BIO-DATA

Dr. Praveen Kumar

Associate Professor

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Academic Profile

Ph.D. Applied Physics (Awarded), 2008, GNDU, Amritsar, INDIA

M.Sc. Applied Physics (Material Science), 2002, GNDU, Amritsar, INDIA

B.Sc. Non-Medical, 1999, Himachal Pradesh University, Shimla, INDIA

Post Doctorate Research/Teaching Experience

- Associate Professor (August, 2023 to till date), Department of Nano Science and Materials, Central University of Jammu, Samba, J & K
- Associate Professor (August, 2022 to August, 2023), Department of Physics, DAV University, Jalandhar, Punjab
- Assistant Professor (August, 2013 to August, 2022), Department of Physics, DAV University, Jalandhar, Punjab
- Assistant Professor from October, 2011 to May, 2013, Nanotechnology Research Centre, Department of Nanotechnology, DAV Institute, Jalandhar, Punjab
- Research Associate, CSIR (DIRECT) from June, 2009 to June, 2011, Department of Physics, GNDU, Amritsar, INDIA.
- SRF (Extended), CSIR (DIRECT) from June 2008 to May 2009, Department of Applied Physics, GNDU, Amritsar, INDIA.
- Lecturer Physics from July 2007 to June 2008, Department of Physics, Dr. B. R. Ambedkar NIT, Jalandhar, INDIA.

Research Guidance

- Ph.D. guided: 02 (Sole Supervisor), 01 (co-supervisor) and 02 (Guiding)
- M. Tech. dissertations: 03 (Awarded in 2013)
- M.Sc. dissertations: 14

Major Research Highlights

- Glassy state, Structure and their physical properties in Sn-Sb-Se glassy semiconductors
- Role of phase separation on the photocurrent relaxation in Sn-Sb-Se glassy films
- Role of metallic additive on the optical and photoelectrical properties of binary semiconductors
- Photodoping in Ge-Te and Ge-Se films and structural transitions for memory applications
- Development of zinc stannate based transparent conducting oxide films with high figure of merit (FOM) by low cost solution processing
- Understanding the carrier type reversal (CTR) and special physical characteristics of heterostructures of graphene with metal sulfide semiconductors.
- Study of shell type effect of core-shell nanoparticles and transition metal impurity in metal sulfide nanoparticles in PVK based nanocomposites.
- Modeling of optical properties of plasmon active CuS thin films deposited by CBD technique.

International Journal publications

With CU Jammu	
Year 2023	
86	I Arora, C Ghorui, V Natarajan, H Singh, PK Sharma, AK Chaudhary, TS Sathiaraj, Optoelectronic property correlation with structure and valence band spectra for Fe-doped Zn_2SnO_4 nanostructured films, **Journal of Materials Science: Materials in Electronics** 34(36), 2301, 2023
85	H Singh, S Kumar, TSK. Raunija, PK Sharma, Layer hybridized exciton–plasmon resonances for enhanced dispersion modes in CuS:Al nanostructured films, **Materials Advances,** 4 (20), 4877-4885, 2023
With DAV University Jalandhar	
84	H Singh, I Arora, V Natarajan, S Kumar, **PK Sharma**, Tailoring Surface Morphology for Characteristic Exciton–Plasmon Resonances in Self-Assembled CuS Nanostructured Films, **The Journal of Physical Chemistry C**, 127(24), 11623–11631, 2023
83	H Singh, S Kumar, **PK Sharma**, Tunable exciton-plasmon coupled resonances with Cu^{2+}/Cu^{+} substitution in self-assembled CuS nanostructured films, **Applied Surface Science**, 612, 155831, 2023

82	J Kaur, JP Sharma, N Singh, D Pathak, N Guleria, PK Singh, **PK Sharma**, Improvement in optical absorption and emission characteristics of polymethyl methacrylate in solution cast polymethyl methacrylate/polyvinyl carbazole polyblends. **Journal of Thermoplastic Composite Materials,** 36 (8), 3260-3269, 2023
Year 2022	
81	I Arora, V Natarajan, **PK Sharma**, Structural correlation for enhanced FOM in Pb doped Zn_2SnO_4 nanostructured films for applications as transparent electrode. **Journal of Alloys and Compounds**, 900, 163531, 2022
Year 2021	
80	I Arora, **PK Sharma**, Structure–property correlations in sol-gel spin coated Zn2− xCdxSnO4 nanostructured films, **Journal of Materials Science: Materials in Electronics, 32**, 24980–24989, 2021
79	V Natarajan, M Ahmad, IP Sharma, A Sathya, **PK Sharma**, R Thangaraj, Interfacial charge-transfer for robust Raman quenching in staggered band aligned n-SnS_2/p-rGO heterostructures, **Applied Surface Science,** 550, 149356, 2021
78	D Pathak, S Kumar, S Andotra, I Thomas, N Kaur**, P Kumar**, V Kumar, New tailored organic semiconductors thin films for optoelectronic applications, **The European Physical Journal Applied Physics** 95 (1), 10201, 2021
77	V Natarajan, PN Kumar, M Ahmad, IP Sharma, AK Chaudhary, **PK Sharma**, Effect of electron-phonon interaction and valence band edge shift for carrier-type reversal in layered ZnS/rGO nanocomposites, **Journal of Colloid and Interface Science** 586, 39-46, 2021
76	I Arora, **PK Sharma**, Characterization of oxygen vacancy effect on structure and optoelectronic properties of sol gel deposited Zn2-xCaxSnO4 nanostructured films, **Materials Chemistry and Physics**, 258, 123905, 2021
75.	J.P. Sharma, **P. Kumar**, K. Sharma, M. Kumar, A. Arora, P.K. Singh, Optical and structural properties of drop-cast PVA/PEG polyblends, ***Materials Today: Proceedings*** 34, 705-709, 2021
74.	I. Arora, K. Malhotra, A. Mahajan, **P. Kumar**, Structural, optical and electrical characterization of spin coated SnO_2: Mn thin films, ***Materials Today: Proceedings***, 36, 697-700, 2021
Year 2020	
74	I. Arora, **P. Kumar**, T.S. Sathiaraj, Effect of Cd precursor on structure and optical properties of spin coated $Zn_{0.9}Cd_{0.1}O$ films for optoelectronics applications, ***Materials Science: Poland,*** 38 (3), 459—464, 2020

73.	R Sharma, S Sharma**, P Kumar**, R Thangaraj, K Asokan, M Mian, Influence of phase transformation on structure–property relationship in quaternary In 10 Sb 10 Ag 10 Se 70 chalcogenide films, **Journal of Materials Science: Materials in Electronics,** 31 (19), 16398-16405, 2020
72.	I. Arora, **P. Kumar**, T.S. Sathiaraj, Association of structure and modulated optoelectronic property in Sb doped Zn_2SnO_4 nanostructured films for transparent electrodes, **Journal of Alloys and Compounds,** 845, 156316, 2020.
71.	I. Arora, **P. Kumar**, Enhancement of Mn^{2+} contributions on improvement of electrical characteristics for sol–gel deposited $Zn_{2-x}Mn_xSnO_4$ nanostructured films, ***Journal of Materials Science: Materials in Electronics*** 31 (15), 12725-12734, 2020
70.	I. Arora, **P. Kumar**, T.S. Sathiaraj, R. Thangaraj, Structure, optical and electrical properties of sol-gel derived $Zn_{1.5+x}Sn_{1.5-x}O_4$ nanostructured films for optoelectronic applications, ***Thin Solid Films* 698,** 137871, 2020.
69.	I. Arora, **P. Kumar**, Corrigendum: Effect of annealing temperature on structure-property correlations in Zn2SnO4 nanostructured films for optoelectronics (2020 Mater. Res. Express **7,** 035023), **Materials Research Express 7**, 069501, 2020.
68.	I. Arora, **P. Kumar**, Effect of annealing temperature on structure-property correlations in Zn_2SnO_4 nanostructured films for optoelectronics, ***Materials Research Express* 7(3)**, 035023, 2020.
67.	K. Sharma, **P. Kumar**, G. Verma, A. Kumar, Optical properties of transition metal doped ZnS nanoparticles in PVK based nanocomposite films, ***Optik* 206,** 164357, 2020.
66.	S. Sharma, R. Sharma, **P. Kumar**, R. Thangaraj, K. Asokan, M. Mian, Effect of gamma irradiation on structure and photoconductivity of amorphous $Sb_{30}Se_{70}$ chalcogenide films, ***Journal of Non-Crystalline Solids* 530,** 119807, 2020.
65.	Vanasundaram N., M. Ahmad, A.K. Chaudhary, **P.K. Sharma**, Surface charge doping induced carrier type reversal in spin coated CdS/rGO layered nanohybrid films, ***Materials Research Express* 7(2),** 025015, 2020.
Year 2019	
64.	Vanasundaram N., M. Ahmad, **P. Kumar**, Synthesis and characterization of chemically exfoliated graphene oxide, ***AIP Conference Proceedings*** *2142(1),* 060006, 2019.
63.	K. Sharma, A. Joshi, T. Sharma, **P. Kumar**, G. Verma, Study of photo-catalytic degradation of MB dye a water pollutant from sonochemically synthesized CdSe:Zn nanoparticles, ***AIP Conference Proceedings* 2115(1)**, 030101, 2019.

62.	R. Kaur, J.P. Sharma, **P. Kumar**, Role of binary solvent mixture on luminescence characteristics in highly miscible PVA/PVP polyblends, ***Optics & Laser Technology* 115**, 210-214, 2019.
61.	Kirandeep, Gauri, A. Sharma, R. Guda, **P. Kumar**, R. Kataria, A. Husain, G. Kumar, Construction of a series of Zn (II) and Cd (II) coordination polymers using a mixed-ligand approach: Structural analysis and photophysical properties, ***Polyhedron* 164**, 159-168, 2019.
60.	K. Sharma, **P. Kumar**, G. Verma, Role of shell type of core/shell nanoparticles in luminescence properties of PVK–CdS/X nanocomposite films, ***Applied Physics A* 125(5)**, 351, 2019.
Year 2018	
59.	K. Sharma, **P. Kumar**, G. Verma, Effect of nanocrystals concentration on optical and luminescent properties of PVK: ZnSe nanocomposites, ***Materials Science: Poland* 36(3)**, 494-500, 2018.
58.	**P. Kumar**, K. Sharma, Synthesis and photoluminescence spectra of CdS and CdS/ZnO doped PVK nanocomposite films, ***Materials Science: Poland* 36(3)**, 354-358, 2018.
57.	S. Pathania, M. Ahmad, K. Sharma, **P. Kumar**, G. Verma, Study of structure and optical properties of sonochemically synthesized ZnO: Cs nanocrystals, ***Materials Focus* 7(5)**, 696-701, 2018.
56.	S. Sharma, R. Sharma, **P. Kumar**, R. Thangaraj, K. Asokan, M. Mian, Structural, optical and photoelectrical properties of thermally annealed amorphous $In_{15}Sb_{15}Se_{70}$ chalcogenide films, ***Applied Physics A* 124**, 357, 2018
Year 2017	
55.	R. Sharma, S. Sharma, **P. Kumar**, R. Thangaraj, K. Asokan, M. Mian, Analysis of electrical conduction phenomena in highly photosensitive amorphous $In_xSb_{20-x}Ag_{10}Se_{70}$ ($0 \le x \le 20$) chalcogenide films***, Journal of Non-Crystalline Solids* 472(1)**, 70-74, 2017.
54.	S. Sharma, R. Sharma, **P. Kumar**, R. Thangaraj, M. Mian, Effect of In Additive on the Structure and Optical Properties of Isocoordinated $In_xSb_{30-x}Se_{70}$ Chalcogenide Films, ***Materials Focus* 6(3)**, 364-369, 2017.
53.	K. Sharma, **P. Kumar**, Effect of shell thickness of core/shell nanoparticles on luminescence properties of spin coated PVK-CdS/ZnO hybrid nanaocomposites, ***Materials Focus* 6(6)**, 652-656, 2017.
52.	R. Sharma, S. Sharma, **P. Kumar**, R. Thangaraj, M. Mian, Structural and optical properties of $Se_{85-x}Sb_{10}In_5Ag_x$ system, ***Materials Today: Proceedings* 4(9)**, 10446-10449, 2017.
51.	R. Sharma, S. Sharma, **P. Kumar**, R. Thangaraj, M. Mian, Study of structure and optical absorption in iso-coordinated a-$In_xSb_{20-x}Ag_{10}Se_{70}$ ($0 \le x \le 20$) chalcogenide films, ***Journal of Non-Crystalline Solids* 459(1)**, 13-17, 2017.

50.	S. Sharma, R. Sharma, **P. Kumar**, R. Thangaraj, K. Asokan, M. Mian, Effect of composition on steady state and transient photoconductivity in isocoordinated $In_xSb_{30-x}Se_{70}$ (0≤ x≤25) chalcogenide films, ***Journal of Materials Science: Materials in Electronics* 28(19)**, 14202-14208, 2017.
Year 2016	
49.	S. Sharma, R Sharma, **P. Kumar**, R Chander, R Thangaraj, M Mian, Structure and Optical Properties of Polycrystalline $In_xSb_{30-x}Se_{70}$ (0≤x≤25) Chalcogenide Alloys, ***Journal of Nano and Electronics Physics* 8(2)**, 2055-2061, 2016.
48.	S Sharma, R Sharma, **P. Kumar**, R Chander, R Thangaraj, M Mian, Spectroscopic investigations of polycrystalline $In_xSb_{20-x}Ag_{10}Se_{70}$ (0≤×≤15) multicomponent chalcogenides, ***Material Science: Poland* 34(4)**, 794-799, 2016.
Year 2015	
47.	J.P. Sharma, **P. Kumar**, Optical and luminescence study of PVP/PPO membranes, International Journal of New Horizones in Physics **2(2)**, 95-97, 2015.
46.	R. Sharma, S. Sharma, **P. Kumar**, R. Chander, R. Thangaraj, M. Mian, Structural analysis of quaternary Se85-xSb10In5Agx bulk glassy alloys, ***AIP Conference Proceedings* 1675(1)**, 030041, 2015.
45.	S. Sharma, R. Sharma**, P. Kumar**, R. Chander, R. Thangaraj, M. Mian, Composition dependence of physical properties in Se-Sb-In glassy system, ***AIP Conference Proceedings* 1675**, 030048, 2015.
44.	K. Anand, R. Thangaraj, **P. Kumar**, J. Kaur, R.C. Singh, Synthesis, characterization,, photocatalytic activity and ethanol sensing properties of In2O3 and Eu3+:In2O3 nanoparticles, ***AIP Conference Proceedings* 1661(1)**, 110002, 2015.
43.	S. Sharma, R. Sharma, **P. Kumar**, R. Chander, R. Thangaraj, M. Mian, Structural investigation of Bi doped InSe chalcogenide thin films by Raman spectroscopy, ***AIP Conference Proceedings* 1661(1)**, 090009, 2015.
42.	R. Sharma, S. Sharma, **P. Kumar**, R. Chander, R. Thangaraj, M. Mian, Structural and optical investigation of Te-based chalcogenide thin films, ***AIP Conference Proceedings* 1661(1)**, 090010, 2015
41.	R. Sharma, S. Sharma, R. Thangaraj, M. Mian, **P. Kumar**, Physical evaluation and topology of $Se_{70-x}Te_{30}Ge_x$ glassy alloys, ***Journal of Basic and Applied Engineering Research* 2(3)**, 177-181, 2015.
40.	**P. Kumar**, R. Chander, T.S. Sathiaraj, R. Thangaraj, Effect of Ag photo-doping on structural, optical and phase change properties of GeTe chalcogenide films, ***Material Science in Semiconductor Processing* 38(1)**, 188-191, 2015.
Year 2014	

39.	**P. Kumar**, A. Singh, D. Pathak, L. Hromadko, T. Wagner, Structural and optical properties of sol-gel processed ZnCdMgO nanostructured films as transparent conductor, ***Advanced Materials Letters* 5(10)**, 587-592, 2014.
38.	Vandana, **P. Kumar**, M. Mian, R. Thangaraj, Amorphization of polymer matrix with nanoparticle formation in spin coated PEI/Ag nanocomposites, ***Optoelectronics and Advanced Materials (Rapid Communications)* 8(3-4)**, 238-241, 2014.
37.	A. Singh, **P. Kumar**, Structure and optical properties of spin coated $Zn_{0.9}M_{0.1}O$ (M: Cd, Mg) nanostructured films as transparent electrodes, ***Journal of Optoelectronics and Advanced Materials* 16(3-4)**, 989-994, 2014.
Year 2013	
36.	A. Singh, **P. Kumar,** Structural, morphological and optical properties of sol gel processed CdZnO nanostructured films: effect of precursor solvents, ***International Nano Letters* 3**, 57, 2013.
With DAV Institute of Engineering and Technology	
35.	S. Kaur, **P. Kumar**, R Thangaraj, Phase immiscibility induced enhanced fluorescence in spin coated PVP/ PPO polyblends, ***Polymer Bulletin* 70**, 2269-2276, 2013.
34.	S. Thakur, J. Kumar, J. Sharma, N. Sharma, **P. Kumar**, Structural and optical study of nickel doped ZnO nanoparticles and thin films for dye sensitized solar cell applications, ***Journal of Optoelectronics and Advanced Materials* 15(9-10)**, 989-994, 2013.
33.	S. Sharma, **P. Kumar**, R. Thangaraj, Effect of Bi additive on structure and optical properties of amorphous $Bi_xIn_{25-x}Se_{75}$ chalcogenide films, ***Current Applied Physics* 13(4)**, 731-735, 2013.
32.	J. Kaur, **P. Kumar**, T.S. Sathairaj, R. Thangaraj, Structural, optical and fluorescence properties of wet chemically synthesized ZnO:Pd^{2+} nanocrystals, ***International Nano Letters* 3**, 4, 2013.
31.	M. Kaur, K.L. Singh, **P. Kumar**, Effect of PVA Capping on the Optical and Structural Properties of hydro-thermally synthesized ZnS Nanocrystals, ***International Journal of IT, Engineering and Applied Science Research*** 2(1), 20-24, 2013.
Year 2012	
30.	**P. Kumar**, S.N. Yannopoulos, R. Thangaraj, T.S. Sathiaraj, Study of crystallization kinetics and structural relaxation behavior in Phase Separated $Ag_{33}Ge_{17}Se_{50}$ glassy alloys, ***Material Chemistry and Physics* 135**, 68-72, 2012.

29.	R. Sharma, **P. Kumar**, M. Mian, R. Thangaraj, Study of visible luminescence performance in highlytransparent PMMA/PVP polyblends, ***Optoelectronics and Advanced Materials*-Rapid Communications 6(5-6),** 539-542, 2012.
28.	A. Singh, **P. Kumar**, Role of different solvents on the structure and optical properties of sol gel synthesized $Cd_{0.1}Zn_{0.9}O$ films, ***International Journal of Emerging Technology and Advanced Engineering* 2(9)**, 376-380, 2012.

With GNDU Amritsar

Year 2011

27.	**P. Kumar,** R. Thangaraj, Amorphous-crystalline phase transformation and optical gap in photodoped GeTe:Ag films, ***AIP Conference Proceedings* 1393,** 97-98, 2011.
26.	K. Anand, **P. Kumar,** R. Thangaraj,Effect of surfactant type on the microstructure and optical properties of In_2O_3 nanoparticles, ***Journal of Optoelectronics and Advanced Materials* 13(6),** *702-705, 2011.*
25.	**P. Kumar**, R. Thangaraj, Electrical and optical study of phase transitions in thermally evaporated GeTe films, ***Physica Status Solidi A* 208(4),** 838–842, 2011.
Year 2010	
24.	**P. Kumar,** R. Thangaraj, Structural phase transitions and optical contrast in amorphous Sb_2Se_3: Sn films, ***Chalcogenide Letters* 7(8),** 509-513, 2010.
23.	**P. Kumar**, R Thangaraj, T S Sathiaraj, Effect of Sn addition of the optical gap and far-infrared reflectivity of Sb-Se films, ***Journal of Non-Crystalline Solids* 356(31-32),** 1611-1613, 2010.
22.	**P. Kumar,** T. S. Sathiaraj, R. Thangaraj, Optical properties of amorphous Sb_2Se_3:Sn films, ***Philosophical Magazine Letters* 90(3),** 183-192, 2010.
Year 2009	
21.	**P. Kumar,** R. Thangaraj, Effect of Sn addition on the photoconductivity of narrow-gap Sb_2Se_3 films, ***Philosophical Magazine Letters* 89(4),** 241-249, 2009.
20.	**P. Kumar,** R. Thangaraj, T. S. Sathairaj, Effect of phase separation on the optical and electrical properties of Sn-Sb-Se glassy films, ***Physica Status Solidi A* 206(7),** 1465-1470, 2009.

19.	**P. Kumar**, R. Thangaraj, Effect of phase separation on the kinetics of photocurrent relaxation in Sn-Sb-Se glassy films, ***Journal of Physics: Condensed Matter* 21,** 375102, 2009.
18.	M. Ahmad, **P. Kumar**, R. Thangaraj, Effect of isoelectronic substitution of Bi on the photoelectrical properties in amorphous Sn–Sb–Se films, ***Thin Solid Films* 517(21),** 5965-5968, 2009.
17.	M. Ahmad, **P. Kumar**, N Suri, J Kumar, R Thangaraj, Kinetics of non-isothermal crystallization in $Sn_{10}Sb_{20-x}Bi_xSe_{70}$glassy semiconductors, ***Applied Physics A* 94,** 933–937, 2009.
16.	**P. Kumar,** R. Thangaraj, T. S. Sathiaraj, Far-infrared reflectivity spectra of amorphous Sb_2Se_3:Sn films, *Proceedings DAE SSPS* 54, 507-508, 2009.
Year 2008	
15.	J. Kumar, **P. Kumar**, M. Ahmad, R. Chander, R. Thangaraj, T. S. Sathiaraj, Phase transformations in Pb:GeSbTe chalcogenide films, ***The European Physical Journal of Applied Physics* 44,** 117-123, 2008.
14.	J. Kumar, **P. Kumar**, M. Ahmad, R. Chander, R. Thangaraj, T. S. Sathiaraj, Effect of composition on the optical properties Pb:GeSbTe chalcogenide films, ***Optoelectronics and Advanced Materials-Rapid communications* 2(10),** 635-639, 2008.
13.	**P. Kumar,** R. Thangaraj, Analysis of bias field influenced recombination processes in narrow gap Sb_2Se_3 films, ***Journal of Physics: Condensed Matter* 20,** 095213-18, 2008.
12.	**P. Kumar,** J. Kumar, M. Ahmad, R. Thangaraj, Effect of composition and light intensity on the electrical conduction in Sn-Sb-Se glassy films, ***Applied Physics A* 90,** 469-473, 2008.
11.	**P. Kumar,** R Thangaraj, Network topology and thermal annealing dependence of some physical properties amorphous Sn-Sb-Se films, ***Physica Scripta* 77,** 045601-7, 2008.
10.	**P. Kumar,** R Thangaraj, Thermal analysis and annealing temperature dependence of electrical properties in $Sn_{10}Sb_{20}Se_{70}$ glassy semiconductor, ***Journal of Material Science* 43,** 6099-6104, 2008.
Year 2007	
9.	S. Bindra, N. Suri, **P. Kumar,** R. Thangaraj, Effect of Ag addition on the photoconductivity of amorphous Se-Sb thin films, ***Solid State Communications* 144,** 83-87, 2007.
8.	**P. Kumar**, J. Kumar, R. Thangaraj, Phase separation phenomena in Sn-Sb-Se glassy semiconductors, ***The European Physical Journal of Applied Physics* 38,** 1-5, 2007.
7.	N. Suri, K. S. Bindra, **P. Kumar,** R. Thangaraj, Calorimetric studies of $Se_{80-x}Te_{20}Bi_x$ bulk samples, ***Journal of Non-Crystalline Solids* 353,** 1264-1267, 2007.

Year 2006	
6.	N. Suri, K. S. Bindra, **P. Kumar**, R. Thangaraj, Thermal investigations in bulk $Se_{80-x}Te_{20}Bi_x$ chalcogenide glass, ***Journal of Ovonic Research* 2(6),** 111-118, 2006.
5.	**P. Kumar**, R Thangaraj, Electrical conduction and optical properties of amorphous $(Sb_2Se_3)_{100-x}Sn_x$ thin films, ***Solid State Communications* 140,** 525-528, 2006.
4.	**P. Kumar,** R Thangaraj, Glassy state and structure of Sn-Sb-Se chalcogenide alloy, ***Journal of Non-Crystalline Solids* 352,** 2288-2291, 2006.
3.	**P. Kumar,** K. S. Bindra, N. Suri, R. Thangaraj**,** Transport properties of a-$Sn_xSb_{20}Se_{80-x}$ ($8 \leq x \leq 18$) chalcogenide glass, ***Journal of Physics D: Applied Physics* 39,** 642-646, 2006.
Year 2004-05	
2.	**P. Kumar,** S. Bindra, N. Suri, R. Thangaraj, Optical properties of $Se_{80-x}Sb_{20}Sn_x$ ($0 \leq x \leq 16$) chalcogenide system, ***Proceedings NC-ACMP*** (Allied Publishers, New Delhi), 294-297, 2005.
1.	M.S. Kamboj, **P. Kumar**, K. S. Bindra, N. Suri, R. Thangaraj, Photoelectrical properties of electron beam evaporated amorphous chalcogenide thin films, ***Proceedings DAE SSPS*** 49, 424-425, 2004.

Extra-Curricular Activities

- Passed the NCC "CEE" certificate examination with "B" grade
- Attended the three CATC, NCC camps and Two NIC, NCC camps
- Attended one NSS camp during graduation

Personal Information

- Date/Place of Birth: 26th April, 1978 (Bilaspur, Himachal Pradesh)
- Marital Status: Married; Nationality: Indian
- Language proficiency: Hindi, English

(PRAVEEN KUMAR)

Dated: 22th December, 2023