ZAKIR HUSAIN DELHI COLLEGE
(University of Delhi)

Faculty Details

(Please Fill the form and Email it to website@zh.du.ac.in)

Title	**PROF.**	**First Name**	**PREM KUMAR**	**Last Name**	**SHISHODIA**	**Photograph**
Designation		**Professor**				
Address		**Department of Electronics** **Zakir Husain Delhi College (University of Delhi)** **JLN Marg, Delhi-110002**				
Phone Number		**Office**		**011-23232218**		
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Educational Qualification		
Degree	**Institution**	**Year**
Ph.D.	**University of Delhi**	**1991**
M.Phil.	**University of Delhi**	**1986**

M.Sc. Physics (Electronics)	**Meerut University**	**1984**
B.Sc. (Phys, Chem, Maths)	**Meerut University**	**1982**

Career Profile

Lecturer since October 1991, Reader since October 2000, Associate Professor since Jan 2006 and Professor w.e.f. July 2018 till date in Electronics department, Zakir Husain Delhi College, University of Delhi, Delhi.

Administrative Assignments

i. Member: Faculty of Interdisciplinary & Applied Sciences, Departmental Research Committee & Committee of Courses, Department of Electronic Science, University of Delhi South Campus, Delhi.

ii. Teacher-in-Charge: Department of Physics& Electronics (1994-95, 2001-2002) and Department of Electronics (2008-09, 2011-12 ,2015-16, 2019-20, 2022-23) Z.H. Delhi College.

iii. Convener: College Library Committee (2014-2016)

iv. Member: Students Union Advisory Board (2014-2016)

v. Program Officer: National Service Scheme (2005-07)

vi. Deputy Superintendent of Examinations (College Centre) : 2007 Onwards

vii. Convener: Book-Bank (2017- 2021; Dec.2022 onwards)

viii. Member: Grievance committee during admission process (academic session 2014-15 onwards)

ix. Member: Anti-ragging Squad (2014 - 2022)

x. Coordinator: University Examination (Practical)

xi. Coordinator: IQAC (June 2022 onwards)

Areas of Interest / Specialization

Material Science (Experimental)

i. Nano- Materials (Synthesis & Characterization)

ii. Semiconducting Thin Films and Fabrication Technology

iii. Photovoltaic Devices

Subjects Taught

1. Semiconductor Devices
2. Analog Electronics
3. Semiconductor Fabrication and Characterization
4. Photonics
5. Nano electronics

Publications Profile

S.No.	Name of Author(s)	Title of paper	Name of the Journal	Vol. & Year	Pages	Impact factor
1	Shubhra Gupta, Gayatri Shishodia & P.K. Shishodia	Modeling of ZrS2/MoS2 Heterostructures for Photovoltaic Applications	Journal of Electronic Materials	2024	https://doi.org/10.1007/s11664-024-11086-w	**2.12**
2	Shubhra Gupta, Gayatri Shishodia, Neelam Pahwa and	ZrO2 Nanoparticles Synthesized by the Sol–Gel Method: Dependence of Size on pH and Annealing Temperature	Journal of Electronic Materials	2024	https://doi.org/10.1007/s11664-024-11185-8	**2.12**
3	K.Rawat, K.Jha, G. Shishodia, P.K.Shishodia	Investigating the effects of bismuth doping on the structural, optical, and electrical properties of Cu_2ZnSnS_4 thin films for photovoltaic applications	Journal of Materials Science: Materials in Electronics ISSN:0957-4522	34(17) 2023	1364-1376	**2.779**
4	S.Gupta, G. Shishodia, P.K.Shishodia	A comparative study of ZrS2-based thin film solar cells using the SCAPS solar cell capacitance simulator	Semiconductor Science and Technology ISSN:1361-6641	38(2), 2023	025012 - 025023	**2.048**

5	S.Gupta, G.Shishodia, P.K.Shishodia	Computational analysis to study the effect of selenization on ZrS2/CZTS heterostructure performance	Engineering Research Express ISSN:2631-8695	4(3) 2022	035026-035038	1.21
6.	Dhruvashi and **P.K. Shishodia**	Growth of Co doped Zno ferromagnetic nanoparticles by sol gel method	Journal of superconductivity and novel magnetism	30(6), 2017	1551–1556	1.180
7.	Kusum Rawat and **P.K. Shishodia**	Structural and optical properties of sol gel derived Cu_2ZnSnS_4 nanoparticles	Advance powder technology ISSN: 0921-8831	28,(2) 2017,	611–617	2.478
8.	Kusum Rawat and **P.K. Shishodia**	Enhancement of photosensitivity in bismuth doped Cu_2ZnSnS_4 thin Films	Physica status solidi (RRL)-Rapid Research Letters ISSN: 1862-6270	10(12), 2016	890-894	3.01
9	Kusum Rawat, Manisha and **P.K. Shishodia**	Investigation of $CuInSe_2$ Thin Films Grown by Pulsed Laser Ablation	Emerging Material Research ISSN: 2046-0147	**5** (2016)	1-5	0.313

10	Dhruvashi, Kusum Rawat, Punisha Pal and **P.K. Shishodia**	Structural and Optical Properties of Cr-doped ZnO Thin films	Emerging Material Research ISSN: 2046-0147	**5**, (2016)	177-184	0.313
11	Dhruvashi and **P.K. Shishodia**	Effect of Cobalt doping on ZnO thin films deposited by sol-gel method	Thin Solid Films	**612**, (2016)	55-60	1.8
12	Kusum Rawat, Hee-Joo Kim and **P.K. Shishodia**	Synthesis of Cu_2ZnSnS_4 nanoparticles and controlling the morphology with Polyethylene glycol"	Materials Research Bulletin ISSN: 025-5408	**77**, (2016)	84-90	2.466
13	Dhruvashi, M. Tanemura and **P. K. Shishodia**	Ferromagnetism in Sol-Gel Derived ZnO:Mn Nano-crystalline Thin Films	Advance Materials Letters ISSN: 0976-3961	**7**, (2016)	116-122	1.46
14	**P.K. Shishodia,** H.J.Kim, A.Wakahara	Synthesis of Transparent highly C-axis oriented ZnO Thin films	E-Journal of Surface Science and Nanotechnology ISSN:1348-0391	**12**, (2014)	334-338	
15	Seema Rani, **P.K.Shishodia**, R. M. Mehra	Development of a dye with broadband absorbance in visible spectrum for an efficient dye-sensitized solar cell.	Journal of Renewable and Sustainable Energy ISSN: 1941-7012	**2**, (2010)	043103-8	1.25

16	S. Rani, **P.K.Shishodia**, R. M. Mehra	Enhancement of photovoltaic performance of quasi–solid–state dye sensitized solar cell with dispersion of hole conducting agent.	Material Science –Poland ISSN: 2083-1331	**28**, (2010)	281-294	0.533
17	Ruchika Sharma, **P.K.Shishodia**, Akihiro Wakahara,	Investigations of highly conducting and transparent Sc doped ZnO films grown by sol-gel process.	Material Science – Poland	**27**,(2009).	225-237	0.143
18	Seema Rani, Poonam Suri, **P.K.Shishodia**,	Synthesis of nanocrystalline ZnO powder via sol-gel route for dye-sensitized solar cells.	Solar Energy Materials & Solar Cells ISSN : 0927-0248	**92** (2008)	1639-1645	4.732
19	Parmod Sagar, **P. K. Shishodia** , R. M. Mehra,	Influence of pH value n quality of Sol-gel derived ZnO films	Applied Surface Science	**253** (2007)	5419-5424	2.982
20	Parmod Sagar, **P. K. Shishodia** , R. M. Mehra, H. Okada, Akihiro Wakahara and Akira Yoshida	Photoluminescence and absorption in sol-gel derived ZnO films	Journal of luminescence	**126** (2007),	800-806	2.693
21	Priyamvada Bhardwaj, **P.K. Shishodia** and R.M. Mehra	Photoinduced degradation in electrical properties of normally and obliquely deposited As_2Se_3 thin films.	Materials Science-Poland, ISSN: 2083-1331	**25** (2007) ,	69-77	0.143

22	Priyamvada Bhardwaj **P. K. Shishodia** and R. M. Mehra.	Optical and electrical properties of obliquely deposited a-GeSe2 films	Journal of Material Science, ISSN : 0022-2461	**42** (2007),	1196-1209	2.302
23	**P. K. Shishodia**, H. J. Kim, A. Wakahara, A. Yoshida, G. Shishodia and R. M. Mehra	Plasma enhanced chemical vapor deposition of ZnO thin films. .	Journal of Non-Crystalline Solids	**352** (2006),	2343-2346	1.78
24	H. J. Kim, D.Y. Jang, **P. K. Shishodia** and A. Yoshida	Growth of Highly Oriented Zinc Oxide Thin Films by Plasma Enhanced Chemical Vapor Deposition	Key Engineering Materials ISSN: 1662-9795	**321**(2006)	1687-1690	
25	Rakesh Kumar, Naresh Padha, **P.K. Shishodia** and R. M. Mehra	Study of dark and photoconductivity of Sb-doped $CuInSe_2$ thin films.	In. J. Pure & Applied Physics ISSN : 0019-5596	**41** (2003) 723.	723-726	0.739
26	Priyamvada Bhardwaj, **P. K. Shishodia** and R. M. Mehra	Photoinduced changes in optical properties of As_2S_3 and As_2Se_3 films deposited at normal and oblique incidence.	Journal of Materials Science, ISSN : 0022-2461	**38** (2003)	937-940	2.302
27	B. Gupta, **P.K. Shishodia**, A. Kapoor, R. M. Mehra, K. M. Krishna, T. Soga, T. Jimbo, and	Effect of illumination intensity and temperature on the I-V characteristics of n-C/p-Si heterojunction.	Solar Energy Materials & Solar Cells, ISSN: 0927-0248	**73** (2002)	261- 267	4.732

28	B. Gupta, **P.K. Shishodia**, A. Kapoor, R. M. Mehra, K. M. Krishna, T. Soga, T. Jimbo, and	Theoretical studies on the solar cell parameter of n-C/p-Si heterostructure	Journal of Non-Crystalline Solids,	**297** (2002)	31-36	1.78
29	Priyamvada Bhardwaj, **P. K. Shishodia** and R. M. Mehra	Effect of oblique deposition on optical and electrical properties of $As_2 S_3$ and As_2Se_3 .	Journal of Optoelectronics and Advanced Materials, ISSN : 1454-4164	3**,** (2001)	319-322	0.383
30	A. Kumar, A. L.Dawar, **P. K. Shishodia**, Gayatri Chauhan , and	Growth and characterization of $CuInSe_2$ thin films	J. Material Science ISSN : 0022-2461	**28** (1993)	35-39	2.302
31	A. L. Dawar, **P. K. Shishodia**, Gayatri Chauhan , Anil	Fabrication of low resistive CdS thin films.	Thin Solid Films, ISSN : 0040-6090	**201(**1991)	L1-L5	1.761
32	A L Dawar, **P.K.Shishodia**, Gayatri Chauhan, Anil Kumar,	Effect of laser irradiation on structural and electrical properties of CdS thin films.	J. Applied Physics ISSN :0021-8979	**67** (1990)	6214-6219	2.101
33	A L Dawar, **P.K. Shishodia**, Gayatri Chauhan, J.C. Joshi, C. Jagadish, and P.C.	Effect of UV exposure on optical properties of amorphous As_2S_3 thin films.	Applied Optics ISSN : 1559128X	**29** (1990)	1971-1973.	1.598
34	A.L. Dawar, **P. K. Shishodia**, Gayatri Chauhan , Anil	Growth of high mobility CdS thin films	J. Materials Science Letters. ISSN : 0261-8028	**9** (1990)	547-548	
35	A.L.Dawar, **P.K.Shishodia**, Gayatri Chauhan, C.Jagadish, S.K.Kapoor and P.C.Mathur	Effect of hydrogen annealing on structural and optical properties of ZnSe thin films.	J. Crystal Growth ISSN: 0022-0248	**100** (1990)	281-285	1.462

36	C. Jagadish, A. L. Dawar, **P. K. Shishodia**, Salina	Acceptor action of thallium and antimony in $Pb_{0.8}$ $Sn_{0.2}$ Te thin films	J. Materials Science Letters ISSN : 0261-8028	**8** (1989)	1300-1301	
37	A.L. Dawar, **P.K.Shishodia** and	Growth of Zinc Selenide thin films.	J. Materials Science Letters. ISSN : 0261-8028	**8** (1989)	561-562	
38	C. Jagadish, A. L. Dawar, Sanjay Sharma, **P.K.Shishodia**, K. N. Tripathi and P.C.	Effect of hydrogen annealing on electrical and optical properties of SnO_2 thin Films.	Materials Letters ISSN : 0167-577X	**6** (1988)	149-151	2.437
39	A.L. Dawar, C. Jagdish, P**.K. Shishodia**, Sanjay Sharma, S.K. Kapoor,	Effect of hydrogen annealing on electrical and optical properties of $Pb_{0.8}Sn_{0.2}Te$ thin Films.	J. Phys. Chem.Solids ISSN: 0022-3697	**49** (1988)	112-114	2.048

Conference Organization/ Presentations (in the last five years)

- 5th National Seminar on Physics of Semiconductor and Devices. BHU, Varanasi, December 5-7, 1985.
- 6th National Seminar on Semiconductors and Devices, IACS, Calcutta, December 10-12, 1986.
- Solid State Physics Symposium, BARC, Bombay, December 27-31, 1987.
- International Conference and Intensive tutorial course on semiconductor Materials, University of Delhi, Delhi ,December 8-16 1988 (**Member Organizing Committee**).
- 6th International Workshop on Physics of Semiconductor Devices, Delhi, December 2-6, 1991.
- 2nd International Conference and Intensive tutorial course in Semiconductor Materials, University of Delhi, Delhi December 14-19, 1992 (**Member Organizing Committee**).
- Regional Workshop on Low Dimensional Semiconductor Structures. Univ. of Delhi South Campus, Delhi-21, December 18-20, 1995.
- 3rd International Conference and Intensive Tutorial Course on Semiconductor Materials & Technology, University of Delhi South Campus, Delhi-21, December 16-21, 1996 (**Member Organizing Committee**)
- Regional Workshop on Characterization of Semiconductor Nanostructures and their Applications to Optoelectronic Devices University of Delhi South Campus, Delhi-21, December 1-4, 1998(**Member Organizing Committee**).
- Indo-Japanese Workshop on Microsystems Technology, SSPL, Delhi, November 23-25, 2000.
- International Conference and Exhibition, "PV in Europe-PV Technology and Energy Solutions" Rome, Italy, October 7-11, 2002.
- Indo- Japan Symposium on Advances in Electronics Materials, Habitat Centre, New Delhi, November 6-8, 2002 (**Secretary, Organizing Committee).**
- Short Course on Spice Models for Advanced VLSI Circuit Simulation (SMAVCS), University of Delhi South Campus, Delhi-21, December 11-12, 2005.
- National Symposium on Semiconductor materials and recent Technologies, B.M.AS. Engineering College, Keetham, Agra (U.P.). October 13-14, 2006.
- India-Japan Workshop on ZnO Materials and Devices, University of Delhi South Campus, New Delhi-21, December 18-20, 2006 (**Secretary, IJW-2006**)
- 2nd National Conference on Condensed Matter & Material Physics, University of Rajasthan, Jaipur. February 1- 3, 2007.

- Indo-Australia Symposium on Multifunctional Nanomaterials, Nanostructures and Applications, University of Delhi, Delhi-7, December 19-21, 2007.
- Mini-Colloquia on Compact Modeling of Advance MOSFET Structures and Mixed mode Applications, University of Delhi South Campus, New Delhi-21 January 5-6, 2008.
- National Seminar on Nanomaterials & Devices, Jamia Millia Islamia University, New Delhi. January 30, 2008.
- National Conference on SEMICONDUCTOR MATERIALS & TECHNOLOGY, Gurukula Kangri University, Haridwar (Uttarakhand), October 16-18, 2008.
- National Conference on PHOTONICS & MATERIALS SCIENCS Guru Jambheshwar University of Science & Technology, Hisar (Haryana) October 24-25, 2008. \
- 12th International Symposium on Microwave and Optical Technology University of Delhi South Campus, New Delhi-21. December 16-19, 2009.
- A National Workshop [on Understanding Educational TV Programmes: Problems& Prospects CEC(UGC), India Habitat Centre, New Delhi. December 17, 2009.
- National Conference on Progress in Photovoltaics SS(I) and Sharda University, Greater Noida, (U.P.) March 06.2010.
- The 12th International Conference on Atomically Controlled Surfaces, Interfaces and Nanostructures (ACSIN-12) in conjunction with 21st International Colloquium on Scanning Probe Microscopy (ICSPM21) held in Tsukuba, Japan. 4 - 8 November, 2013.
- International Conference on Recent Advances in Nanoscience and Nanotechnology, Jawaharlal Nehru, University, Delhi, 15th -16th December 2014.
- 9th National Conference on Solid State Chemistry and Allied Areas, BCAS (University of Delhi), Delhi, 8-10 May 2015.
- 10th National Conference on Solid State Chemistry and Allied Areas, Delhi Technological University, Delhi, 1-3rd, July 2017
- Chaired a Technical Session at 28th International conference on nuclear tracks and Radiation Measurements , Gurugram University , Gurugram, 6 -10 Nov. 2023.

Research Projects (Major Grants/Research Collaboration)

Major Project: Synthesis and characterization of ZnO based Dilute Magnetic Semiconductors, (PI) University Grants Commission, New Delhi. Major Project:

Development of User-friendly, low-cost biosensor for detection of pesticides (ZHC 301) (Co-PI), University of Delhi.

Minor Project: Solid-State Dye- sensitized Solar Cells based on Nanostructured Zinc Oxide Film (Co-PI), DST INDIA-JAPAN COOPERATIVE SCIENCE PROGRAMME (I J C S P).

Awards and Distinctions

1. PV Conference, Rome (Italy), October 7-13, 2002 sponsored by UGC, CSIR and INSA Laboratoire d'Electrochimie et de Chimie Analytique, CNRS, Paris (France) October 14-15,2002.
2. Toyohashi University of Technology, Toyohashi (Japan), April 2003 – March 2004.
3. Nagoya Institute of Technology, Nagoya, Japan from February 25 – March 20, 2006 in the Research project "Solid-State Dye- sensitized Solar Cells based on Nanostructure Zinc Oxide Films" Sponsored by DST (India) and JSPS (Japan) under INDIA-JAPAN COOPERATIVE SCIENCE PROGRAMME (I J C S P).
4. Kabul University, Kabul (Afghanistan) during May 21- July 14, 2008 under Delhi University –Kabul Universlty Project "Strengthening of Higher Education Programme (SHEP)" Sponsored by World Bank.
5. The 12th International Conference on Atomically Controlled Surfaces, Interfaces and Nanostructures (ACSIN-12) in conjunction with 21st International Colloquium on Scanning Probe Microscopy (ICSPM21) was held in Tsukuba, Japan from 4 – 8, November, 2013. Also, visited Department of Chemistry and Chemical Engineering, Niigata University, Niigata City and Department of Frontier Materials, Nagoya Institute of Technology, Nagoya, Japan, during 9-16 November 2013,

Association With Professional Bodies

Life Member- Semiconductor Society (India)

Other Activities

i.	**X-Ray Diffraction**
ii.	**Scanning Electron Microscope**
iii.	**Transmission Electron Microscope**
iv.	**Atomic Force Microscope**
v.	**UV-VIS-NIR Spectrophotometer**
vi.	**IR Spectrophotometer**
vii.	**Thickness Profiler**
viii.	**Thin Film Deposition (Thermal, E-beam, PECVD, PLD, MBE, Sol-gel etc.)**
ix.	**Electrical Conductivity & Hall- Coefficient Measurements in the Temperature range 77-400 K**
x.	**PL Measurements.**

Signature of Faculty Member