Curriculum Vitae

Title (Ms/Mr/Dr/Prof)	**Mr.**	First Name	**Kapil Kumar**	Last Name		Photograph
Designation	Assistant Professor					
Department	PHYSICS					
Address (Official)	Department of Physics, Kalindi College, East Patel Nagar, New Delhi – 110008					
Phone No.	9416511007					
Email	kapilkumar@kalindi.du.ac.in					

Education

Subject	**Institution**	**Year**	**Details**
Ph.D.	AcSIR, CSIR-NPL, New Delhi	From Aug. 2020 (**Pursuing)**	Plasmonic and Metamaterials
NET-JRF	Joint CSIR-UGC	2020	Physics
GATE	GATE-2018	GATE-2018 by IIT Guwahati	Physics
B.Ed.	CSRU Jind (Haryana)	2018	Teaching Pedagogy of Science and Mathematics
M.Sc.	GJU S&T Hisar (Haryana)	2016	Physics with specialization in Radiation Physics
B.Sc.	Govt. College Bhiwani, MDU Rohtak Haryana	2013	Physics

Career Profile

Organization/Institution	Designation	Duration	Role
Kalindi College	Assistant Professor	24 Feb. 2024 – Present	Teaching
BLJS College Bhiwani Haryana	Assistant Professor	Aug. 2018-April 2020	Teaching

Research Interests/Specialization

- Ultrafast Transient Absorption Spectroscopy (Pump-probe spectroscopy)
- Z-Scan technique (for nonlinear absorption and refraction coefficients)
- AES (Auger electron spectroscopy system)
- Ultra-high Vacuum PVD (Physical Vapour Deposition)
- Fabrication of Laser-Induced Periodic Surface Structures (Metasurfaces)
- Plasmonic and metamaterials.
- Surface Xplorer and Glotaran to find the carrier's lifetimes.
- Origin
- HFSS and COMSOLE simulation software.

Administrative Assignments / Contributions to Corporate Life

- Member, AQAR, 2024-25
- Member, Physithon Society, 2024-25
- Co-Convener, Admission Committee Physics Department, 2024-25

Teaching Experiences (Subject/Courses taught) ~ 2 years

Courses: B.Sc. (H) Physics, B.Sc. Physical Sciences

Subject: Solid State Physics, Radiation Physics, Nanomaterials and Applications, Special Characterisation techniques, Classical Mechanics, Quantum Mechanics, Waves and Optics, Atomic physics, and Art of being Happy.

Research Guidance

NA

Publication (Peer Reviewed/Indexed Journals)

Year of Publication	Title	Journal (Name of the Journal. Vol Issue ISSN)	Co-Author
2024	Tuning Ultrafast Carrier Dynamics and Broadband Photo-Response of High-Performance Sb_2Se_3 Thin Film Photodetectors: A Substrate Dependent Study.	ACS Photonics 11, no. 3 (2024): 1031-1043.	**Kumar, Kapil**, Sahil Verma, Prince Sharma, Saurabh K. Saini, Sudhir Husale, Venu Gopal Achanta, and Mahesh Kumar.
2024	Detrapping of the carriers from shallow states in a highly responsive, fast, broadband (UV-vis-NIR), self-powered SnSe/Si photodetector with asymmetric metal electrodes.	Materials Advances 5, no. 8 (2024): 3220-3227.	Kumar, Manoj, Sanju Rani, Kuldeep Singh Gour, **Kapil Kumar**, Reena Yadav, Sudhir Husale, Mahesh

			Kumar, and Vidya Nand Singh.
2024	Unveiling Electric Field Induced Ultrafast Charge Transfer Dynamics and Photo Response Enhancement in Gold-Interlayered Bi_2Se_3.	Advanced Optical Materials 12, no. 11 (2024): 2302478.	Saini, Saurabh K., Prince Sharma, Sudhanshu Gautam, Sahil Verma, **Kapil Kumar**, Arshi Gupta, J. S. Tawale, et al.
2024	Competing Energy Scales and Phase Separation in Topological Superconductor Sn0. 4Sb0. 6 Alloys: Temperature-and Excitation-Dependent Ultrafast Pump-Probe Studies.	The Journal of Physical Chemistry C (2024).	Sharma, Prince**, Kapil Kumar**, Saurabh K. Saini, and Mahesh Kumar.
2024	Multifaceted properties of TiO_2 nanoparticles synthesized using Mangifera indica and Azadirachta indica plant extracts: antimicrobial, antioxidant, and non-linear optical activity investigation for sustainable agricultural applications.	Materials Advances 5, no. 7 (2024): 2767-2784.	Rana, Archana, Saurabh Pathak, **Kapil Kumar**, Anjali Kumari, Samridhi Chopra, Mahesh Kumar, Deeba Kamil et al.
2024	Unveiling Electric Bias Effects on Ultrafast Carrier Dynamics in Multiple Stacked ZnTe/Bi_2Te_3 Heterostructures.	The Journal of Physical Chemistry C (2024).	Saini, Saurabh K., Prince Sharma, Sahil Verma, Naveen Kumar Tailor, **Kapil Kumar**, J. S. Tawale, Sudhir Husale, Soumitra Satapathi, Sumeet Walia, and Mahesh Kumar.
2023	Substrate-Dependent Ultrafast Charge-Carrier Dynamics: Unveiling the Annealing Effect on Optoelectronic Performance of Sb_2Se_3 Thin Films.	The Journal of Physical Chemistry C *2023 127* (49), 23706-23718.	**Kapil Kumar**, Prince Sharma, Saurabh K. Saini, Rimjhim Yadav, Surinder P. Singh, and Mahesh Kumar
2024	Lifetime enhancement in the laser-induced periodic surface structures on Si(100) probed by ultrafast transient absorption spectroscopy,	Physica B: Condensed Matter, Volume 657, 2023, 414814,	Kapil Kumar, Nikita Vashistha, J.S. Tawale, Shivam Tiwari, Prince Sharma, Mahesh Kumar,

		ISSN 0921-4526.	
2023	Self-powered, thermally stable Sb_2Se_3-based high-performance broadband photodetector,	Optics & Laser Technology, Volume 169, 2023, 110114.	Pargam Vashishtha, Ajit Dash, **Kapil Kumar**, Pukhraj Prajapat, Mahesh Kumar, Sumeet Walia, Govind Gupta,,
2023	Multiband spectral response inspired by ultra-high responsive thermally stable and self-powered Sb_2Se_3/GaN heterojunction based photodetector.	Surfaces and Interfaces, Volume 42, Part A, 2023, 103376.	Pargam Vashishtha, Pukhraj Prajapat, **Kapil Kumar,** Mahesh Kumar, Sumeet Walia, Govind Gupta
2024	Exploring charge transfer mechanisms and optical properties in vdW heterostructures of MoS_2 and Bi_2Se_3 at the nanoscale regime.	*Physica B: Condensed Matter* 674 (2024): 415569.	Chaudhary, Amit Kumar, Prince Sharma, Archana Rana, Sanyam Jain, Saurabh K. Saini, **Kapil Kumar**, Rajiv K. Singh et al.
2024	. Unveiling the optical, thermal and nonlinear behavior of guanidinium benzenesulfonate: A promising organic single crystal for NLO applications.	Optical Materials 147 (2024): 114683.	Vijayan, N., N. Sarkar, Divyansh Joshi, **Kapil Kumar**, Sudha Yadav, and Subhasis Das
2023	Sb_2Se_3 Nanosheet Film-Based Devices for Ultraviolet Photodetection and Resistive Switching.	ACS Applied Nano Materials 2023 6 (17), 15397-15407.	Yogesh Singh, Mohammad Asif, **Kapil Kumar**, Rahul Parmar, Reena Yadav, Bal Govind, Ashok Kumar, Sudhir Husale, Mahesh Kumar, and Vidya Nand Singh

2023	Highly Responsive Near-Infrared Si/Sb_2Se_3 Photodetector via Surface Engineering of Silicon.	ACS Applied Materials & Interfaces 2023 15 (25), 30443-30454.	Yogesh Singh, Rahul Parmar, Avritti Srivastava, Reena Yadav, **Kapil Kumar**, Sanju Rani, Sanjay K. Srivastava, Sudhir Husale, Mahesh Sharma, Sunil Singh Kushvaha, and Vidya Nand Singh
2023	Tunable luminescence and nonlinear optical properties of nano colloidal Ge20Te75Bi5 chalcogenide glass.	Optics & Laser Technology, Volume 157, 2023, 108665, 0030-3992.	Reena Gadhwal, Hukum Singh, Ambika Devi, **Kapil Kumar**
2023	Insight into Hot Carrier Kinetics of CsPbBr3/ZnO Heterostructures for Photodetector Application.	ACS Applied Optical Materials 2023 1 (3), 779-787	Vandana Nagal, Virendra Kumar, Shafaque Rahman, **Kapil Kumar**, Kedar Singh, Mahesh Kumar, Rafiq Ahmad, and Aurangzeb Khurram Hafiz
2023	High-resolution spectroscopy of Holmium Perchlorate: Establishment of wavelength standard for spectrophotometer,	Optical Materials, Volume 138, 2023, 113707.	Anju, **Kapil Kumar,** Mahesh Kumar, Poonam Arora, Rina Sharma

Research Publications

Books

NA

Seminar/Workshop/Conferences Presentation/Organisation

- International conference of electron microscopy & XLI annual meeting of electron microscopy society, poster presentation (EMSI-2023) titled "Field Emission Scanning Electron Microscopy (FE-SEM) image analysis reveals the fluence dependence of laser-induced periodic surface structures on Si (100).

- International Conference of Ultrafast Sciences 2023 (UFS-2023) & DAE-BRNS 10th theme meeting, poster presentation titled "Unveiling Ultrafast Carrier Dynamics of Laser-Induced Periodic Surface Structures on Sb_2Se_3 thin films."

Awards & Distinctions

- NET-JRF 2020

Public Service/ University Service/ Consulting Activity

NA

Professional Societies Memberships

NA

Projects (Major Grants/ Collaborations)

NA

Computer Expertise

- Programming Language: Python and Scilab.
- Simulation software: HFSS and COMSOLE.
- MS Office, Libre Office, Origin software.