , 780-786          | 2019 | Elsevier<br>I.F.: 4.439                      |
| 6      | Kavyashree, Shrikant S. Raut, Babasaheb R. Sankapal, S. N. Pandey   | Influence of Cu on the performance of tuberose architecture of Strontium Hydroxide thin film as a supercapacitor electrode  | <i>ChemElectroChem</i> , <b>5</b> , 4021-4028                  | 2018 | Wiley<br>I.F.: 4.446                         |
| 7      | Kavyashree, Shrikant S. Raut, Babasaheb R. Sankapal, S. N. Pandey   | Tuberose surface architecture of $\text{Sr}(\text{OH})_2$ film as supercapacitive electrode   | <i>Electrochimica Acta</i> , <b>258</b> , 34-42                | 2017 | Elsevier<br>I.F.: 5.116                      |
| 8      | R. P. Yadav, D. C. Agarwal, Manvendra Kumar, Parasmani Rajput, D. S. Tomar, S. N. Pandey, P. K. Priya, A. K. Mittal | Effect of angle of deposition on the Fractal properties of ZnO thin film surface  | <i>Applied Surface Science</i> , <b>416</b> , 51-58            | 2017 | Elsevier<br>I.F.: 4.439                      |
| 9      | R. P. Yadav, Tanuj Kumar, V. Baranwal, Vandana, Manvendra Kumar, P. K. Priya, S. N. Pandey, A. K. Mittal            | Fractal characterization and wettability of ion treated silicon surfaces  | <i>Journal of Applied Physics</i> , <b>121</b> , 55301 (1-7)   | 2017 | American Institute of Physics<br>I.F.: 2.176 |
| 10     | Kapil K. Sharma, S. N. Pandey   | Robustness of Greenberger-Horne-Zeilinger and W   | <i>Quantum Inf. Process</i> , <b>15</b> ,                      | 2016 | Springer<br>I.F.: 2.283                      |

|    |   |   |  |      |                                  |
|----|---|---|--|------|----------------------------------|
|    |   | states against Dzyaloshinskii-Moriya interaction  | 4995–5009  |      |                                  |
| 11 | Kapil K. Sharma, S. N. Pandey   | Dynamics of entanglement in qubit-qutrit with x-component of DM interaction   | <i>Commun. Theor. Phys.</i> <b>65</b> , 278-284                                | 2016 | IOP, Publishing Ltd. I.F.: 1.178 |
| 12 | Kapil K. Sharma, S. N. Pandey   | Dzyaloshinskii-Moriya interaction as an agent to free the bound entangled states  | <i>Quantum Inf. Process</i> <b>15</b> , 1539–1551                              | 2016 | Springer I.F.: 2.283             |
| 13 | Ajey K. Tiwari, V. K. Chandrasekar, S. N. Pandey, M. Senthilvelan, M. Lakshmanan  | The inverse problem of a mixed Liénard type nonlinear oscillator equation from symmetry perspective                                       | <i>Acta Mechanica</i> , <b>227</b> , 2039–2051                                 | 2016 | Springer I.F.: 2.113             |
| 14 | Kapil K. Sharma, S. N. Pandey   | Influence of Dzyaloshinskii–Moriya interaction on quantum correlations in two-qubit Werner states and MEMS                                | <i>Quantum Inf. Process</i> <b>14</b> , 1361-1375                              | 2015 | Springer I.F.: 2.283             |
| 15 | Ajey K. Tiwari, S. N. Pandey, M. Senthilvelan, M. Lakshmanan  | Lie point symmetries classification of the mixed Liénard-type equation  | <i>Nonlinear Dyn.</i> <b>82</b> , 1953-1968                                    | 2015 | Springer I.F.: 3.464             |
| 16 | Ajey K. Tiwari, V. K. Chandrasekar, S. N. Pandey, M. Lakshmanan   | Factorization technique and isochronous condition for coupled quadratic and mixed Liénard-type nonlinear systems                          | <i>Applied Mathematics and Computation</i> <b>252</b> , 457–472                | 2015 | Elsevier I.F.: 2.300             |
| 17 | A. Saini, V. M. Vyas, Thokala Soloman Raju, S. N. Pandey, Prasanta K. Panigrahi   | Super and subluminal propagation in nonlinear Schrödinger equation model with self-steepening and self-frequency shift                    | <i>J. Nonlinear Optical Physics &amp; Materials</i> <b>24</b> , 1550033 (1-14) | 2015 | World Scientific I.F.: 1.491     |
| 18 | N. G. Pramod, S. N. Pandey  | Effect of Li doping on the structural, optical and formaldehyde sensing properties of In <sub>2</sub> O <sub>3</sub> thin films           | <i>Ceram. Int.</i> <b>41</b> , 527–532   | 2015 | Elsevier I.F.: 2.758             |
| 19 | N. G. Pramod, S. N. Pandey  | Influence of Sb doping on the structural, optical, electrical and acetone sensing properties of In <sub>2</sub> O <sub>3</sub> thin films | <i>Ceram. Int.</i> <b>40</b> , 3461 - 3468                                     | 2014 | Elsevier I.F.: 2.605             |
| 20 | Mohan Chandra Mathpal, Promod Kumar, Balasubramanian R., Jin Suk Chung, Anand Kumar Tripathi, Manish Kumar Singh, M. M. Ahmad, S. N. Pandey, Arvind | Ag/TiO <sub>2</sub> /graphene stacking for plasmonic metamaterial-based transparent semiconducting thin films                             | <i>Materials Letters</i> <b>128</b> , 306 - 309                                | 2014 | Elsevier I.F.: 2.489             |

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|----|--|---|---|------|---|
|    | Agarwal  |   |   |      |   |
| 21 | Ajey K. Tiwari, S. N. Pandey, M. Senthilvelan, M. Lakshmanan   | Erratum: "Classification of Lie point symmetries for quadratic Lienard type equation $\ddot{x} + f(x)\dot{x}^2 + g(x) = 0$ . [J. Math. Phys. 54, 053506 (2013)]                 | <i>J. Math. Phys.</i> <b>55</b> , 059901 (1-2)        | 2014 | American Institute of Physics I.F.: 1.243 |
| 22 | Kapil K. Sharma, S. N. Pandey  | Entanglement dynamics in two-parameter qubit-qutrit states under Dzyaloshinskii-Moriya interaction  | <i>Quantum Inf. Processing</i> <b>13</b> , 2017-2038  | 2014 | Springer I.F.: 1.923                      |
| 23 | Kapil K. Sharma, S. K. Awasthi, S. N. Pandey   | Entanglement sudden death and birth in qubit-qutrit systems under Dzyaloshinskii-Moriya interaction   | <i>Quantum Inf. Processing</i> <b>12</b> , 3437-3447  | 2013 | Springer I.F.: 1.923                      |
| 24 | Ajey K. Tiwari, S. N. Pandey, M. Senthilvelan and M. Lakshmanan  | Classification of Lie point symmetries for quadratic Liénard-type equation $\ddot{x} + f(x)\dot{x}^2 + g(x) = 0$ .  | <i>J. Math. Phys.</i> <b>54</b> , 053506 (1-19)       | 2013 | American Institute of Physics I.F.: 1.243 |
| 25 | N. G. Pramod, S. N. Pandey, P. P. Sahay  | Sn-Doped In <sub>2</sub> O <sub>3</sub> Nanocrystalline Thin Films Deposited by Spray Pyrolysis: Microstructural, Optical, Electrical, and Formaldehyde-Sensing Characteristics | <i>J. Therm. Spray Technol.</i> <b>22</b> , 1035-1043 | 2013 | Springer I.F.: 1.344                      |
| 26 | Mohan Chandra Mathpal, Anand Kumar Tripathi, Manish Kumar Singh, S. P. Gairola, S. N. Pandey, Arvind Agarwal | Effect of annealing temperature on Raman spectra of TiO <sub>2</sub> nanoparticles  | <i>Chem. Phys. Lett.</i> <b>555</b> , 182-186         | 2013 | Elsevier I.F.: 1.991                      |
| 27 | P. P. Sahay, R. K. Mishra, S. N. Pandey, S. Jha, M. Shamsuddin   | Structural, dielectric and photoluminescence properties of co-precipitated Zn-doped SnO <sub>2</sub> nanoparticles  | <i>Curr. Appl. Phys.</i> <b>13</b> , 479-486          | 2013 | Elsevier I.F.: 2.026                      |

## 17. SHORT TERM COURSES ORGANIZED:

1. Recent Trends in Nonlinear Systems and Dynamics (RTNSD) 2013 at Motilal Nehru National Institute of Technology Allahabad, Allahabad during June 10-14, 2013.
2. Advances in Materials Science and Engineering (AMSE) 2013 at Motilal Nehru National Institute of Technology Allahabad, Allahabad during July 15-21, 2013.
3. Two-Week ISTE Short Term Training Programme (STTP) on "Engineering Physics" under the National Mission on Education through ICT (MHRD, Government of India) Conducted by IIT Bombay at Motilal Nehru National Institute of Technology Allahabad, Allahabad during December 08-18, 2015.

**18. COUNTRY VISITED:** USA, Russia, Ukraine, South Africa, Singapore, Finland, Bangladesh and Nepal.

**19. EDITORIAL BOARD MEMBER:**

Editorial board member of

- International Journal of Applied Physics,
- International Journal of Materials Physics (IJMP),
- International Journal of Nanotechnology and Applications (IJNA),
- International Journal of Nano Science and Nanotechnology
- NanoScience Letters.
- International Journal of Engineering Studies (IJES)
- International Journal of Materials Sciences (IJOMS)

**20. REVIEWER:**

Reviewer of many international/ national journals including

- Journal of Mathematical Physics,
- Quantum Information and Processing,
- European Physical Journal,
- Applied Mathematical Modelling,
- Journal of Engineering Mathematics,
- Journal of Physics A: Mathematical and Theoretical,
- International Journal of Nanoscience and Nanotechnology,
- Pramana-Journal of Physics,
- Indian Journal of Pure and Applied Physics.

**21. MEMBERSHIP IN PROFESSIONAL SOCIETIES:**

- Life member of Indian Physical Society, Kolkata, India,
- Materials Research Society of India (MRSI), India,
- Indian chapter of the Abdus Salam International Center for Theoretical Physics, Trieste, ITALY,
- Indian Physics Association, India,
- Indian Association of Physics Teachers, India,
- Indian Society for Technical Education, India,
- Punjab Academy of Sciences, Punjab, India,
- Nepal Physical Society, Nepal.

**22. TOTAL TEACHING EXPERIENCE:** More than 25 years.

**23. ADMINISTRATIVE EXPERIENCE:**

- Head, Department of Physics, MNNIT, Allahabad,
- Warden-in-Charge, Convener - DPGC, Convener - DUGC, O.C. (Lab.), etc.

**24. REFRESHER COURSES / CONFERENCES/ SYMPOSIA/ INVITED LECTURES:**

Attended nine refresher/ orientation/ short term courses and presented research papers in many conferences, symposia and delivered invited lectures in many parts of India and abroad, organizing committee members of national and international conferences in India and abroad.

(S. N. Pandey)