



## Faculty Details



Title	Dr.	First Name	SANJAY	Last Name	KUMAR	Photograph
Designation	ASSISTANT PROFESSOR					
Address	Department of Physics, Acharya Narendra Dev College (University of Delhi), Govindpuri, Kalkaji, New Delhi - 110019					
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Residence Mobile	011 - 42502978 9999459666					
Email/ Web-Page	<a href="mailto:sanjayholo@gmail.com">sanjayholo@gmail.com</a> , <a href="mailto:sanjaykumar24@andc.du.ac.in">sanjaykumar24@andc.du.ac.in</a> ,					
Educational Qualifications						
Degree	Institution				Year	
<b>B.Sc.</b>	Vardhman College Bijnor (Rohilkhand University, Bareilly), UP, India				<b>1982</b>	
<b>M.Sc. (Physics) with Electronics</b>	Vardhman College Bijnor (Rohilkhand University, Bareilly), UP, India				<b>1985</b>	
<b>Ph.D. (Physics)</b>	Indian Institute of Technology Delhi, Delhi, India				<b>1994</b>	
Career Profile						
<b><u>Teaching Experience</u></b> <ul style="list-style-type: none"><li>• Working as Assistant Professor (ad hoc) in Physics Department at Acharya Narendra Dev College since 24.07.2018.</li><li>• Also worked as Assistant Professor (ad hoc) in Physics Department at Acharya Narendra Dev College from 05.01.2015 to 22.05.2015.</li><li>• In addition, also worked as Asst. Professor (Ad hoc) in Physics Department at Kalindi College for two semesters during 2017 - 2018</li><li>• Also worked as Assistant Professor (Guest), Physics Department, Acharya Narendra Dev College, Govindpuri, Kalkaji, New Delhi between January 2016 and May 2017.</li></ul>						

### Research Experience

- Worked in Physics Department, I.I.T. Delhi, as Research Associate from 09.03.2012 to 31.08.2014.
- Worked as Project Associate/ Senior Project Scientist / Research Associate (Contract Awardee) between 26.03.2010 and 08.03.2012.
- In addition, also worked in holographic industry between 01.09. 1995 and 25.03.2010.

### Administrative Assignments

### Areas of Interest / Specialization

- Waves and Optics
- Applied Optics
- Electrical Circuit Analysis
- Holography and Solar Concentrator

### Subjects Taught

Waves and Optics, Thermal Physics, Elements of Modern Physics, Communication Systems, Electronic Instrumentation, Photonic Devices and Power Electronics, Electricity and Magnetism, Electrical Circuits and Network Skills (SEC), Basic Instrumentation Skills (SEC). Applied Optics (SEC) Electrical Circuit Analysis

### Research Guidance

### Publications Profile

#### **RESEARCH PAPERS IN INTERNATIONAL REFEREED JOURNALS**

1. **Sanjay Kumar** and K. Singh, "Bleached phase holograms using Agfa-Gevaert 10E75 NAH plates; Influence of different developers and developer composition on the diffraction efficiency, scattering and stability", **Optik 86** (1990) 99-103. [ISSN 0030-4026].
2. **Sanjay Kumar** and K. Singh, "Bleached phase holograms exposed on Agfa-Gevaert 10E75 NAH plates", **Opt. Laser Technol. 23** (1991) 37-41. [ISSN 0030-3992].
3. **Sanjay Kumar** and K. Singh, "Stability improvement in bleached phase holograms", **Opt. Laser Technol. 23** (1991) 225-227. [ISSN 0030-3992].
4. **Sanjay Kumar** and K. Singh, "Comparative study of diffracted-to-scattered intensity ratio before and after printout effect in bleached holograms", **J. Optics (Paris) 22** (1991) 22-26. [ISSN 0150-536X/ 2040-8978].

5. **Sanjay Kumar** and K. Singh, "Study of parameters of amplitude and bleached holograms recorded and reconstructed at 442nm using photographic emulsions", **Optik 88** (1991) 45-49. [ISSN 0030-4026].
6. **Sanjay Kumar** and K. Singh, "Amplitude and bleached phase holograms recorded and reconstructed at 442nm", **Opt. Appl. 21** (1991) 49-58. [ISSN 0078-5466].
7. **Sanjay Kumar** and K. Singh, "Bleached phase holograms produced by fixation-free methods for low scattering using Agfa-Gevaert 10E75 NAH plates", **Opt. Appl. 21** (1991) 329-337. [ISSN 0078-5466].
8. **Sanjay Kumar** and K. Singh, "Influence of different developers and bleach processes on the diffraction efficiency and scattering of the holograms", **Opt. Appl. 22** (1992) 195-203. [ISSN 0078-5466].
9. **Sanjay Kumar** and K. Singh, "Comparative study of maximum diffraction efficiency at different read-beam angles using 632.8 nm and 442 nm wavelengths", **Optik 90** (1992) 75-79. [ISSN 0030-4026].
10. **Sanjay Kumar** and K. Singh, "Measurement of diffraction efficiency as a function of relative humidity in bleached holograms at 442 nm wavelength", **Atti. Fond. G. Ronchi, 47** (1992) 101-113. [ISSN 0391-2051].
11. **Sanjay Kumar** and K. Singh, "Effect of relative humidity on the diffraction efficiency of bleached holograms", **Optik 92** (1993) 123-128. [ISSN 0030-4026].
12. **Sanjay Kumar** and K. Singh, "Photographic phase holograms produced by fixation-free methods: Diffraction efficiency and scattering at 442nm", **Asian J. Phys. 2** (1993) 119-127. [ISSN 0971-3093].
13. **Sanjay Kumar** and K. Singh, "Amplitude and bleached phase holograms recorded with a pulsed Nd:YAG laser at 532 nm wavelength", **Optik 95** (1994) 109-114. [ISSN 0030-4026].
14. **Sanjay Kumar**, K. N. Chopra, Joby Joseph and Kehar Singh, "Advances in Photonic and Microwave Technologies Based on Negative Phase velocity Materials and Related Areas: A Qualitative Bibliographic Review for the year 2007", **Asian J. Phys. 20** (2011) 321-402. [ISSN 0971-3093].
15. **Sanjay Kumar**, V. Padmanapan Rao , and Joby Joseph, "Photopolymer Holography: Review and Investigations", **Asian J. Phys. 24** (2015) 1449-1464. [ISSN 0971-3093].

#### **RESEARCH PAPERS IN INDIAN REFEREED JOURNALS**

1. **Sanjay Kumar** and K. Singh, "Bleached holograms produced by fixation-free method: Recording and reconstruction at 442nm using Kodak 649F plates", **J. Opt. (India) 19** (1990) 108-113.[ISSN 0972-8821].
2. **Sanjay Kumar** and K. Singh, "Diffraction efficiency as a function of exposure using two different construction and reconstruction wavelengths for bleached holograms", **J. Opt.**

(India) 21 (1992) 1-6. [ISSN 0972-8821].

3. **Sanjay Kumar** and K. Singh, "Holographic optical elements: technology of bleached phase holograms" **Laser News** 4 (1993) 6-9.
4. K. N. Chopra, **Sanjay Kumar**, Joby Joseph and Kehar Singh, "Advances in Photonic and Microwave Technologies Based on Negative Phase Velocity Materials, and Related Topics – A Qualitative Bibliographic Review for the Year 2006: Part I", **Inver. J. Sci. Technol.** 4 (2011) 84-126. [ISSN 2231-3419].
5. K. N. Chopra, **Sanjay Kumar**, Joby Joseph and Kehar Singh, "Advances in Photonic and Microwave Technologies Based on Negative Phase Velocity Materials, and Related Topics – A Qualitative Bibliographic Review for the Year 2006: Part II", **Inver. J. Sci. Technol.** 4 (2011) 146-187. [ISSN 2231-3419].

#### Conference/ Presentations/Workshops/Invited Lecture/FDP Attended

1. **Sanjay Kumar** and K. Singh, "Bleached phase holograms using Agfa-Gevaert 10E75 NAH plates: Diffraction efficiency and scattering", Presented in **18th OSI Symposium at Bangalore (1990)**.
2. **Sanjay Kumar** and K. Singh, "Influence of different bleached processes and different developers on the stability of bleached photographic phase holograms", Presented in **18th OSI Symposium at Bangalore (1990)**.
3. **Sanjay Kumar** and K. Singh, "Bleached phase holograms exposed on Agfa-Gevaert 10E75 NAH plates: Influence of developer composition on the diffraction efficiency, scattering and stability", Presented in **18th OSI Symposium at Bangalore (1990)**.
4. **Sanjay Kumar** and K. Singh, "Bleached phase holograms recorded and reconstructed at 442 nm using Agfa-Gevaert 8E75 HD and Kodak 649F spectroscopic plates", Presented in **19th OSI Symposium at Lucknow (1991)**.
5. **Sanjay Kumar** and K. Singh, "Amplitude holograms recorded and reconstructed at 442 nm in Agfa-Gevaert and Kodak emulsions", Presented in **19th OSI Symposium at Lucknow (1991)**.
6. **Sanjay Kumar** and K. Singh, "Reverse-bleached phase holograms recorded and reconstructed at 442 nm using Agfa-Gevaert 8E75 HD and Kodak 649F plates", Presented in **19th OSI Symposium at Lucknow (1991)**.
7. **Sanjay Kumar** and K. Singh, "Measurement of diffracted-to-scattered intensity ratio before and after printout effect in bleached phase holograms", Presented in **19th OSI Symposium at Lucknow (1991)**.
8. **Sanjay Kumar** and K. Singh, "Effect of relative humidity on the diffraction efficiency of bleached holograms using fixation-free methods", Presented in **20th OSI Symposium at SAMEER, Bombay (1992)**.
9. **Sanjay Kumar** and K. Singh, "Diffraction efficiency as a function of relative humidity in bleached holograms using Agfa-Gevaert 10E75 NAH plates", Presented in **20th OSI Symposium at SAMEER, Bombay (1992)**.

10. **Sanjay Kumar** and K. Singh, "Measurement of diffraction efficiency of bleached holograms recorded with a pulsed laser", Presented in **20th OSI Symposium at SAMEER, Bombay (1992)**.
11. **Sanjay Kumar** and K. Singh, "One-step colour rainbow holograms and colour reproduction", Presented in **21st OSI Symposium at IIT Madras(1994)**.
12. **Sanjay Kumar**, "Investigations on bleached phase holograms; Diffraction efficiency, scattering and stability", Ph.D. thesis, Presented in **21st OSI Symposium at IIT Madras(1994)**.
13. **Sanjay Kumar**, V. Padmanapan Rao, and Joby Joseph, "Optimization of dye concentration for high diffraction efficiency of hologram recorded in PVA/Acrylamide based photopolymer", Presented in **International Conference on Optics & Optoelectronics (ICOL- 2014)**; 38<sup>th</sup> OSI Symposium at **IRDE, Dehradun (2014)**.
14. V. Padmanapan Rao, **Sanjay Kumar**, and Joby Joseph, "Optimization of Acrylamide Concentration for High Diffraction Efficiency of Hologram using Erythrosine-B Sensitized Photopolymer", Presented in **International Conference on Optics & Optoelectronics (ICOL- 2014)**; 38<sup>th</sup> OSI Symposium at **IRDE, Dehradun (2014)**.
15. **Resource person** in the workshop on 'Digital Holography' organized by **Acharya Narendra Dev College from February 15, 2011 to February 16, 2011**.
16. **Resource person** in the workshop on 'Innovative Pedagogies for Modern Optics and Photonics' organized by **Acharya Narendra Dev College from October 10, 2013 to October 11, 2013**.
17. **Participated** in the workshop 'Quantum Physics: An Insight' held at **Kalindi College (University of Delhi) on October 25-26, 2017**.
18. **Organizer/Trainer** in the Inter-College 'Skill Enhancement Workshop for Laboratory Staff' held at **Kalindi College (University of Delhi), New Delhi on March 13-14, 2018**.
19. **Department Coordinator** in the 'Inter-College hands-on workshop on SPR & UV-Vis Spectroscopy' organized under the aegis of Star College initiative at **Acharya Narendra Dev College (University of Delhi) from August 21, 2019 to August 27, 2019**.
20. **Invited lecture** in the online seminar on 'Information Optics and Photonics', **Optics and Photonics Centre, IIT Delhi, July 03, 2021** Topic of Lecture: **Advanced Holographic Security Systems**.
21. **Participated** in Online Faculty Development Program on 'Moocs and E-Learning in Context of National Education Policy', Organized by **Delhi School Of Public Policy and Governance, Institution of Eminence, University of Delhi in Collaboration with National Law University and Judicial Academy Assam and Bhartiya Shikshan Mandal and National Institute of Open Schooling, Ministry of Education, Government of India, From 18.10.2021 to 24.10.2021**.
22. **Resource person** in the Hands-on workshop on 'Digital Systems and Applications with Microprocessors and Microcontrollers' organized by **Department of Physics & IQAC, Acharya Narendra Dev College (University of Delhi), October 20-27, 2021**.
23. **Participated** in IP Awareness/Training program under National Intellectual Property Awareness mission (NIPAM) on **January 19, 2022**, organized by **The Office of the Controller General of Patents, Design and Trade Marks, Ministry of Commerce and Industry, Govt. of India and Acharya Narendra Dev College (University of Delhi)**. Participated Online at

Acharya Narendra Dev College, Govindpuri, Kalkaji, Delhi – 110019.
<p><b>24. Session Chair</b> (Technical Session – III, Room B) during the <b>International e-conference on ‘Mitigating environmental issues by sustainable approaches (ICMCESA2022)’</b> organized by Acharya Narendra Dev College, University of Delhi from <b>February 22-28, 2022.</b></p> <p><b>25. Participated</b> and delivered oral presentation in the <b>International e-conference on ‘Mitigating environmental issues by sustainable approaches (ICMCESA2022)’</b> organized by Acharya Narendra Dev College, University of Delhi from <b>February 22-28, 2022.</b></p> <p><b>26. Resource person</b> in the National Workshop on <b>‘Career and Skill Enhancement for Non-teaching Staff’</b> organized by Acharya Narendra Dev College (Delhi University) from <b>September 15-21, 2022</b> under the aegis of IQAC and DBT Star College Scheme.</p> <p><b>27. Resource person</b> in the one day Offline workshop on <b>‘Hologram Recording and Reconstruction’</b> organized by the SPIE Student Chapter, University of Delhi at <b>Acharya Narendra Dev College</b> On <b>4<sup>th</sup> February 2023.</b></p>
Research Projects (Major Grants/Research Collaboration)
Awards and Distinctions
<p>Passed ‘Akkikrit Chhartravratti Pariksha 1978’ state level Examination of UP.  Received National Scholarship (Merit Basis) from 1978-1983</p>
Association With Professional Bodies
Life Member of ‘Optical Society of India’
Other Activities
Got specialized training in the premises of M/S Hologram Industries, France, for producing ultra high security holographic masters during May-June 1996

Signature of Faculty Member