



# Miranda House

## UNIVERSITY OF DELHI

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**Name:** Dr. Sonam Singh

**Department:** Physics

**Current Designation:** Assistant Professor

**Email-id:** sonam.singh@mirandahouse.ac.in

**Academic Qualifications (reverse chronological order):**

**M.Sc. (2008):** Physics with specialization in Electronics from Department of Physics and Astrophysics (enrolled in Hansraj College), University of Delhi, Delhi – 110007

**B.Sc. (2006):** Honours Degree in Physics from Hansraj College, University of Delhi, Delhi – 11007

**Research Degree:**

**Ph. D. (2017):** Physics with broad area as Digital Image Processing from University School of Basic and Applied Sciences, GGS Indraprastha University, Delhi – 110078

**Thesis Title:** Investigations in Three Dimensional Imaging and Wavefront Aberrations

**Areas of Research Interests:**

- Digital Signal/Image Processing
- Wavefront Aberrations
- Astronomical Image Processing and Medical Imaging

**Additional Academic Qualifications:**

**NET (LS):** Qualified in Physical Sciences in Dec - 2009

**GATE:** Qualified in Physics in 2009

**Total Teaching Experience:** 11 Years

Teaching at Miranda House (Ad-hoc) since 17 January 2011



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### List of Publications (reverse chronological order):

- **Singh S.**, Ganotra D., “Phase estimation for Zernike circle polynomials using Phase Locked Loops for investigations of camera aberrations,” Optics and Lasers in Engineering 51 (2013) 261-269.  
ISSN No. 0143-8166
- **Singh S.**, Ganotra D., “Wavefront fitting and comparison of camera aberrations using Zernike circle polynomials,” Optik- International Journal for Light and Electron Optics 124 (2013) 2379-2386.  
ISSN No. 0030-4026
- **Singh S.**, Ganotra D., “Modifications in Normalized Cross-Correlation expression for template matching applications,” Proc. of International Conference on Image Processing, Computer Vision, & Pattern Recognition (IPCV’11: July 18-21, 2011, USA), 22-28.  
ISBN No. 1-60132-189-9

### Administrative Responsibilities:

- Member of Physics Department Time Table Committee since 2019.
- Member of Physics Department Admission Committee in 2022
- Worked in College Prospectus Committee in 2019
- NIRF Co-Ordinator from the Physics Department for Student Progression data in year 2021.
- Member of Fine Arts Society in the academic year 2021-22

### Seminars/Workshops/Conferences Attended (reverse chronological order):

- Mentor in DS Kothari Summer Workshop, **Flavour of Research** for Undergraduate Students mentor organized by Physics Department, Miranda House, University of Delhi from 9 June to 21 July 2022.



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- UGC-Sponsored Short Term Course on **Remote Sensing** organized by Centre for Professional Development in Higher Education (HRDC), University of Delhi from 24 June to 30 June 2022.
- One-Week Short Term Course on **Computational Physics** in online mode organized by the Department of Physics, Motilal Nehru Institute of Technology, Allahabad, Prayagraj from 1 March to 5 March 2021.
- Three days Online National Workshop on **Challenges in Teaching Physics Laboratory Courses in Online Mode** organized by Department of Physics under the aegis of IQAC, Kalinda College in association with Department of Physics and Astrophysics, University of Delhi and The National Academy of Sciences India (NASI), Delhi chapter from 23 January to 25 January 2021.
- DS Kothari Summer Workshop, **Flavour of Research** for Undergraduate Students mentor organized by Physics Department, Miranda House, University of Delhi from 15 June to 31 July 2021 as mentor
- Mentor in DS Kothari Summer Workshop, **Flavour of Research** for Undergraduate Students mentor organized by Physics Department, Miranda House, University of Delhi from 30 June to 9 August 2020 as mentor.
- Conclave on **Biodiversity for Everyone's Life** organized by Institute of Bioresources and Sustainable Development and Miranda House, University of Delhi held at Miranda House, University of Delhi on 31 August 2018.
- National Conference on **Technological Empowerment of Women** at Vigyan Bhavan, New Delhi on 8 March and 9 March 2018.
- **Science Conclave: Research on the Frontiers** held at Miranda House, University of Delhi from 10 January to 12 January 2018.
- **INSPIRE Internship Programme** for School students organized by D S Kothari Centre for Research and Innovation in Science Education, Miranda House, University of Delhi from 18 to 22 December 2017 as a teacher mentor.
- Workshop on **Active Learning as a Transformational Tool for the University Classroom** held on 15 May 2017 at Miranda House, University of Delhi, Delhi.



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- Workshop on **Sense it, Control it; Physical Measurements with Labview** organized under DBT Star College Project at DS Kothari Centre for Research and Innovation in Science Education, Miranda House, University of Delhi from 24 March to 25 March 2014.
- **INSPIRE Internship Programme** for School students organized by D S Kothari Centre for Research and Innovation in Science Education, Miranda House, University of Delhi from 15 to 20 December 2013 as a teacher mentor.
- Collaborative Workshop on **Active Learning Integrating Hands on Experiments and Multimedia Resources: A Collaborative Workshop for Undergraduate Physics Teachers** from 7 October to 8 October 2013 at Miranda House, University of Delhi, Delhi.
- Workshop on **Methodology of Teaching Science and Mathematics to students with Vision Impairment** organized by Centre for Professional Development in Higher Education (CPDHE), University of Delhi from 18 July to 19 July 2013.
- DS Kothari Summer Workshop, **Flavour of Research** for Undergraduate Students mentor organized by Physics Department, Miranda House, University of Delhi from 11 June to 10 July 2013 as mentor.
- Workshop on **QuantumWise – Atomistix Toolkit and Virtual Nanolab** organized by GGS Indraprastha University and Integrated Microsystem on 6 October 2009.