

# CURRICULUM VITAE

## PERSONAL DETAILS

**Name:** Prof (Dr.) Sushil Kumar

**Address:** Flat No-202, Tower-6, Parsvnath Regalia, Sahibabad, Ghaziabad, U.P.201005

**Contact:**

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## EDUCATIONAL DETAILS

Doctor of Philosophy	Physics, IITD, KRMU	
M.Phil.	Physics, VMU	9.67
Master of Science	Physics, Indian Institute of Technology, Roorkee	8.44(CGPA),89.4%
Bachelor in Science	Himachal Pradesh University, Shimla	80.5%

## PROFESSIONAL EXPERIENCE

- ✓ Working as **Professor** in Hans Raj College (Delhi University) Delhi -110007, India from Sept 2021.
- ✓ Worked **Associate Professor** in Hans Raj College (Delhi University) Delhi -110007, India from Sept 2018 to Sept 2021.
- ✓ Worked **Assistant Professor** in Hans Raj College (Delhi University) Delhi -110007, India from Sept 2006 to Sept 2018.
- ✓ Worked as '**Scientist C**' at Inter University Accelerator Center (Formerly Known as Nuclear Science Centre) New Delhi, India from Sept 2005, to Sept, 2006.

## AWARDS/ACHIEVEMENTS

- **TEACHING EXCELLENCE AWARD IN INNOVATION** by university of Delhi for innovation project 'Designing and Optimization of Auto-Tracking Solar Energy based Energy Conversion Module for Rechargeable Appliances'.
- **BEST INNOVATIVE IDEA** by university of Delhi for innovation project 'Designing and Optimization of Auto-Tracking Solar Energy based Energy Conversion Module for Rechargeable Appliances'.
- **BEST DISPLAY** by university of Delhi for innovation project 'Designing and Optimization of Auto-Tracking Solar Energy based Energy Conversion Module for Rechargeable Appliances'.
- **JRF** (Junior Research Fellowship) qualified in Jun, Dec 2004 jointly conducted by the CSIR (Counsel of Scientific and Industrial Research) & UGC (University Grant Commission), INDIA.
- **GATE** (Graduate Aptitude Test in Engineering)-2008 with a Percentile of 98.4: Jointly organized by Indian Institute of Science Bangalore and IITs.

## RESEARCH PROJECT/GUIDANCE

- Project Investigator in innovation project on ‘**Designing and Optimization of Auto-Tracking Solar Energy based Energy Conversion Module for Rechargeable Appliances**’ under Innovation Project 2013-14 schemes, University of Delhi.
- Project Investigator in innovation project on ‘**In medium masses of the charmonium states in the isospin asymmetric strange hadronic matter and their implications in heavy ion collision experiments**’ under Innovation Project 2015-16 schemes, University of Delhi.
- Guided B Tech project on “**Automation of Semiconductor Electronic Device Electrical Characterization Using Open Source Embedded Software and Hardware Tools**” in the academic year 2016-2017.
- Completed two minor project under DBT star college project scheme in the year 2016-2017 & 2017-2018 on “**FET analysis of the filters in Audio system design**” and “**Quark Hadron Phase Transitions in Relativistic Heavy Ion collisions**”
- Act as Mentor in the inspire summer project titled “**Investigation of ploy aniline based efficient glucose sensor using SPR technique**” in 2016-2017.

## PUBLICATIONS IN SCI/SCOPUS JOURNALS with impact factor

- 1) Sorabh Aggarwal , Raj Kumar, Daeho Lee, Sushil Kumar, Tej Singh, A comprehensive review of techniques for increasing the efficiency of evacuated tube solar collectors, *heliyon* 9(2023) e 15185, **Impact factor-3.776**
- 2) Raj Kumar, Rahul Nadda, Sushil Kumar, Shaik Saboor, C. Ahamed Saleel, Mohamed Abbas, Asif Afzal , Emanoil Linul, Convective heat transfer enhancement using impingement jets in channels and tubes: A comprehensive review, [Alexandria Engineering Journal \(2023\) 70, 349–376](#). **Impact factor-6.626**
- 3) Arya, Aditya Kumar, Varsha Yadav, Hari Prasad Bhaskar, Sushil Kumar, Satyam Kumar, Upendra Kumar, AN AB INITIO ANALYSIS OF STRUCTURAL, OPTICAL, ELECTRONIC, AND THERMAL PROPERTIES OF CUBIC SrSnO<sub>3</sub> USING WEIN2k, [EAST EUROPEAN JOURNAL OF PHYSICS](#). 4. 164-170 (2022)
- 4) Ankita Upadhyay, M.S. Thakur, Parveen Sihag , Raj Kumar, **Sushil Kumar**, Aysha Afeeza, Asif Afzal, C Ahamed Saleel, Modelling and prediction of binder content using latest intelligent machine learning algorithms in carbon fiber reinforced asphalt concrete, [Alexandria Engineering Journal \(2023\) 65, 131–149](#). **Impact factor-6.626**  
DOI: <https://doi.org/10.1016/j.aej.2022.09.055>.

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- 5) Tanish Kashyap, Robin Thaku, Muneesh Sethi, R.K. Tripathi, Abhishek Thaku, **Sushil Kumar** Pawan Kumar, Bhaskar Goel, Satish Chand, The influence of reflector on the thermal performance of single and double pass solar air heater: A comprehensive review, *Materials Today: Proceedings* 72 (2023) 1260–1269.  
<https://doi.org/10.1016/j.matpr.2022.09.297>.
- 6) Muneesh Seth, Arvind Kumar Singh, R.K. Tripathi, Avnish Kumar, **Sushil Kumar**, Abhishek Thakur, Bhaskar Goel, Tanish Kashyap, Vijay Kumar Sharma, Influence of distinct baffles type turbulence promoter on the thermohydraulic efficiency of solar air heater: A comprehensive review, *Materials Today: Proceedings* 72 (2023) 1275–1283  
<https://doi.org/10.1016/j.matpr.2022.09.299>.
- 7) Kumar, R Nadda, **S Kumar**, A Razak, M Sharifpur, H. S. Aybar, C A. Saleel, A Afzal, Influence of artificial roughness parametric variation on thermal performance of solar thermal collector: An experimental study, response surface analysis and ANN modelling, *Sustainable Energy Technologies and Assessments*, 52(2022) 102047. (ELSEVIER) , Cite Score, 5.4, **Impact Factor- 5.353**.
- 8) Kumar, R.; Cuce , E.; **Kumar, S.**; Thapa, S.; Gupta, P.; Goel, B.; Saleel, C.A.; Shaik, S. Assessment of the Thermo-Hydraulic Efficiency of an Indoor-Designed Jet Impingement Solar Thermal Collector Roughened with Single Discrete Arc-Shaped Ribs. *Sustainability* **2022**, *14*, 3527. [doi.org/10.3390/su14063527](https://doi.org/10.3390/su14063527), (ELSEVIER) **Cite Score, 3.9** , ISSN: **2071-1050. Impact Factor-3.251**.
- 9) R Kumar, **S Kumar**, R Nadda, K Kumar, V Goel, Thermo-hydraulic efficiency and correlation development of an indoor designed jet impingement solar thermal collector roughened with discrete multi-arc ribs, *Renewable Energy* , **182(2022), 1259-1277. Impact Factor-8.001**.
- 10) Pooja Devi, Sunil Kumar, Pawan Kumar, **Sushil Kumar**, Imran Khan, Pawan Kumar, Temporal multifractal analysis of extreme events in the crude oil market, accepted for publication in Journal of the Korean Physical Society. <https://doi.org/10.1007/s40042-022-00534-7>
- 11) Mona Bhatnagar, Shivangi Jha, **Sushil Kumar**, Characterisation of Thin Films Of Ga<sub>2</sub>Se<sub>3</sub> On Si Fabricated Using EBE Technique, accepted for publication in Energy storage. DOI: <https://onlinelibrary.wiley.com/doi/10.1002/est2.384>

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- 12) **Sushil Kumar**, Satyam kumar , Upender Kumar , Sunil Kumar, Pawan Kumar, Narinder Verma, Analysis of correlation based threshold networks of Dow Jones stocks of USA: An Econophysics approach, Journal of Engineering Science and Technology Review 15 (2) (2022) 198 – 207.
- 13) Rohit Khargotra, **Sushil Kumar**, Raj Kumar, Influence of hindrance promoter on the thermal augmentation factor of solar water heater (an experimental study). Renewable Energy, Volume 163, January 2021, Pages 1356-1369. (ELSEVIER) Cite Score, 11.2, , ISSN: 0960-1481. **Impact Factor-8.001**
- 14) Rohit Khargotra, Raj Kumar, **Sushil Kumar**, Impact of perforated shapes in delta type hindrance promoter on thermo-hydraulic performance of solar water heating system (An experimental study). Case Studies in Thermal Engineering, 24 (2021)100831., ISSN: 2214-157X. **Impact Factor- 4.724**
- 15) A.K. Bhardwaj, Raj Kumar, **Sushil Kumar**, Bhasker Goel, Ranchan Chauhan “Energy and exergy analyses of drying *medicinal herb* in a novel forced convection solar dryer integrated with SHSM and PCM,” Sustainable Energy Technologies and Assessments. 45 (2021) 101119. (ELSEVIER) , Cite Score, 5.4, Impact Factor- 5.353
- 16) Sorabh Aggarwal, **Sushil Kumar**, Raj Kumar<sup>\*</sup>, Robin Thakur, “Thermal Augmentation in Evacuated Tube Solar Collectors using Reflectors, Nano fluids, Phase Change Materials and Tilt angle: A Review” Materials Today: Proceedings, Volume 45, Part 6, 2021, Pages 4931-4935 (ELSEVIER) Cite Score: 2.0 (2021), ISSN: 2214-7853. Impact Factor- 1.24
- 17) Abhishek Thakur, Pawan Kumar, **Sushil Kumar**, Raj Kumar<sup>\*</sup>, “Review of Developments on Flat Plate Solar Collectors for Heat Transfer Enhancements using Phase Change Materials and Reflectors” Materials Today: Proceedings, Volume 45, Part 6, 2021, Pages 5449-5455.(ELSEVIER) Cite Score: 2.0 (2021), ISSN: 2214-7853. Impact Factor- 1.24
- 18) Pankaj Thakur, Raj Kumar, **Sushil Kumar**, Abhilash Pathania, Bhasker Goel “Analysis and Optimization of Properties of Paint Material for Reduction of Paint Defects in Agro Products” Materials Today: Proceedings, Volume 45, Part 6, 2021, Pages 5617-5623 (ELSEVIER) Cite Score: 2.0 (2021), ISSN: 2214-7853. Impact Factor- 1.24

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- 19) Abhishek Thakur, **Sushil Kumar**, Pawan Kumar, Sanjeev Kumar, A.K. Bhardwaj A review on the simulation/CFD based studies on the thermal augmentation of flat plate solar collectors, *Materials Today: Proceedings*, (ELSEVIER) Cite Score: 2.0 (2021), ISSN: 2214-7853. doi.org/10.1016/j.matpr.2021.03.550. Impact Factor- 1.24
- 20) Sorabh Aggarwal, Raj Kumar, **Sushil Kumar**, Mona Bhatnagar, Pawan Kumar, Computational fluid dynamics based analysis for optimization of various thermal enhancement techniques used in evacuated tubes solar collectors: A review, *Materials Today: Proceedings*, (ELSEVIER) Cite Score: 2.0 (2021), ISSN: 2214-7853. https://doi.org/10.1016/j.matpr.2021.04.021. Impact Factor- 1.24
- 21) Arvind Singhy, Robin Thakur, Raj Kumar, **Sushil Kumar**, Sanjeev Kumar, Sushil Kumar, Sashank Thapa, Influence of active water stream, irradiance, ambient temperature and wind speed on the efficiency of Fresnel lens based two stage PVT system, *Thermal Science*, doi.org/10.2298/TSCI200801193S. ISSN-2334-7163. **Impact Factor-1.625.**
- 22) Raj kumar, Rakesh Kumar, **Sushil Kumar**, Sashank Thapa, Muneesh Sethi ,Gusztá v Fekete, Tej Singh , Impact of artificial roughness variation on heat transfer and friction characteristics of solar air heating system, *Alexandria Engineering Journal(AEJ)* , 61(1), 481-491, 2022. DOI: 10.1016/j.aej.2021.06.03. ISSN: 1110-0168.**Impact factor-4.38.**
- 23) Raj Kumar, Rahul Nadda, **Sushil Kumar**, Khusmeet Kumar, Asif Afzal , R. K. Abdul Razak, Mohsen Sharifpur, “ Heat transfer and friction factor correlations for an impinging air jets solar thermal collector with arc ribs on an absorber plate,” *Sustainable Energy Technologies and Assessments*. 47 (2021) 101523. Impact Factor- 5.353
- 24) R. Kumar, Gaurav, **S. Kumar**, A. Afzal, A.M. Manokar, M. Sharifpur, A. Issakhov Experimental investigation of impact of the energy storage medium on the thermal performance of double pass solar air heater. *Sustainable Energy Technologies and Assessments* 2021(48) 101673. Impact Factor- 5.353.

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- 25) M Sethi, R.K. Tripath, B Pattnaik, **S Kumar**, R Khargotra, S Chand ,A Thakur, Recent developments in design of evacuated tube solar collectors integrated with thermal energy storage: A review, *Materials Today: Proceedings*, (ELSEVIER) Cite Score: 2.0 (2021), ISSN: 2214-7853. <https://doi.org/10.1016/j.matpr.2021.11.324>, **Impact Factor- 1.24**.
- 26) **S Kumar**, S Kumar, P Kumar, Diffusion entropy analysis and random matrix analysis of the Indian stock market, *Physica A* 560 (2020), 125122. ISSN: **0378-4371**, **Impact factor 3.263**
- 27) A.K.Bhardwaj Raj Kumar, Ranchan Chauhan, **Sushil Kumar**, Experimental investigation and performance evaluation of a novel solar dryer integrated with a combination of SHS and PCM for drying chilli in the Himalayan region, *Thermal Science and Engineering Progress*, 20(2020) 100713. **Impact factor-4.395**
- 28) Khan, Imran; Kumar, Sunil; **Kumar Sushil**; Datta, Tuhin; Koranga, Bipin “Empirical Formulation for small circular electron fields ” accepted for publication in *Biomedical Physics & Engineering Express*. *Biomed. Phys. Eng. Express* **6**, 065023. **Impact factor-1.167**.
- 29) Anil Kumar, Raj Kumar, Rajesh Maithani, Ranchan Chauhan, Muneesh Sethi, Anita Kumari, **Sushil Kumar**, Sunil Kumar. “Correlation development for Nusselt number and friction factor of a multiple type V-pattern dimpled obstacles solar air passage” *Renewable Energy* 109 (2017) 461-479. ISSN: 0960-1481. **Impact Factor-8.001**.
- 30) **S Kumar**, V Kumar, D Negi, “Symmetries in mirror energy differences”, *ACTA PHYSICA POLONICA B Vol. 48 No 5* , 203456717, (2017). **ISSN 1509-5770**, Impact factor-**1.07**.
- 31) Anil Kumar, Raj Kumar, Rajesh Maithani, Ranchan Chauhan, **Sushil Kumar**, Rahul Nadda. “An experimental study of heat transfer enhancement in an air channel with broken multi type V-baffles”, *Heat Mass Transfer*, 53, 2017: 3593–3612, ISSN: 0947-7411, **Impact Factor, 1.867**.
- 32) **S Kumar**, “In medium properties of charmed strange mesons in dense hadronic matter” *International Journal of Theoretical Physics* , Vol. 54 (2015):1644–1653. ISSN: 1572-9575 , Impact factor- **1.82**.
- 33) V Kumar, S Kumar, **S Kumar**, Z Hasan, B S Koranga, D Kumar, D Negi, Lee Angus, “A Semi Classical Approach to Signature Splitting and signature Inversion in odd –odd

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Nuclei” *International Journal of Modern Physics E*, Vol. 20, No. 6 (2011): 1455–1463.  
ISSN: 1793-6608, Impact factor- 1.37.

## PUBLICATIONS IN SCOPUS INDEXED/ PEER REVIEWED JOURNALS

- 1) **S Kumar**, V Kumar, B S Koranga, ‘Factors affecting beta decay life-time of the isotopes,” *International Journal of Modern Theoretical Physics*, 2015, 4(1) 41-46. **ISSN 2169-7426 Peer Reviewed**
- 2) **S Kumar**, V Kumar, B S Koranga, “Systematics of Ground State Lifetime for Beta Decay”, *International Journal of Modern Theoretical Physics*, 2016, 5(1) 1-7. **ISSN 2169-7426. Peer Reviewed**
- 3) **S Kumar**, S Kumar and P Kumar, Diffusion entropy analysis: stability of Indian Stock market, *IJRTE*, Vol-8(4), 2019. **ISSN 2277-3878. Scopus**
- 4) **S Kumar**, S Kumar and P Kumar, Topological Properties of Network of Global Currency Exchange Rates, *IJRTE*, Vol-8(5), 5450-5459. 2020. **ISSN 2277-3878 .Peer Reviewed**
- 5) **S Kumar**, S Kumar, P Kumar, Diffusion entropy analysis and random matrix analysis of the Indian stock market, *International Journal on emerging technologies*, 11(3), 845-852 2020. ISSN- 2249-3255, Scopus

## PUBLICATIONS IN CONFERENCES

- 1) V. Kumar, Z. Hasan, B.S. Koranga, **S. Kumar**, D. Negi , S. Kumar, “A Semi-classical Approach to Signature Splitting and Signature Inversion in Odd-Odd Nuclei”, *Proceedings of the DAE Symp. on Nucl. Phys.55 (2010) 134-135*.
- 2) V. Kumar, S. Kumar, Z. Hasan, D. Kumar, Pradeep, B.S. Koranga, **S. Kumar**, and D. Negi, “ A Role of Valence Particles Number Equal to 20” *Proceedings of the DAE Symp. on Nucl. Phys. 57(2012), 378-379*.
- 3) **S Kumar**, V Kumar, “Correlation between ground state lifetime and valence nucleons for isotopic chains of Odd-Odd Nuclei”, *Proceedings of the DAE Symp. on Nucl. Phys. 59 (2014) 258-259*.
- 4) **S Kumar**, B Singh, “Role of nano-materials in water treatment applications: A Review” proceeding of the National workshop on “Nanotechnology: Emerging Frontiers and Applications- 2017”.
- 5) **S Kumar**, “Masses of P-Wave Charmonia in isospin asymmetric strange hadronic matter: QCD sum rule approach” in the proceeding of XXII DAE BRNS High Energy Physics Symposium 2016.

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## BOOKS WRITTEN & REVIEWED

- 1) *Basic Concept on calculus on variation*, ISBN-978-93-83996-65-0, Apple Books Shahdara, Delhi
- 2) E Lesson on “*Interpolation*”, Virtual Learning Environment, Institute of Life Long Learning, University of Delhi, Delhi. ISBN 978-93-85611-86-5.
- 3) E Lesson, “*Matrices and System of Linear Equations*”, Virtual Learning Environment, Institute of Life Long Learning, University of Delhi, Delhi). ISBN 978-93-85611-86-5
- 4) Act as one of the Reviewer of Global Edition of *Essential University Physics* by Wolfson
- 5) Act as one of the Reviewer of Global Edition of *Practice Book for Conceptual Physics* by Hewitt.
- 6) Act as one of the Reviewer of Global Edition of *Young and Freedman's University Physics with Modern Physics*.
- 7) Act as one of the Reviewer of Global Edition of *Principles and Practice of Physics* by Mazoor.
- 8) Act as one of the Reviewer of Global edition of *College Physics* by Knight, Jones and Field
- 9) Act as one of the Reviewer of Global edition of Optics by Hacht.

## ORIENTATION AND REFRESHER COURSE /FDP

1. Participated in the ‘93<sup>rd</sup> Orientation Programme (20<sup>th</sup> Jul to 16<sup>th</sup> Aug 2010) organized by UGC-ASC, Jamia Millia Islamia.
2. Participated in the ‘Refresher Course in Physics and Electronics ( 23<sup>rd</sup> Dec 2010 to 13<sup>th</sup> Jan 2011) organized by CPDHE, ILL, University of Delhi.
3. Participated in the Refresher Course in Environmental studies /Earth sciences (ID) from 13<sup>th</sup> Oct 2015 to 4<sup>th</sup> Nov 2015) organized by HRDC, CPDHE, University of Delhi, Delhi.
4. Participated in One week FDP on “Network Science: Foundation of social network analysis” at teaching learning center, Ramanujan College, University of Delhi from Dec 03-08, 2018.
5. Participated in Two week FDP on ‘Challenges before the academia in the era of gadjets, E-communication and artificial Intelligence’ MHFDC, from Dec 15-28, 2018.
6. Participated in One week FDP on ‘Understanding the connection of mathematics with the world around us’ at MHFDC, from Jun, 20-26, 2019.
7. Completed Two Weeks Faculty Development Programme on "Managing online classes and co-creating MOOCS" from April 20 - May 06, 2020, PMMM Teaching Learning Centre, 20April, 2020 to 06 May2020.
8. Participated in the National Level Five Day faculty development program on “ Recent Advances in science and technology” from 21<sup>st</sup> - 27<sup>th</sup> , May 2020 organized by RPS group of institutions, Mahendergarh, Haryana.
9. Participated in the National Level Five Day faculty development program on “Latex” in Association with IIT-Bombay Tutorial, from 1<sup>st</sup> - 5<sup>th</sup>, June 2020 organized by the Department of Science & Humanities, CMR engineering college, Hyderabad.



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10. Participated in the National Level Five Day faculty development program on “Scilab” in Association with IIT-Bombay Tutorial, from 15th - 19th, June 2020 organized by the Department of Science & Humanities, St Peter Engineering College, Hyderabad.
11. Participated in the TEQIP-III Sponsored One Week Short Term Course on Data Analytics Tools and Techniques (DATT-2020) held online from 22nd September 2020 to 26th September 2020 organized by Department of Computer Science and Engineering, Dr B R Ambedkar National Institute of Technology Jalandhar.
12. Participated & completed successfully AICTE Training And Learning (ATAL) Academy Online FDP on "Green Technology & Sustainability Engineering" from 19/10/2020 to 23/10/2020 at Dr BR Ambedkar National Institute of Technology Jalandhar.
13. Participated in one week e-STC on “Recent Advances of Machine Learning in Software Engineering” held online from 23/11/2020 to 27/11/2020 organized by Department of Computer Science and Engineering, Dr. B R Ambedkar National Institute of Technology, Jalandhar, Punjab, India.
14. Completed One week (Online) Faculty Development Programme on “E-content Generation and Managing Online Teaching” from 11/12/2020 to 17/12/2020 organised by Sri Aurobindo College (E), University of Delhi in collaboration with Mahatma Hansraj Faculty Development Centre, Hansraj College, University of Delhi.
15. Participated in Faculty Development Programme on “Machine Learning and Android” held from 21/12/2020 to 25/12/2020 at Sri Balaji College of Engineering and Technology, Jaipur (Rajasthan), India and Rajasthan Technical University, Kota(Rajasthan).
16. Participated in the Five Days Online Workshop on " MATLAB and It’s Applications " held from 04/01/2021 to 08/01/2021 at "Sri Balaji College of Engineering and Technology, Jaipur" & Rajasthan Technical University, Kota(Rajasthan).
17. Participated & completed successfully AICTE Training And Learning (ATAL) Academy Online FDP on "Energy Storage" from 01/02/2021 to 05/02/2021 at Gandhi Institute of Technology and Management.
18. Participated in TEQIP-III Sponsored Five Day faculty development program on “Renewable Energy Technologies” held from 26/02/2021 to 02/03/2021 at B K Birla Institute of Engineering & Technology, Pilani organised By Rajasthan Technical University, Kota & B K Birla Institute of Engineering & Technology, Pilani (Rajasthan).
19. Attended One Week Online Short Term Training Program (STTP) on “Advances in Mechanical, Industrial Engineering & Management (AMIEM-2021)” from 09/03/2021 to 13/03/2021 jointly organized by the Department of Mechanical Engineering, NIT Raipur & VEC Lakhanpur.
20. Participated in the AICTE-ISTE approved Faculty Development Programme on " Thermal Engineering" held from 22/04/2021 to 28/04/2021 organized by Kalpataru Institute of Technology, Tiptur, Karnataka.
21. Participated in the Faculty Development Programme (online) on " Materials for Energy and Biomedical Applications " held from 31/05/2021 to 04/06/2021 at Physics Division, Department of Basic Science and Humanities, GMR Institute of Technology, Rajam.
22. Participated in the Faculty Development Programme on " Nano materials-Technologies for Energy & Sensor Applications”, " held from 07/06/2021 to 11/06/2021 at Chemistry

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Division, Department of Basic Science and Humanities, GMR Institute of Technology, Rajam.

## Poster/Oral Presentation /Invited Talks/Resource Person

1. Invited Talk in the FDP entitled "**Research Techniques in Science and Technology**" held from 18th - 23rd July, 2022" organized by SCHOOL OF BASIC AND APPLIED SCIENCES K.R. MANGALAM UNIVERSITY, AND GARGI COLLEGE, UNIVERSITY OF DELHI.
2. Invited Talk on "**Performance Enhancement of Solar Thermal Collector**" on 12th December 2022 in the KRMU gurugram.
3. Invited Talk on "**E-Learning**" on 20th September 2022 in the KRMU gurugram.
4. Delivered a talk on the "*Characterization of Nanomaterials*" at Skyline Institute of Engg. & Tech., G.B.Nagar, U.P. on 7/1/2009.
5. Delivered a talk on the "*Necessary role of Scientists in the education of engineers*" at Skyline Institute of Engg. & Tech., G.B.Nagar, U.P on 15/2/2010.
6. Delivered a guest lecture on the topic "*Refrigeration*" on 07/10/2013 at Faculty of Engineering & Technology, Shoolini University, Teh. & Distt. Solan, Himachal Pradesh, India, 173229.
7. Delivered a guest lecture on the topic "*Characterization Techniques*" on 09/10/2013 at Faculty of Engineering & Technology, Shoolini University, Teh. & Distt. Solan, Himachal Pradesh, India, 173229.
8. Delivered a guest lecture on the topic "*Nano-materials*" on 13/05/2014 at Faculty of Engineering & Technology, Shoolini University, Teh. & Distt. Solan, Himachal Pradesh, India, 173229. Delivered a guest lecture on the topic "*Nanotechnology and its Applications*" on 08/10/2014 at Faculty of Engineering & Technology, Shoolini University, Teh. & Distt. Solan, Himachal Pradesh, India, 173229.
9. Delivered two invited lectures entitled as "*Optical properties of the Materials*" dated 16.03.2015 and "*cryogenics*" dated 18.03.2015 at Faculty of Engineering, & Technology, Shoolini University, Teh. & Distt. Solan, Himachal Pradesh, India, 173229.
10. Delivered two invited lectures entitled as "*Engineering Materials*" dated 25.03.2015 and "*Radiation Measurement*" dated 16.05.2015 at Faculty of Engineering & Technology, Shoolini University, Teh. & Distt. Solan, Himachal Pradesh, India, 173229.
11. Delivered a guest lecture on the "*Environmental applications of Nanotechnology*" on 05/10/2015 at Faculty of Engineering & Technology, Shoolini University, Teh. & Distt. Solan, Himachal Pradesh, India, 173229.
12. Delivered two invited lectures entitled as "*Atomic Force Microscopy*" dated: 21/03/2016 and "*Scanning Tunneling Microscope*" dated: 23/03/2016.
13. Delivered two guest lectures on the topics "*Vacuum Pumps*" dated: 13/10/2016 and "*Radiation effects and safety measures*" dated: 14/10/2016 at Faculty of Engineering & Technology, Shoolini University, Teh. & Distt. Solan, Himachal Pradesh, India, 173229

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14. *Act as Resource Person* in the DBT sponsored workshop on “*Characterization of materials by X-Ray Diffraction (XRD)*” from Feb 23, 2016 to Feb 24, 2016 organized by Department of Physics and electronics, Hansraj College, University of Delhi, and Delhi.

## ADMINISTRATIVE EXPERIENCE

- Coordinator of IGNOU study centre-29052 at Hansraj College since Jan 2021
- Deputy Warden of Hansraj hostel from April, 2017 to May 2021
- Deputy Coordinator of Central Evaluation Centre at Hansraj College during May 2014, May 2015 & Dec, 2015
- Assistant Coordinator of IGNOU study centre-29052 at Hansraj College from 2018 to 2020
- Teacher In-charge of Physics and electronics department for academic session 2016-17
- B Tech Coordinator for the academic year 2016-2017.
- Expert in the selection committee for the selection of Assistant Professor of Physics (On Adhoc or guest basis) for Department of Physics and electronics, Hansraj College , University of Delhi in the Academic year 2015-16 and 2016-17.
- Worked as Deputy Superintendent of Annual Examination 2007 & Semester Examinations, Nov 2011.
- Worked as Superintendent of Physics Practical Examinations Nov, 2013, Apr 2015 & Nov 2015, Nov, 2016, Apr 2017.
- Expert in the selection committee for the selection of Assistant Professor of Physics for DAV colleges in Punjab in 2018

## PARTICIPATION IN CONFERENCES, SEMINARS & WORKSHOPS

1. Workshop on ‘Experiments in Physics & Electronics’ ( 23<sup>rd</sup> July to 26<sup>th</sup> July 2008) at Keshav Mahavidyalaya, University of Delhi .
2. XIX DAE –BRNS High Energy Symposium ‘(13<sup>th</sup> Dec to 18<sup>th</sup> Dec 2010 at LNMIIT Jaipur, Rajsthan.
3. Workshop on ‘Frontier in Physics’ ( 21<sup>st</sup> Jan to 23<sup>rd</sup> Jan 2011 ) at University of Delhi South Campus.
4. Workshop on Foundation Course ‘Science and life’ ( 21<sup>st</sup> Jun to 22<sup>nd</sup> Jun 2013 ) at CPDHE, ILLI, University of Delhi.
5. Participated in Forth Nation workshop on “Recent Trends In semiconductor Devices and Technology” from 13-14 Sep, 2014 organized by Department of electronics, Deen Dayal Upadhyaya College, University of Delhi.
6. Participated in the seminar on “Technical Terminology and Science Teaching” from 18-19 Sep, 2015 organized by Commission for Scientific and Technical Terminology at Deen Dayal Upadhyaya College, University of Delhi, and Delhi.
7. Participated in the DBT sponsored workshop on “*Embedded Systems*” from Jan 15, 2016 to Jan 16, 2016 organized by Department of Physics and electronics, Hans Raj College, University of Delhi, and Delhi.

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8. Participated in the DBT sponsored seminar on “**Physics of stars**” on 1 April, 2016 organized from by Department of Physics and electronics, Hans Raj College, University of Delhi, and Delhi.
9. Participated and convened the DBT sponsored workshop on “*Characterization of materials by X-Ray Diffraction (XRD)*” from Feb 23, 2016 to Feb 24, 2016 organized by Department of Physics and Electronics, Hans Raj College, University of Delhi, and Delhi.
10. Participated and organized in the **Faculty Development Programme** on “Embedded Systems and synthesis of Nano-materials” at Dept. of Physics & Electronics, Hansraj College, University of Delhi sponsored by Department of Biotechnology, Ministry of Science and Technology, Government of India under Star College Scheme and IQAC, Hansraj College on January 6-7, 2017.
11. Participated in the **Faculty Development Programme** on Advances in Optoelectronics and MATLAB at Hansraj College sponsored by Department of Biotechnology, Ministry of Science and Technology, Government of India under Star College Scheme on October 4, 2016.
12. Participated in the **XXII DAE-BRNS High Energy Physics Symposium** held on 12 to 16 December, 2016) at Department of Physics and Astrophysics, University of Delhi.
13. Participated in the National workshop on “**Nanotechnology: Emerging Frontiers and Applications**”(NEFA 2017)” held on 30-31 January, 2017 at Department of Chemistry, University of Delhi.
14. Participated in the seminar on “Technical Terminology and Science Teaching” from 17-18 Sep 2015, organized by Commission for Scientific and Technical Terminology at Deen Dayal Upadhyaya College, University of Delhi, and Delhi.
15. Participated in the DBT sponsored workshop on “*Embedded Systems*” from 15-16 Jan, 2016 organized by Department of Physics and electronics, Hansraj College, University of Delhi, and Delhi.
16. **Act as Convener** in the DBT sponsored workshop on “*Characterization of materials by X-Ray Diffraction (XRD)*” from Feb 23, 2016 to Feb 24, 2016 organized by Department of Physics and electronics, Hansraj College, University of Delhi, and Delhi.
17. Participated and organized in the IQAC, Hansraj sponsored seminar on “**Radiation Hazards and Monitoring: Techniques and Materials**” organized by Department of Physics and electronics, Hansraj College, University of Delhi held on 10<sup>th</sup> April, 2017.
18. Participated in the seminar on “**Quantum Entanglement and the EPR paradox**” and “**Computer Integrated Science Experiments using EXPEYES**” organized by Department of Physics and electronics, Hansraj College, University of Delhi held on 30<sup>th</sup> March, 2017.
19. Participated in the DBT sponsored workshop on “Biologically inspired Learning: Neural Networks and artificial Intelligence” on 27 Sept 2017 organized by Department of Physics and electronics, Hansraj College, University of Delhi, and Delhi.
20. Participated in the DBT sponsored Faculty Development programme on “Digital Literacy :An Introduction to ICT Skills” from 15 Sept 2017 to 17 Sept 2017 organized by Department of Physics and electronics, Hansraj College, University of Delhi, and Delhi.
21. Participated in the DBT sponsored Faculty Development workshop on “Introduction to Scilab “ from 22 Sept 2017 to 23 Sept 2017 organized by Department of Physics and electronics, Hansraj College, University of Delhi, and Delhi.

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22. Participated in Webinar on “Security aspects of virtual world” on May 7, 2020 organized by Sri Aurobindo College, University of Delhi.
23. Participated in Three Day Webinar “Covid-19: Challenges and Road Ahead” from 7-9 May 2020, organized by Mahatma Hansraj Faculty Development Centre Hansraj College, University of Delhi.
24. Participated in Two Day Webinar on “Material Science, Technology & Society” from 8-9 May, 2020 organized by JNU, Delhi.
25. Participated in One day webinar on Quest for Quality: Ranking and Accreditation on 23 May, 2020 organized by Mahatma Hansraj Faculty Development Centre Hansraj College, University of Delhi.
26. Participated in the National Webinar on “Preventative healthcare diagnostic platforms based on Micro-Nanotechnologies ” on 30 May,2020 organized by Department of Science, Lady Irwin College.
27. Participated in the Webinar on “Importance of Soft Skills & Technology in Career Development” on 31 May, 2020 organized by RPS group of Institutions, Mahendergarh, Haryana, India.
28. Participated in one Day Webinar “Art and science of Mentoring” on June-1, 2020, organized by Daulat Ram College, University of Delhi.
29. Participated in National Webinar Series on Experimental & Computational Tools for Materials Research (ECTMR 2020) from June-1 to June-8, 2020 organized by Department of Physics, Central University of Rajasthan
30. Participated in Three Day Webinar on “Shift in Paradigm: Online Education from 9-11 June, 2020 organized by Mahatma Hansraj Faculty Development Centre Hansraj College, University of Delhi
31. Participated in the “Webinars on **COVID-19: Risk Management & Simulation Efforts**” organized by **Department of Physics, MNIT Jaipur** during 2-3 July, 2020.
32. Participated in the online lecture on “ Electrostatics-II” jointly organized by IAPT(Delhi & Haryana Chapter) and Delhi state Science Teachers Forum on 25/07/2020
33. Attended a Webinar on “Physics Does digital Optimization for the Machine Learning Control theory and Back Propagation ” on 28/07/20 jointly Organized by The National Academy of Sciences, India (NASI) - Delhi Chapter & MHRD-Institution Innovation Council (IIC), Deen Dayal Upadhyaya College, University of Delhi Under the aegis of DBT Star College Program.
34. Participated in the online lecture on “ magnetism and matter” jointly organized by IAPT(Delhi & Haryana Chapter) and Delhi state Science Teachers Forum on 01/08/2020
35. Participated in the online lecture on “surprise in elementary physics ” jointly organized by IAPT(Delhi & Haryana Chapter) and Delhi state Science Teachers Forum on 06/08/2020
36. Attended a Webinar on “The molecular magic of the primary steps of Photosynthesis ” on 20/08/20 jointly Organized by The National Academy of Sciences, India (NASI) - Delhi Chapter & MHRD-Institution Innovation Council (IIC), Deen Dayal Upadhyaya College, University of Delhi Under the aegis of DBT Star College Program.
37. Participated in the Three days Faculty Development Programme on “Electrical Vehicle ” held from 04/09/2020 to 06/09/2020 at Rajasthan Technical University, Kota & Sri Balaji College of Engineering and Technology, Jaipur".

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38. Participated in the Three days Faculty Development Programme on “Recent Trends in Renewable energy “held from 10/09/2020 to 12/09/2020 at Rajasthan Technical University, Kota & Sri Balaji College of Engineering and Technology, Jaipur”.
39. Attended online Lecture workshop on “Frontiers in Science and Engineering –Opportunities for graduates” held from 14/09/2020 to 19/09/2020 Jointly Organized by The National Academy of Sciences, India (NASI) - Delhi Chapter & MHRD-Institution Innovation Council (IIC), Deen Dayal Upadhyaya College, University of Delhi Under the aegis of DBT Star College Program.
40. Attended a Webinar on “Benzene to Boron without Alchemy” on October 03, 2020 Jointly Organized by The National Academy of Sciences, India (NASI) - Delhi Chapter & MHRD-Institution Innovation Council (IIC), Deen Dayal Upadhyaya College, University of Delhi Under the aegis of DBT Star College Program.
41. Participated in the talk titled “Introduction to Nuclear Energy and its Applications”, held on October 17, 2020, organized by Department of Physics, Shaheed Rajguru College of Applied Sciences for Women (University of Delhi), New Delhi
42. Participated in the three days online National workshop on “Challenges of Teaching Physics laboratory courses in online mode” held from 23/01/2021 to 25/01/2021 organized by Department of Physics, Kalindi college, University of Delhi & National Academy of Sciences India, Delhi Chapter
43. Contributed as “Member, Organizing Committee” in One week (Online) Interdisciplinary Faculty Development Programme on “Online Teaching Tools” (16th February – 22nd February, 2021) organised by Mahatma Hansraj Faculty Development Centre Hansraj College, University of Delhi in collaboration with PARAMARSH, UGC SCHEME.
44. Participated online in the National Science Day program organized by Inter-University Accelerator Centre, New Delhi on 28th February, 2021.
45. Participated in the International conclave “Contemporary physics : The New Paradigm Shift-II series ” held from 27/02/2021 to 28/02/2021 organized by IQAC, Rajdhani college, University of Delhi
46. Participated in the International Webinar entitled “UNRAVELLING MYSTERIES OF THE UNIVERSE WITH EXPERTS” held on March 4,2021 organized by Department of Physics Maitreyi College, University of Delhi.
47. Participated in the Fifth Joint Science Academies Lecture Workshop (Online) on "Trans-disciplinary Areas of Research and Teaching by Shanti Swarup Bhatnagar (SSB) Awardee held from 08/03/2021 to 26/03/2021 Jointly Organized by Science Foundation and MoE-IIC-DDUC Chapter Deen Dayal Upadhyaya College, University of Delhi, New Delhi (Under the aegis of DBT Star College Program).
48. Participated in the “Virtual Lecture Workshop on Elements of Quantum Information” held from 12/03/2021 to 14/03/2021 at CHRIST CHURCH COLLEGE, KANPUR (UP)
49. Participated in the Three days’ workshop on “Programming and software tools for UG courses” held from 19/03/2021 to 21/03/2021 at Department of Physics and electronics, Rajdhani college, University of Delhi
50. Participated in the National Webinar on Energy Efficient Innovations & Applications held on 30th June, 2021 organized by Department of Physics Maitreyi College, University of Delhi

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## Paper Presented in National Conferences

1. Presented a paper as oral presentation in the international conference on “Econophysics and sociophysics held on Nov, 27 2015 to Dec, 1 2015 at University of Delhi, India.
2. Presented a paper as poster presentation in the joint international conference on “Econophysics-2017 and Asia Pacific Econophysics conference-2017 held on Nov, 15-18, 1 2017 at JNU and University of Delhi, India
3. Presented two papers as poster presentation in the **international conference on “Nonlinear systems and dynamics”** held on Oct 11-14, 2018.” at Jawaharlal Nehru University, New Delhi, India.
4. Presented a paper as oral presentation in the “**national conference on complex system in Interdisciplinary Sciences**” held on March11-12, 2019 at Jamia Millia Islamia University, New Delhi, India.
5. *Act as Resource Person* in the DBT sponsored workshop on “*Characterization of materials by X-Ray Diffraction (XRD)*” from Feb 23, 2016 to Feb 24, 2016 organized by Department of Physics and electronics, Hansraj College, University of Delhi, and Delhi.

## TECHNICAL SKILLS

1. Programming languages: FORTRAN.
2. Operating Systems: Windows, UNIX, Linux.
3. Software tools: Matlab, Mathematica, Latex, Lyx ,GLE and Origin,Scilab

## OTHER DETAILS

Date of birth : Nov 7, 1982.  
Language known : English, Hindi.  
Nationality : Indian.  
Permanent Address : Sushil Kumar s/o Sh. Bhagwan Dass,  
V. Swahlwa , P.O. Tauni Devi , T.& D. Hamirpur (H.P.) ,  
India, Pin 177023.