

## Curriculum Vitae: Dr. Abhishek Kumar Gupta, Associate Professor, HBTU Kanpur

**Dr. Abhishek Kumar Gupta**  
**Associate Professor**  
**Department of Physics**  
**Harcourt Butler Technical University, Kanpur**  
(U.P. State Government Technical University; NAAC Grade 'A<sup>+</sup>'), Pin-208002, Uttar Pradesh, India



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**Residence Address: -**

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### **Educational Detail**

<b>Department of Physics</b>	<b>DDU Gorakhpur University, Gorakhpur</b>	<b>M.Sc.</b>	<b>74.11, 1<sup>st</sup>/ First, PHYSICS</b>
<b>Department of Physics, Institute of Science</b>	<b>Banaras Hindu University Varanasi</b>	<b>Ph. D.</b>	<b>Title of the Thesis: "Studies on structural, thermal, and optical properties of ionic liquids confined in nano porous silica matrices", Area: Solid State Ionics, Materials Science and Engineering, Awarded-2014</b>
<b>Department of Physics &amp; Astrophysics</b>	<b>University of Delhi, New Delhi</b>	<b>Post Doc.</b>	<b>UGC-DSK Postdoctoral Fellow 2015-16</b>
<b>Physical Sciences</b>	<b>CSIR-National Eligibility Test</b>	<b>Five (5) times Qualify.</b>	
<b>Physics</b>	<b>GATE</b>	<b>2009 &amp; 2010</b>	
<b>Physics</b>	<b>Joint Entrance Screening Test</b>	<b>2009, AIR-69</b>	

### **Professional Background and Academics Jobs**

1. **Associate Professor (Regular), Department of Physics, Harcourt Butler Technical University, Kanpur (Uttar Pradesh Government Technical University), 2023- Present**
2. **Assistant Professor (Senior Scale, Matrix level-11, Regular), Department of Physics and Material Sciences, Madan Mohan Malaviya University of Technology, Gorakhpur (Autonomous University, Uttar Pradesh Government), 2020-2023.**
3. **Assistant Professor, (Lecel-10, Regular), Department of Physics and Material Sciences, Madan Mohan Malaviya University of Technology, Gorakhpur (U. P. Government Technical University), 2016-2020.**
4. **Assistant Professor (Regular), Department of Physics, Magadh University, Bodh Gaya, Bihar (Bihar Public Service Commission, Govt. of Bihar), 2015-16 Selected.**
5. **Assistant Professor, Department of Physics & Astrophysics, University of Delhi, Delhi between 15.05.2015 to 07.06.2016 (UGC-DSK Fellow).**
6. **Assistant Professor, Department of Physics, Suraj College of Engineering & Technology, Mohindergarh, Haryana Jan 01, 2015 to May 12, 2015.**
7. **Teacher (Honorarium), Department of Physics, Institute of Science, Banaras Hindu University, Varanasi-221005 between 01/08/2011 to 30/07/2012.**

### **Research and Post Doctorate Experience**

1. **UGC- Dr. D.S. Kothari Postdoctoral Fellow, University of Delhi, Delhi 2015-16.**
2. **Senior Research Fellow, CSIR, New Delhi, Institute of Science, Banaras Hindu University, Varanasi-221005, 2013-2014.**
3. **UGC-Research Fellow, Fellowship in Science for Meritorious Student (UGC-RFSMS), BHU, 2013**
4. **Junior Research Fellow and Senior Research Fellow, NASI, Banaras Hindu University, Varanasi-221005 2008-2012.**

### **University & Department's Position/Responsibilities held:**

**Research, Academic and Administrative position and responsibilities held at Madan Mohan Malaviya University of Technology, Gorakhpur**

- **Program Officer – Chess, Carrom, Skating/Billiards, Sport Sub-council, CSA, MMMUT (2023)**
- **Nodal officer, NAAC, MMMUT, 2020-23**
- **Member Secretary, Departmental Internal Quality Assurance Cell (IQAC), PMSD, 2019-23**
- **Convenor, Departmental Activities (Teachers and Students), 2021-23**
- **Post Graduate Studies, Convenor, PMSD, MMMUT, 2018-2021**
- **Coordinator, Virtual Lab, PMSD, MMMUT, 2019-2023.**
- **Convenor, DPR, APR, MPR and Academic Proposals, 2016-23**
- **Coordinator Physics program, PMSD, MMMUT, 2017-22.**
- **Coordinator NBA, Course File and CO-PO related work and DATA**

- **Warden, Kalpana Bhawan, (2021-2023)**
- **Warden, Vishweshraiya Bhawan, Boys Hostel from 01.07.2016 to July, 2020**
- **Warden, Kasturba Bhawan, July 2020-2021.**
- **Programme Officer, NSS, CSA, MMMUT from 2016-2023.**
- **Member, Cultural Sub Council, Council of Student Activities, MMMUT**
- **Faculty in charge, Day Scholar Club and Resident Scholar Club, MMMUT**
- **O/C of Basketball sport of students, CSA from 2016-2020.**
- **Induction Training Program Officer, and Member, TEQIP, MMMUT, 2017-23.**
- **O/C Departmental Timetable and Teaching load from June-2017-2023.**
- **O/C Physics B.Tech-Laboratory-II, from Jun 2018-2023.**
- **O/C DPR, APR, NBA, NIRF, India Today Ranking, CO-PO and related work of PMSD, MMMUT**
- **Member of different committee and cell, MMMUT**
- **Member, Board of Studies, Department of Physics and Material Sciences**
- **Member, Departmental Advisory Committee, Department of Physics and Material science, MMMUT**
- **Design of new Ordinance, Curricula, Syllabus and Courses for M.Sc.-Physics**
- **Design and Prepared : Course Curriculum, outlines and file for B. Tech Engineering Physics-I and Engineering Physics-II**
- **Co-convenor, Induction Program for Newly Admitted Students (IPNS):2020-21.**
- **Co-convenor, Induction Program for Newly Admitted Students (IPNS):2019-20**
- **Convenor, Induction Program for Newly Admitted Students : 2017-18, 2018-19**
- **Joint Organising Secretary- SMDST-2019**
- **Joint Coordinator, Three days “Hands on Training cum workshop” for scientist and Engineers**
- **Ph.D. Research Guidance/Supervision- Awarded: (2), One (submitted), Three (ongoing)**
- **Master Dissertation Supervision- Completed :(23) and ongoing: (6)**
- **Research Project Submitted- 38 Lakh**
- **Research Project Ongoing- One minor- 2 Lakh**
- **Lab Setting: Setting of Physics Lab-II according to the syllabus of Engineering Physics-I & II of PMSD, M.M.M. University of Technology, Gorakhpur in 2017-2022.**

## **Research Interest**

Materials for solid electrolytes for their application in energy storage devices, Solid State Ionics: Materials and Devices

### **Research interest includes:**

- **Synthesis and characterization** of solid electrolyte materials and fabrication of electrochemical energy storage devices like **Li ion batteries, supercapacitors, fuel cell, solar cell, DSSC and electrochemical biosensor.**
- **Theoretical, Computational and Experimental Studies on structural, thermal, optical, vibrational, mechanical, electrical, dielectric properties of ion conducting materials** such as ionogels (immobilization of ionic liquid into inorganic matrix and different polymeric membranes or nano porous matrices like carbon nanotube, grapheme, and silica etc.) and electrochemical properties of electrode to explore their **immense potential for many applications in energy devices.**
- **Optimizing material compositions and preparatory conditions** to develop better ion conducting materials and solid electrolyte materials with desired properties useful for **advance electrochemical energy**

device applications which can meet the current challenges, issues and concern of demand, development, safety and global warming

- Design and fabrication of ionogels and polymer gel electrolytes with improved thermal, structural, mechanical, electrical and optical properties.
- To obtain behavior and properties of ionic liquids in bulk and in restricted nano porous geometry and their physic-chemical properties, often having correlated theory of experimental calculations.

**Courses taught/teaching UG/PG.**

- Engineering Physics-I (BSM-127)
- Engineering Physics-II (BSM-177)
- Electrodynamics (MPM-107)
- Quantum Mechanics (MPM-103)

**Research Projects: Completed: 01**

Sr. No.	Name of PI/ Co-PI	Title	Funding Agency	Amount	Duration	Status
1	Dr. A. K. Gupta	Development of ion conducting solid electrolytes for energy storage supercapacitor application	Research Initiation Grant, TEQIP III, MMMUT	2 Lakhs	2 Year	Completed

**Ph.D. Supervision/Guided:**

**Total: 07; Awarded: 03, Ongoing: 04**

S. No.	Ph.D Student Details	Date of Registration	Supervisor (S)/Co-Supervisor (CS)	Title	Status
1.	Sarvesh Kumar Gupta (20180078004)	25/07/2018	Dr. Abhishek Kumar Gupta (S)	Density Functional Theory and Experimental Studies on Physicochemical Properties of Imidazolium Ionic Liquid and Inorganic Matrix Based Ionogels	<b>Awarded (2022)</b>
2.	Shivani Gupta (2018078003)	25/07/2018	Prof. B.K. Pandey(S), Dr. Abhishek Kumar Gupta (CS)	Density-Functional Theory Studies of Interaction of Alkali Metal Salts and Plasticizers with Polyethylene Oxide PEO	<b>Awarded (2022)</b>
3.	Ramesh Kumar Arya (2019078003)	06/07/2019	Dr. Abhishek Kumar Gupta(S)	Theoretical Studies on Structural, Electronic and Thermal Properties of Lithium bis(trifluoromethanesulfonyl)imide Based Polymer Electrolytes.	<b>Awarded (2023)</b>
4.	Mr. Mayank Shriwastav (2021078002)	17/11/2021	Prof. D. K. Dwivedi (S), Dr. Abhishek	Computational Study on Ion Transport and Electrochemical of Energy Storage devices.	Ongoing

			Kumar Gupta (CS)		
5.	Shweta Agrahari (2022078002)	15/09/2022	Dr. Abhishek Kumar Gupta (CS)	Theoretical and Experimental Investigation of Transport Mechanism and Interfacial Behavior in Polymer Electrolyte based Electrochemical Devices.	Ongoing
6.	Abhay Kumar Srivastava (2021078004)	17/11/2021	Prof. B.K. Pandey (S), Dr. Abhishek Kumar Gupta (CS)	Thermoelastic properties of solid by equation of state	Ongoing

**Postgraduate/Master of Science Dissertation Guided:** Detail of M. Tech/M.Sc. dissertation (Name of student, Title of dissertation):

**Awarded: 23**

S. No.	Name of Students	Supervisor	Title	Year
1.	Jyoti Singh	Dr. Abhishek Kr. Gupta	Synthesis of characterization of polymer gel electrolyte for Li ion batteries	2018-20
2.	Vinay Shukla	Dr. Abhishek Kr. Gupta	Study of electrical and structural properties of Na ion based solid electrolytes	2018-20
3.	Om Hari Dubey	Dr. Abhishek Kr. Gupta	Development and optical characterization of DSSC	2018-20
4.	Amul Kumar Srivastava	Dr. Abhishek Kr. Gupta	Modelling of EDLC	2018-20
5.	Rishab Raj Jaiswal	Dr. Abhishek Kr. Gupta	Simulation, modeling and Self-discharge characterization of energy storage devices	2018-20
6.	Aishwarya Raj Srivastava (2019073002)	Dr. Abhishek Kr. Gupta	"Modelling the Simulation of Hybrid Energy Storage System integrated with Photovoltaic System using MATLAB/ SIMULINK"	2019-21
7.	Ankita Pandey (2019073005)	Dr. Abhishek Kr. Gupta	"Ab initio study of AGAR-AGAR biopolymer-based electrolyte"	2019-21
8.	Divya Prabha (2019073007)	Dr. Abhishek Kr. Gupta	"Studies on energy storage performance of supercapacitor using MATLAB/ Simulink"	2019-21
9.	Km. Karishma (2019073011)	Dr. Abhishek Kr. Gupta	"Enhancement in efficiency on optimization in layers of perovskite solar cell by using simulation technique"	2019-21
10.	Nirupma Yadav (2019073016)	Dr. Abhishek Kr. Gupta	"Theoretical investigation on Di-tetrabutylammonium cis-bis (isothiocyanato) bis (2, 2'-bipyridyl-4, 4'-dicarboxylato) ruthenium (II) (N719) based dye for dye sensitized solar cell applications"	2019-21
11.	Sakshi Tiwari (2019073021)	Dr. Abhishek Kr. Gupta	"Computational studies on molecular structure of binary mixtures of organic electrolytes for sodium ion battery"	2020-22

12.	Anamika, 2020073004	Dr. Abhishek Kr. Gupta	Ab initio study of adsorption of ionic liquid on the surface of graphene sheets : Effects of cations and anions	2020-22
13.	Priya Gupta, 2020073010	Dr. Abhishek Kr. Gupta	DFT study of Na-ion conducting biopolymer electrolyte based on Agar-Agar polysaccharide agarose	2020-22
14.	Roly Singh, 2020073011	Dr. Abhishek Kr. Gupta	Simulation-Based Investigation on the Impact of Absorber Layer Thickness and Defect Density on the Performance of CH <sub>3</sub> NH <sub>3</sub> PbI <sub>3</sub> Perovskite Solar Cell Using SCAPS-1D	2020-22
15.	Vijay Kirti Ratna, 2020073014	Dr. Abhishek Kr. Gupta	Numerical modeling of CZTS based thin-film solar cell via a non-toxic hybrid buffer layer	2020-22
16.	Amrita Gupta	Dr. Abhishek Kr. Gupta	Theoretical optimization of tetracyanoethylene-GO and polyethylene oxide-GO based polymer nanocomposites	2020-22
17.	Deepmala	Dr. Abhishek Kr. Gupta	Theoretical design and optimization of halide absorber layer (CH <sub>3</sub> NH <sub>3</sub> GeI <sub>3</sub> ) based thin film solar cell by SCAPS- 1D	2021-23
18.	Gaurav Pandey	Dr. Abhishek Kr. Gupta	Structural and Transport properties of alkaline and transition elements co-doped Lanthanum Molybdate	2021-23
19.	Mamta Singh	Dr. Abhishek Kr. Gupta	Theoretical analysis of vanadium-based cathode material useful for lithium ion battery	2021-23
20.	Priyanshu Srivastava	Dr. Abhishek Kr. Gupta	DFT study of double doped La <sub>2</sub> Mo <sub>2</sub> O <sub>9</sub> as electrolyte material for solid oxide fuel cell	2021-23
21.	Shyam Ji Srivastava	Dr. Abhishek Kr. Gupta	Effect of Nano-fillers on Some physical properties of PEO based Polymer Electrolyte	2021-23
22.	Sonu Kumar	Dr. Abhishek Kr. Gupta	First Principle study of Na <sub>3</sub> V <sub>2</sub> O <sub>2</sub> (PO <sub>4</sub> ) <sub>2</sub> F cathode material for rechargeable Sodium ion battery	2021-23
23.	Vaibhav Pandey	Dr. Abhishek Kr. Gupta	Numerical Simulation and Optimization of Methylammonium lead iodide (CH <sub>3</sub> NH <sub>3</sub> PbI <sub>3</sub> ) Perovskite with Inorganic HTL Using SCAPS-1D	2021-23

### Research Publications

<b>Research Publications (Details given below)</b>	<ul style="list-style-type: none"> <li>● <b>Total=43 (SCI+SCI Mago) + Book Chapters: Six (06)</b></li> <li>● <b>Published in SCI, International (UGC CARE)– Twenty Eight</b></li> <li>● <b>Published in SCI Mago, International – Ten (10)</b></li> <li>● <b>Published in International Conference proceedings – (05)</b></li> <li>● <b>Presented in International &amp; National Conferences/Workshops Thirty (30)</b></li> <li>● <b>National Journal-Five (5)</b></li> <li>● <b>Invited Talk Delivered: Ten (11)</b></li> <li>● <b>FDP/STTP/STC: - twenty (20)</b></li> <li>● <b>Induction/Orientation Program Training: Five</b></li> </ul>
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### Publications

#### Research Papers in Peer-Reviewed or UGC Listed Journals, SCI/SCIE/SCImago

**Publications- Total 49,  
Research Publication-43, Book Chapters-06,  
Citation: 530, h-index: 10, i10-index: 10**

1.	Influence of polyethylene glycol plasticizer on the structural and electronic properties of PEO-NaI complex: a density functional study Shivani Gupta, <b>Abhishek Kumar Gupta</b> , B. K. Pandey and Mohan L. Verma, <i>Journal of Molecular Modeling</i> , Vol. 27, No. 6 (2021) p.1-11. EISSN: 0948-5023, <b>Impact Factor: 2.1</b>
2.	First-principle study on ionic pair dissociation in PEO-PVP-NaClO <sub>4</sub> blend for solid polymer electrolyte Shivani Gupta, <b>Abhishek Kumar Gupta</b> and B. K. Pandey <i>Polymer Bulletin</i> (2021): p.1-20. EISSN:1436-2449, <b>Impact Factor: 2.870</b>
3.	Tailoring of the Electrochemical Stability and Dielectric Behaviour of Inorganic Matrix- Based Ionogels Sarvesh Kumar Gupta, <b>Abhishek Kumar Gupta</b> Physica Scripta, Phys. Scr., Vol 97 (2022) 065812, IOP SCIENCE, IOP Publishing, <a href="https://doi.org/10.1088/1402-4896/ac6d20">https://doi.org/10.1088/1402-4896/ac6d20</a> ISSN: 1402-4896 (print); 1402-4896 (web) , <b>Impact Factor: 2.89</b>
4.	Insight into structural, electronic, and chemical bonding properties of PEO-PEG-LiI polymer electrolyte: A first-principles investigation Shivani Gupta, <b>Abhishek Kumar Gupta</b> and B. K. Pandey <i>Computational and Theoretical Chemistry</i> (2022), Volume 1211, 113667. ISSN: 2210-271X, <b>Impact Factor: 2.26</b>
5.	Experimental and Computational Study of Lithium Salt/Plastic Crystal Assisted Ionogels Sarvesh Kumar Gupta, <b>Abhishek Kumar Gupta</b> <i>Arabian Journal for Science and Engineering</i> , Vol 46, No. 7 (2020): p. 935-947. ISSN: 2191-4281, <b>Impact Factor: 2.834</b>
6.	The effect of nitrogen-rich ionic liquid [EMIMDCA] on the electronic structure of solid polymer electrolyte (PEO-LiTFSI) Ramesh Kumar Arya and <b>Abhishek Kumar Gupta</b> <i>Journal of Molecular Modeling</i> Vol.28, 363(2022) ISSN: 0948-5023, <b>Impact Factor: 2.172</b>
7.	Numerical Simulation and Optimization of Lead-Based Perovskite Solar Cell with Inorganic HTL Using SCAPS-1D Vaibhav Pandey, <b>Abhishek Kumar Gupta</b> and Mayank Shrivastav <i>Journal of Optics</i> , Vol 52, (2023) ISSN: 09728821, <b>Impact Factor: 1.4</b>

8.	<p>Role of reduced precursor and solvolytic reagent molar ratio on preparation and properties of ionogel  <b>Abhishek Kumar Gupta</b>, Yogendra Lal Verma, Manish Pratap Singh and Rajendra Kumar Singh  Journal of Solid State Chemistry, Vol. 242, No. 1 (2016): p. 29–37.  ISSN: 0022-4596, <b>Impact Factor: 3.98</b></p>
9.	<p>Role of ionic liquid [BMIMPF<sub>6</sub>] in modifying the crystallization kinetics behavior of polymer electrolyte PEO-LiClO<sub>4</sub>  S.K. Chaurasia, Shalu, <b>Abhishek Kumar Gupta</b>, Y.L. Verma, V. K. Singh, A. K. Tripathi, A. L. Saroj, and R. K. Singh  RSC Advances, Vol. 5, No. 11 (2015): p. 8263-8277.  ISSN: 2046-2069, <b>Impact Factor: 3.361</b></p>
10.	<p>Studies on structural, thermal and AC conductivity scaling of PEO-LiPF<sub>6</sub> polymer electrolyte with added ionic liquid [BMIMPF<sub>6</sub>]  S. K. Chaurasia, A. L. Saroj, Shalu, V. K. Singh, A. K. Tripathi, <b>Abhishek Kumar Gupta</b>, Y. L. Verma and R. K. Singh  AIP Advances, Vol. 5, No. 7 (2015): p. 077178  ISSN: 2158-3226, <b>Impact Factor: 1.548</b></p>
11.	<p>Studies on an ionic liquid confined in silica nanopores: Change in T<sub>g</sub> and evidence of organic-inorganic linkage at the pore wall surface  <b>Abhishek Kumar Gupta</b>, Yogendra Lal Verma, Rajendra Kumar Singh, and Suresh Chandra  Journal of Physical Chemistry C, Vol. 118, No. 3 (2014): p. 1530–1539.  ISSN 1932-7447, <b>Impact Factor: 4.126</b></p>
12.	<p>Crystallization kinetics behavior of ionic liquid [EMIM][BF<sub>4</sub>] confined in mesoporous silica matrices  <b>Abhishek Kumar Gupta</b>, Rajendra Kumar Singh and Suresh Chandra  RSC Advances, Vol. 4, No. 42 (2014): p. 22277-22287.  ISSN: 2046-2069, <b>Impact Factor: 3.361</b></p>
13.	<p>Preparation and characterization of ionic liquid confined hybrid porous silica derived from ultrasonic assisted non-hydrolytic sol-gel process  Yogendra Lal Verma, <b>Abhishek Kumar Gupta</b>, Rajendra Kumar Singh and Suresh Chandra  Microporous and Mesoporous Materials, Vol. 195 (2014): p. 143–153.  ISSN: 1387-1811, <b>Impact Factor: 5.445</b></p>
14.	<p>Viscoelastic, Surface and Volumetric Properties of Ionic Liquids [BMIM][OcSO<sub>4</sub>], [BMIM][PF<sub>6</sub>] and [EMIM][MeSO<sub>3</sub>]  M. P. Singh, S. K. Mandal, Y. L. Verma, <b>Abhishek Kumar Gupta</b>, R. K. Singh and S. Chandra  Journal of Chemical &amp; Engineering Data, Vol. 59, No. 8 (2014): p. 2349–2359.  ISSN: 0021-9568, [I.F.- 2.154], <b>Impact Factor: 2.694</b></p>
15.	<p>Changes in Dynamical Behavior of Ionic Liquid in Silica Nano-Pores  Manish Pratap Singh, Yogendra Lal Verma, <b>Abhishek Kumar Gupta</b>, Rajendra Kumar Singh and Suresh Chandra  Ionics, Vol. 20 (2014): p. 507-516.  ISSN: 0947-7047, <b>Impact Factor: 2.817</b></p>



16.	<p>Studies on mesoporous silica ionogels prepared by sol-gel method at different gelation temperatures  <b>Abhishek Kumar Gupta</b>, Rajendra Kumar Singh and Suresh Chandra  RSC Advances, Vol. 3, No. 33 (2013): p. 13869-13877.  ISSN: 2046-2069, <b>Impact Factor: 3.361</b></p>
17.	<p>Low density ionogels obtained by rapid gellification of tetraethyl orthosilane assisted by ionic liquids  <b>Abhishek Kumar Gupta</b>, Manish Pratap Singh, Rajendra Kumar Singh and Suresh Chandra  Dalton Transactions, Vol. 41, No. 20 (2012): p. 6263-6271.  ISSN 1477-9226, <b>Impact Factor: 4.390</b></p>
18.	<p>Solar light-assisted rod-shaped CPTF@FACC photocatalyst: An efficient platform for oxygenation reactions and coenzymes regeneration  Surabhi Chaubey, Chandani Singh, Pooja Singh, Satyam Singh, Yu-Jin Jeong, Rajesh K. Yadav, <b>Abhishek K. Gupta</b>, Atul P. Singh, Mukesh Kumar, Tae W. Kim  <i>International Journal of Energy Research</i>, Vol.46 (2022), 12  ISSN: 1099114X, 0363907X. <b>Impact Factor: 4.672</b></p>
19.	<p>One-Pot Highly Efficient Synthesis of N-Enrich Graphene Quantum Dots as a Photocatalytic Platform for NAD<sup>+</sup>/NADP<sup>+</sup> Reduction  Shivani Gupta, R. K. Yadav, <b>Abhishek Kumar Gupta</b>, B. Yadav, A. Singh, and B. K. Pandey  <i>Photochemistry and Photobiology</i>, Vol. 97, No. 6 (2021): p.1498-1506.  ISSN: 1751-1097, <b>Impact Factor: 3.421</b></p>
20.	<p>Highly Efficient S-g-CN/Mo-368 Catalyst for Synergistically NADH Regeneration Under Solar Light  Sarvesh Kumar Gupta, <b>Abhishek Kumar Gupta</b>, Rajesh Kumar Yadav, Ajeet Singh, B. C. Yadav  <i>Photochemistry and photobiology</i>, Vol. 98, No. 1 (2022): p.160-168.  ISSN:1751-1097, <b>Impact Factor: 3.421</b></p>
21.	<p>Eosin-Y and sulfur-codoped g-C<sub>3</sub>N<sub>4</sub> composite for photocatalytic applications: the regeneration of NADH/NADPH and the oxidation of sulfide to sulfoxide, Pooja Singh, Rajesh Kumar Yadav, Krishna Kumar, <b>Abhishek Kumar Gupta</b>, Kuldeep Kumar, B. C. Yadav, Atul P. Singh, Catal. Sci. Technol., 2021,11, 6401-6410, <b>Impact Factor: 6.2</b></p>
22.	<p>Solar light active flexible activated carbon cloth-based photocatalyst for Markovnikov-selective radical-radical cross-coupling of S-nucleophiles to terminal alkyne and liquefied petroleum gas sensing, Pooja Singh, Rajesh Kumar Yadav, Vittal Gole, <b>Abhishek Kumar Gupta</b>, Kuldeep Kumar, B. C. Yadav, D. K. Dwivedi  Journal of Chinese Chemical Society, Wiley-VCH GmbH, Weinheim, 68 (8), 2021, 1435-1444, ISSN:2192-6549, <b>Impact factor:1.967</b></p>
23.	<p>Highly Efficient In-situ Sulfur Doped Graphitic Carbon Nitride Nanoplates as an Artificial Photosynthetic System for NADH Regeneration  Sarvesh Kumar Gupta, <b>Abhishek Kumar Gupta</b>, Rajesh Kumar Yadav, Ajeet Singh, B. C. Yadav  <i>Vietnam Journal of Chemistry</i>, Vol. 59, No. 5 (2021), p.590-598.  ISSN:2572-8288, <b>Impact Factor: NA</b></p>

24.	DFT Study on Na-ion conducting solid biopolymer electrolytes based on Agar-Agar and NaPF <sub>6</sub> for sodium-ion batteries. Priya Gupta, <b>Abhishek Kumar Gupta</b> , Sarvesh Kumar Gupta, Shivani Gupta, Mayank Shrivastav and Rajesh Kumar Yadav <i>Nano Hybrids and Composites</i> , Vol.40 (2023), p. 65-78
25.	Electronic, Vibrational, and Structural Study of Polysaccharide Agar-Agar Biopolymer Ankita Pandey, <b>Abhishek Kumar Gupta</b> , Shivani Gupta, Sarvesh Kumar Gupta, Rajesh Kumar Yadav <i>Nano Hybrids and Composites</i> , Vol. 33 (2021), pp 35-46 ISSN: 2297-3400, <b>Impact Factor: NA</b>
26.	Electronic, Thermal, and Vibrational Properties of SiO <sub>2</sub> /SCN System: A Combined Density Functional Theory and Experimental Study Sarvesh Kumar Gupta, <b>Abhishek Kumar Gupta</b> <i>Russian Journal of Physical Chemistry A</i> , Vol. 96, No. 3 (2022): p. 596–608. ISSN: 0036-0244, <b>Impact Factor: 0.79</b>
27.	Theoretical Studies of physical, chemical, and vibrational properties of various imidazolium-based ionic liquids Sarvesh Kumar Gupta, <b>Abhishek Kumar Gupta</b> , Rajesh Kumar Yadav <i>Acta Physica Polonica A</i> , Vol. 140, No. 5 (2021): p. 400-406. ISSN: 1898-794X, <b>Impact Factor: 0.740</b>
28.	Structural, electronic, and thermal studies of Poly(ethylene oxide) based solid-state polymer Electrolyte Ramesh Kumar Arya and <b>Abhishek Kumar Gupta</b> <i>International Journal of Material Research</i> Vol.114 (2023), ISSN: 18625282, <b>Impact Factor; 0.678</b>
29.	Selective aerobic coupling of amines to imines using solar spectrum-responsive flower-like N-graphene quantum dots (GQDs) decorated with 2, 4-dinitrophenylhydrazine (PH) as a photocatalyst. Sotirios Baskoutas Neetesh Kumar, Rajesh K. Yadav, Ahmad Umar, Ahmed A. Ibrahim, Satyam Singh, Rehana Shahin, Atul P. Singh, <b>Abhishek K. Gupta</b> , Navneet K. Gupta, Jin Ook Baeg g, Dilip K. Dwivedi <i>Chemosphere</i> , Volume 341 (2023), 139697 ISSN: 0045 -6535 <b>Impact Factor: 8.943</b>
30.	Theoretical Study on the Electronic Structure of Polymer-in-Salt/Ionic Liquid-Based Biodegradable Gel Polymer Electrolyte Ramesh Kumar Arya and Abhishek Kumar Gupta, <i>Brazilian Journal of Physics</i> (2024) 54:45, P1-7, <a href="https://doi.org/10.1007/s13538-024-01424-y">https://doi.org/10.1007/s13538-024-01424-y</a> , SCIE, ISSN: 0103-9733, <b>Impact Factor: 1.6</b>

#### B. International Journals (SCI Mago / Conference proceedings/SCOPUS)

31.	Ionogels: Present Opportunities, and Challenges for Future in Energy Storage Applications Sarvesh Kumar Gupta, Shivani Gupta, <b>Abhishek Kumar Gupta</b> <i>Advanced Science, Engineering and Medicine</i> , Vol. 12, No. 1 (2020), p.11-26. ISSN: 2164-6635
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32.	Poly (vinylidene fluoride-co-hexafluoropropylene): An Emerging Host Material for Ion Conducting Gel Polymer Electrolyte-Cum-Separator Membrane Shivani Gupta, Sarvesh Kumar Gupta, B. K. Pandey, <b>Abhishek Kumar Gupta</b> <i>Advanced Science, Engineering and Medicine</i> , Vol. 12, No. 1 (2020), p. 50-59. ISSN: 2164-6635
33.	Structural and electronic properties of PVDF derived polymer: Ab initio study Sarvesh Kumar Gupta, Jyoti Singh, Shivani Gupta, <b>Abhishek Kumar Gupta</b> <i>AIP Conference Proceedings</i> , Vol. 2220, No. 1 (2020), p. 130058. ISSN: 1551-7616
34.	Theoretical studies on structural and optical properties of PEO & NH <sub>4</sub> SCN based solid polymer electrolyte. Vinay Shukla, <b>Abhishek Kumar Gupta</b> , Sarvesh Kumar Gupta <i>AIP Conference Proceedings</i> , Vol. 2269, No. 1 (2020), p. 030062. ISSN: 1551-7616
35.	A comprehensive device modeling of solid-state dye-sensitized solar cell by MATLAB Omhari Dubey, <b>Abhishek Kumar Gupta</b> , SK Gupta <i>AIP Conference Proceedings</i> , Vol. 2269, No. 1 (2020), p. 030061. ISSN: 1551-7616
36.	Modelling and Simulation of Photovoltaic System Using MATLAB/Simulink A. K. Srivastav, <b>Abhishek Kumar Gupta</b> , R. R. Jaiswal, Sarvesh Kumar Gupta <i>Journal of Physics: Conference Series</i> , Vol. 1579, No. 1 (2020), p. 012024. ISSN: 1742-6596
37.	Computational studies of PEO <sub>3</sub> -NaClO <sub>4</sub> based solid polymer electrolyte for Na-ion batteries S Gupta, V Shukla, Sarvesh Kumar Gupta, B. K. Pandey, <b>Abhishek Kumar Gupta</b> <i>AIP Conference Proceedings</i> , Vol. 2220, No. 1 (2020), p. 130065. ISSN: 1551-7616
38.	Studies on the interaction of Na <sup>+</sup> ion with binary mixture of carbonate-ester solvents: A density functional theory approach Sakshi Tiwari, <b>Abhishek Kumar Gupta</b> , Shivani Gupta, Sarvesh Kumar Gupta, Sujeet Kumar Chaurasia <i>Journal of Physics: Conference Series</i> , Vol. 1849 (2021), p. 012024. ISSN: 1742-6596
39.	Implementation and Mathematical Modelling of Hybrid Energy Storage System Mechanism based on the Photovoltaic System using MATLAB/ SIMULINK Aishwarya Raj Srivastava, <b>Abhishek Kumar Gupta</b> , Sarvesh Kumar Gupta, Amul Kumar Srivastav, Rajesh Kumar Yadav <i>International Journal of Power Electronics Controllers and Converters</i> , Volume 7, No. 1 (2021): p. 1-10. ISSN: 2456-1614

### C. National Journals (SCOPUS)

40.	Theoretical Analysis of Self-discharge behavior of Supercapacitor using physical parameter variation in Simulink/ MATLAB <b>Abhishek Kumar Gupta</b> , Rishabh Raj Jaiswal, Sarvesh Kumar Gupta, Ramesh Kumar Arya, Amul Kumar Srivastav <i>Journal of Microelectronics and Solid-State Devices</i> , Vol. 8, No. 1 (2021): p. 14-22. ISSN: 2455-3336
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41.	<p>Computational Studies on PVDF-HFP/Li-salt Composite Electrolyte for Lithium-ion Batteries  Jyoti Singh, <b>Abhishek Kumar Gupta</b>, Shivani Gupta, Sarvesh Kumar Gupta, Ramesh Kumar Arya, Amarjeet Yadav  <i>Journal of Nanoscience, Nanoengineering &amp; Application</i>, Volume 11, No. 3 (2021): p. 18-25.  ISSN: 2231-1777</p>
42.	<p>Numerical Simulation and Performance Characteristics of Solid-state Dye-sensitized Solar Cell using SCAPS 1D  Nirupma Yadav, <b>Abhishek Kumar Gupta</b>, Sarvesh Kumar Gupta, Omhari Dubey  <i>Nano Trends: A Journal of Nanotechnology and Its Applications</i>, Volume 23, No. 2 (2021): p. 1-11.  ISSN: 0973-418X</p>
43.	<p>Effect of Thickness of Absorber Layer on the Enhancement of Efficiency, and Performance of <math>\text{CH}_3\text{NH}_3\text{SnI}_3</math> based Perovskite Solar Cell using SCAPS-1D  Km. Karishma, <b>Abhishek Kumar Gupta</b>, Omhari Dubey, Sarvesh Kumar Gupta  <i>Journal of Nanoscience, Nanoengineering &amp; Applications</i>, Volume 11, No. 2 (2021): p.</p>

#### D. Book Chapters

44.	<p>Studies on PVdF-HFP based polymer electrolyte with dispersed Ionic Liquid [BMIM][BF<sub>4</sub>]: Thermal, structural and ionic transport behavior”, <i>Electroactive Polymers: Materials and Devices</i>, 2015, 5, 247-252, (Allied Publishers Pvt. Ltd., New Delhi), ISBN: 978-81-8424-960-6</p>
45.	<p>Properties of ionic liquid in confined geometry, 2011, 4, 92-93, <i>Electroactive Polymers: Materials and Devices</i>, (Vol. 4; Series Ed. Suresh Chandra (Macmillan Publishers India Ltd., New Delhi, 2011), ISBN:978-935-059-073-7.</p>
46.	<p>Investigation on ionic conductivity and Raman spectroscopic studies of ionic liquid immobilized PEO based polymer electrolytes  Sujeet Kumar Chaurasia, <b>Abhishek Kumar Gupta</b>, Sarvesh Kumar Gupta, Shivani Gupta, Pramod Kumar, Manish Pratap Singh  <i>Advances in Functional Materials</i>, Springer Nature Publisher  <i>Functional Materials and Devices. Springer Proceedings in Materials</i>, 2021, Vol 14. Springer, Singapore. <a href="https://doi.org/10.1007/978-981-16-5971-3_21">https://doi.org/10.1007/978-981-16-5971-3_21</a>  Print ISBN-978-981-16-5970-6, Online ISBN-978-981-16-5971-3  Editors: Krupanidhi, S.B., Gupta, V., Sharma, A., Kumar Singh, A. (Eds.),</p>
47.	<p>Hybrid Mechanism of Supercapacitor and Battery for Building High Performance of Electric Vehicles  Divya Prabha, <b>Abhishek Kumar Gupta</b>, Shivani Gupta, Sarvesh Kumar Gupta, Jyoti Singh, Rajesh Kumar Yadav  <i>Advances in Functional Materials</i>, Springer Nature Publisher  <i>Functional Materials and Devices. Springer Proceedings in Materials</i>, 2021, Vol 14. Springer, Singapore. <a href="https://doi.org/10.1007/978-981-16-5971-3_21">https://doi.org/10.1007/978-981-16-5971-3_21</a></p>

	Print ISBN-978-981-16-5970-6, Online ISBN-978-981-16-5971-3 Editors: Krupanidhi, S.B., Gupta, V., Sharma, A., Kumar Singh, A. (Eds.),
48.	Metal Oxide Gas Sensors Based On Metal-Organic Framework (MOFS) Sarvesh Kumar Gupta, Shivani gupta, Satyam Singh, Rajesh Kumar Yadav, Abhishek Kumar Gupta Complex and Composite Metal Oxides for Gas, V <sub>oc</sub> and Humidity Sensors, Elsevier Edited By; Bal Chandra Yadav, Pragati Kumar
49.	Recent Advancements in the Design of Electrode Materials for Rechargeable Batteries Shivani Gupta, Abhishek Kumar Gupta,* Sarvesh Kumar Gupta and Mohan L Verma <i>Advanced Materials and Nano Systems, 2022, 53-66, Bentham Science Publishers</i> <i>Bentham Science Publishers Pte. Ltd., 80 Robinson Road #02-00, Singapore 068898, Singapore</i> DOI: 10.2174/9789815050745122010006 Edited By: Dibya Prakash Rai, Department of Physics, Pachhunga University College, Mizoram University, Aizawl, 796001, India

## Patents Awarded

Sr. No.	Title of the Patent	Patent Type	Patent Number	Year of Patent Filing	Year of Patent Awarded	List of Investigators
1	PORPHYRIN CONTAINING COVALENT ORGANIC FRAMEWORK AND METHOD OF SYNTHESIS THEREOF APPLICATION NUMBER 202111010716, Publication Date-18/11/2022	NATIONAL	46/2022	2021	2022	1. ATUL P. SINGH. 2. RAJESH K. YADAV. 3. CHANDANI SINGH. 4. POOJA SINGH. 5. SURABHI CHAUBEY. 6. ABHISHEK K. GUPTA

## Activities Organized: Training Programmes / Conference/Workshop Organized:

- Topic-Devices Modelling and Simulation based Nano academic Technologies in the field of energy storage and batteries, 22.03.2022 by Mr. A. K Sharma, Managing Director, Impulse Technology
- **Organised** Expert lecture to celebrate ‘**National Science Day**’ delivered by **Prof. M. L. Verma**, Shri Shankaracharya Technical Campus Bhilai Chhattisgarh India, **on topic "Computer Experiment in nanoscience**, at Madan Mohan Malaviya University of Technology, Gorakhpur delivered on 27.02.2021.
- Organized Webinar Programme on “Seventh Anniversary and Foundation Day of University” in MMMUT on 01, December 2020

- Organized one-week Faculty Development Programme on “Recent Advances in Material Science and Research Ethics” scheduled 21-25 September 2020 (RAMSRE-2020)
- **Organised** Webinar on “Basics of Gaussian and its Applications” at Madan Mohan Malaviya University of Technology, Gorakhpur will be delivered on 19.05.2020 as organizing secretary/coordinator.
- **Organised** Expert lecture on ‘**National Science Day**’ delivered by **Prof. Uday Desh Pandey**, UGC-CSR at Madan Mohan Malaviya University of Technology, Gorakhpur delivered on 28.02.2020.
- **Co-convenor to Organise IPNS-19:** “Induction Program for newly admitted students” (IPNS-2019), organised between July 30-August-19, 2019
- **Joint Secretary to organise National Conference on Smart Materials, Devices and Sustainable Technologies organised as a joint secretary** between, 15-16 March-2019
- **Convener to Organise IPNS-2018 “Induction Program for newly admitted students” (IPNS-2018)**, held between July 30-August-21, 2018
- **Convener to Organise IPNS-2017 “Induction Program for newly admitted students” (IPNS-2017)**, organised between May-01-05, 2018
- **Joint Coordinator to organise “Hands on Training cum Workshop on Soft Computing Skill for Scientists and Engineers” (SCSSE-17), organized as a Joint Coordinator** in D/o Applied Science, MMMUT, Gorakhpur, from 17-19 March, 17
- **Organiser of Expert lectures** in the different session of “**Induction Program for Newly Admitted Student**” in years 2017, 2018 and 2019 which was delivered by renowned persons of the different concerning fields from different organisation and institutes.

#### **Invited lectures/ Guest speaker/ Expert talk/ Presentation Delivered**

- Delivered Invited Talk in **National Conference on Solid State Ionics, during 2-4 December, 2023** Organized by Department of Physics, Institute of Science, Banaras Hindu University, Varanasi. Title- “Exploring electronic structures and quantum chemical insights into polymer complexes: a density functional theory approach.”
- Delivered Keynote Talk in **International Conference on ‘Research in Engineering and Technology’** jointly organized by Conference World and BIT, GIDA during 8th July to 9th July, 2021. Title- “ **ADVANCED IONOGELELECTROLYTES FOR HIGH ENERGY DENSITY RECHARGEABLE BATTERIES**”
- Delivered invited talk in **one-week FDP programme on title “Energy Storage Technology: Challenges in Materials Perspective”** organized by Department of Physics and Material Science, Madan Mohan Malaviya University of Technology Gorakhpur-273010 during 21-09-2020 to 25-09-2020, title of programme- ““Recent Advances in Material Science and Research Ethics””
- Invited talk on “**Current State of Ionic Liquid-Based Electrolytes: Advantages and Challenges**” at “**National Conference on Physics and Chemistry of Advanced Materials**”- organised by Department of Physics, Mahatma Gandhi Central University, Motihari-845401, Bihar. (November 22-23, 2019)
- Oral presentation on “**Computational Studies of PEO<sub>3</sub>-NaClO<sub>4</sub> Based Solid Polymer Electrolyte for Na-ion Batteries**” at “**13<sup>th</sup> National Conference on Solid State Ionics (NCSSI-13)**” organised by Department of Physics, IIT Roorkee, Roorkee. (December 16-18, 2019)
- **Presentation in TEQIP-III Sponsored National Conference on “Smart Materials, Devices and Sustainable Technologies (SMDST-2019)”**- organized by Department of Applied Science,

Madan Mohan Malaviya University of Technology, Gorakhpur, India (March 15-16, 2019), Title- Challenges with Inorganic and Organic Hybrid Materials based Solid Electrolytes for their Energy Storage Applications,

- Oral presentation in “**12<sup>th</sup> National Conference on Solid State Ionics (NCSSI-12)**” organised by Department of Physics BITS Pilani, Pilani. (December 21-23, 2017), title of talk- “**Effect of controlled gelation on the electrical and optical behavior of ionic liquid based solid electrolyte**”
- Session Chair Two Days National Conference on “**Recent Trends in Devices, Circuits and Communication (RTDC<sup>2</sup>-2019)**”, sponsored by TEQIP-III, organised by Department of Electronics and Communication Engineering held during 15<sup>th</sup>-16<sup>th</sup> April, 2019 at M.M.M. University of Technology, Gorakhpur

#### **Short Term Course & ATAL, Faculty Development Programme Attended/Participated**

- Attended and Participated in UGC sponsored Refresher course in “**Information and Communication Technology**”, organized by UGC-HRDC, DDUGU, Gorakhpur held during 27 Sept 2021 to 10 October 2021 with Grade A.
- Successfully participated in IP Awareness/Training program under National Intellectual Property Awareness Mission, Intellectual Property Office, India on 29 April, 2022
- AICTE Training and Learning (ATAL) Academy Online Elementary FDP on "Faculty Development Program on Energy Storage: Science & Technology" National Motilal Nehru National Institute of Technology Allahabad, 20/09/2021 to 24/09/2021
- Participated & completed successfully AICTE Training And Learning (ATAL) Academy Online Elementary FDP on "Mathematical Tools and Recent Advances in Applied Mathematics (MTRAAM)" from 16/08/2021 to 20/08/2021 at Madan Mohan Malaviya University of Technology, Gorakhpur
- Trained in two weeks ‘Student Engagement, Future of Education, Design Thinking & Innovation’ programme jointly organized by Strategyk Consilium Pvt. Ltd., Bengaluru and Madan Mohan Malaviya University of Technology, Gorakhpur during 24<sup>th</sup> April – 07<sup>th</sup> May, 2021
- Participated and attended one week FDP on “**Advanced Rechargeable Batteries: From Powder to Power**”, Department of Physics and Department of Chemical Engineering, IIT Roorkee. 25<sup>th</sup> to 30<sup>th</sup> December 2020
- Participated in Two Days International Seminar on the topic “**National Education Policy 2020: Issues and Challenges in Implementation**” organized by the Department of Humanities and Management Science under the Twinning Program with SVNIT, Surat in Association with TEQIP-III, MMMUT, Gorakhpur, during 08<sup>th</sup> October 2020 to 9<sup>th</sup> October 2020
- Participated, attended, and successfully completed two-weeks training on “**ADVANCED CONCEPTS FOR DEVELOPING MOOCS**” organized by Ramanujan College, University of Delhi under MHRD under PMMMNMTT during July 02 - July 17, 2020
- TEQIP-III sponsored One-week Short Term Course on “**Research Methods and Data Analysis using SPSS & AMOS (RMDASAM-2020)**”, during January 27 to 31, 2020 at MMMUT, Gorakhpur

- TEQIP-III sponsored One-week Short Term Course on “**Recent Advances in Devices, Circuit and Communication (RADCC-2020)**”, January 3-7, 2020
- International Workshop on “**Energy Management in Smart Sustainable Cities**” conducted by Department of Electrical Engineering during 30<sup>th</sup> Nov- 1<sup>st</sup> December 2019 at MMMUT, Gorakhpur
- DAIoT-2019 One-week Short Term training Programme on “**Data Analytics and IoT**”, 04-08 November 2019”, jointly organized by Department of Computer Science & Engineering MMMUT, Gorakhpur & SVNIT-Surat
- One-week Faculty Development Programme on “**ICT in Advance Teaching and Learning for Academicians: A Gateway to Excellence**” jointly organised by Electronics and ICT Academy, MeitY, Govt. of India, NIT Patna & Department of Humanity and management Science, MMMUT from 14<sup>th</sup> to 18<sup>th</sup> October 2019
- 2019 IEEE REGION 10<sup>th</sup> INTERNATIONAL WORKSHOP on PANEL OF CONFERENCE ORGANIZERS (POCO-2019), September 25, 2019
- One-week national workshop on “**LaTeX and Its Applications**”, held during March 11-15, 2019 at MMMUT
- Attended one-week short term course on “**Research Methodology and Statistics**” during 24-30 October 2018 in MMMUT.
- 2017-March: Short term course on “**Emerging Trends in Material Sciences**” Organized by Department of Applied Science, Madan Mohan Malaviya University of Technology, Gorakhpur 22-29 March, 2017
- Hands on Training cum Workshop on soft computing skill for Scientists and Engineers (SCSSE-17), 17<sup>th</sup> -19<sup>th</sup> March-2017, Organized by the Department of Applied Science, M. M. M. University of Technology Gorakhpur.
- Short term course on “**Application of Physical Sciences in Engineering and Technology**”, organized by Department of Applied Science, Madan Mohan Malaviya University of Technology, Gorakhpur held during July 2-8, 2016

#### **Honours/ Prizes/ Awards/ Community Service Peer Recognition:**

- **Best Oral Paper Presentation Award** of Excellence to my Ph.D. student Mr. Sarvesh Kumar Gupta in International Conference on “Advanced Functional Materials and Devices (AFMD-2021)”, ARSDC and IQAC, University of Delhi, New Delhi
- **Young Scientist Award and Best Oral Paper Presentation Award** to our second research scholar Ms. Shivani Gupta in 21<sup>st</sup> National Conference on Solid State Nuclear Track Detectors and Their Applications (SSNTDs-21), jointly organized by Department of Physics, Ramjas College and Department of Physics & Astrophysics, University of Delhi in Collaboration with Nuclear Track Society of India (NTSI) along with cash prize.
- **Certificate of Achievement for participation** in My NEP quiz competition and secured 93% marks organized by Vidya Bharti on 24/09/2020
- **Certificate of Recognition** for My NEP Ambassador for the valuable contribution towards promoting the National Education Policy 2020.
- **Contribution towards Community Development/ Community Service:** Different awareness programme along with orientation and induction programme has been organized through NSS, MMMUT and COVID- 19 awareness programme, Cleanliness awareness program, etc. organised and going to organised different program in next coming month



- **Participated in online Q&A on the topic of Creativity and Personality** of Pandit Deen Dayal Upadhyay ji in the year of nectar festival of freedom organized by DDDGU, Gorakhpur

#### **Other Extension Activities (reviews/ reports/ popular articles/ popularizing science and education**

Reviewer of the Manuscript ID JES-107915, entitled "Theoretical Study of the Electrochemical Properties for Solid Electrolytes Containing Ethoxy and Carbonate Groups." of Journal of The Electrochemical Society

#### **Contribution towards Community Development/ Community Service:**

Different awareness programme along with orientation and induction programme has been organized through NSS, MMMUT Since 2016 to continue.

#### **Co-Curricular/ Extra Curricular Activities (viz. Hostels/ Sports/ Cultural/ NCC/ NSS etc.**

- Under NCC, CSA, MMMUT: - Awareness programme, Cleanness awareness program, cloth distribution programme etc. organised and going to organized in next coming month.
- As a Warden: Functions regarding to maintenances of Hostel premises, doors, windows, walls, water supply, sewage, painting, nets, roads, mess, cleaning, gardening and proper listening and settlement of student's grievances related to maintenance, electricity, hostels mess and cleaning etc.

#### **Presentations & Participations in National & Internationals Workshops and Conferences**

One Week Workshop on "Research Methodology for Multidisciplinary Perspectives of Physics" National Department of Physics, DDU Gorakhpur University, Gorakhpur during "June 29, 2021 - July 05, 2021

AICTE Sponsored One Week online Short-Term Training Program, Phase -II on "Energy Management and Control System For Smart Renewable Energy Remote Power Generation" organized by Department of Electrical and Electronics Engineering, AITS, Rajampet during participated and attended, 22-27 March, 2021

Participated in 2nd National Webinar on Frontiers in Basic Physics and Applications, National Barnagar College, Sorbhoj, Assam, 10 July, 2021

**2019** Presented and participated in "13<sup>th</sup> National Conference on Solid State Ionics (NCSSI-13)" organised by Department of Physics, IIT Roorkee, Roorkee. (December 16-18, 2019) on title "Computational Studies of PEO<sub>3</sub>-NaClO<sub>4</sub> Based Solid Polymer Electrolyte for Na-ion Batteries"

**2019** TEQIP-III Sponsored National Conference on "Recent Advances in Mathematics and Scientific Computing (RAMSC-2019)"- organised by Department of Applied Science, Madan Mohan Malaviya University of Technology, Gorakhpur, India (April 5-6, 2019)

**2019** TEQIP-III Sponsored “**National Conference on Recent Advances in Chemical Science (NCRACS-2019)**”, organized by Department of Applied science M.M.M. University of Technology, Gorakhpur held during March 29-30, 2019

**2019 Participated** in MRC “**Malaviya Research Conclave-2019**” organized at M.M.M. University of Technology, Gorakhpur during 24-26 February 2019.

**2018 Participated** in “**National Symposium on Advanced Materials (NSAM-2018)**”, organised by DDUGU, Gorakhpur between December 7-8, 2018

**2018 Participated** in MRC “**Malaviya Research Conclave-2018**” organized at M.M.M. University of Technology, Gorakhpur during during 6-8 July 2018 at M.M.M. University of Technology Gorakhpur.

**2018** TEQIP-III Sponsored “**National conference on Recent Advances in Pure and Applied Mathematics (RAPAM-2018)**”, organised by Dept. of Applied Science M.M.M. University of Technology, Gorakhpur, 12<sup>th</sup>& 13<sup>th</sup>, April 2018

**2017**, “**12th National conference on Solid State Ionics**”, BITS Pilani, Rajasthan, 21-23 Dec, 2017

**2017 Induction Training program and workshop to the teachers for Induction to students**, organised by IIT-BHU, Varanasi from 15 Sept to 17 Sept, 2017

**2017 Participated** in MRC “**Malaviya Research Conclave-2017**” organized at M.M.M. University of Technology, Gorakhpur during 08-11 July, 2017

**2017 Workshop** on “**Pedagogical Training for effective teaching in technical education**” organized By M.M.M. University of Technology, Gorakhpur during 20-22 March, 2017

**2017: One Day workshop on Account and measurement organised by MMMUT**

**2017 Workshop** on “**Pedagogical Training for effective teaching in technical education**” organized by M.M.M. University of Technology, Gorakhpur during 20-22 March, 2017

**2017 “Induction program on effective communication skills”** organized by M.M.M. University of Technology, Gorakhpur during 08-10 March, 2017

**2016 “Visitors Programs”** organized by D/o Physics and Astrophysics, University of Delhi, Delhi

**2015 Oral presented (NCSSI-11):** in “**11<sup>th</sup> National Conference on Solid State Ionics, NCSSI- 2015**, organized by D/o of Physics, Tezpur University on Dec 21-23, 2015

**2014 Oral presented (Australia):** in “**4<sup>th</sup> Asia Pacific Conference on Ionic Liquids & 6<sup>th</sup> Australasian Symposium on Ionic Liquids, 2014**” held at **Sydney, Australia** from Sept. 28-Oct. 1, 2014.

**2014 Oral presented:** Seventh one day conference on “**New Trend in Research**” held at Dept of Physics, B.H.U., Varanasi on Feb 18, 2014

**2014 Participated:** in “**8<sup>th</sup> All India Students' Conference on Science and Spiritual Quest (AISSQ-2014)**”, held at Indian Institute of Technology (BHU), Varanasi, India on February 1 - 2, 2014,

**2013 Poster presented:** in “**10<sup>th</sup> National Conference on Solid State Ionics (NCSSI-10)**” organised by Department of Physics & Meteorology, IIT-Kharagpur on Dec 22-24, 2013.

2013 **Poster presented:** conference on “**Condensed Matter and Biological Systems**” organised by Banaras Hindu University and University of Hyderabad, Hyderabad, Jan 11-14, 2013.

2012 **Oral presented:** Sixth one day conference on “**New Trend in Research**” held at Dept of Physics, B.H.U., Varanasi on Dec 20, 2012.

2012 **Poster presented:** The National Academy of Sciences (India) 82<sup>nd</sup> Annual Session and National Symposium on “**Nano-science & Technology for Mankind**”, Nov 29-Dec 1, 2012, Organized by Banaras Hindu University, Varanasi (India).

2012 **Poster presented:** **Fifth International Conference on “Electroactive Polymers Material & Devices” ICEP-2012** , Nov 4-9, 2012, Organized by Dept. Of Physics, BHU, Varanasi (India).

2012 **Oral presented:** Fifth one day conference on “**New Trend in physics**” held at Dept of Physics, B.H.U., Varanasi on Feb25, 2012.

2011 **Poster presented:** **Ninth National Conference on solid state ionics,NCSSI- 2011** organized by Dept. of Physics & Material Sci & Eng., IIIT, Noida , Dec 15-17, 2011.

2011 **Participated:** Workshop on “**Writing Research Paper**” held on held at Dept of Physics, B.H.U., Varanasi on June 10-11, 2011.

2011 **Participated:** Forth one day conference on “**New Trend in physics**” held at Dept of Physics, B.H.U., Varanasi on March 03, 2011.

2011 **Participated:** Workshop on “**Electronic and ionic materials and devices**” held at Dept of Physics, B.H.U., Varanasi on March 26-28, 2011.

2010 **Participated:** Fourth International Conference on “**Electroactive Polymers : Material & Devices**” ICEP-2010, Nov 21-26, 2010, Surajkund (India)”

2010 **Participated:** Third one day conference on “**New Trend in physics**” held at Dept of Physics, B.H.U., Varanasi on March 30, 2010

2010 **Participated:** Workshop on “**Chemometrics/techniques in vibrational spectroscopy**” Feb 20, 2010, Organised by: Department of Physics, B.H.U, Varanasi, India

2010 **Participated:** Symposium on “**Recent Trends In Biophysics**” Feb 13-15, 2010, “Workshop on Emerging Techniques of Biophysics”: Feb-16, 2010, Organised by: Department of Physich, Banaras Hindu University, Varanasi, India

2010 **Participated:** International Workshop on “**Spectroscopic signatures of Molecular complexes/ions in our atmosphere and beyond**” Feb 2-4, 2010. Organised by: Uday Pratap Autonomous College, Varanasi, India

2010 **Participated :** National Symposium on “**Synthesis, Characterisation and**

**Application of Technologically Important Materials”** (SCATM-2010) Organised by Material Research Society of India, Asia-Pacific Academy of Materials(BHU Chapter) Jan 5-6,2011,Banaras Hindu University, Varanasi, India

**2009 Poster Presented:** 8<sup>th</sup> National Conference on “**Solid State Ionics: Materials for Novel Devices**”, Dec 7<sup>th</sup>-9<sup>th</sup> 2009 Organised by: Department of Physics, Dr. Hari Singh Gaur University (Central University), Sagar (M.P.) India

**2009 Participated:** Symposium on “**Recent Advances in Nano-Materials and their Applications**” March 7<sup>th</sup>-9<sup>th</sup>, 2009, Organised by: DST Nanoscience and Technology centre/ Unit, Banaras Hindu University, Varanasi, India

**2008 Participated:** National symposium on ULTRASONICS December 4<sup>th</sup>-6<sup>th</sup>, 2008, Organised by Department of Physics, Banaras Hindu University, Varanasi, India

### **Achievements, Awards and Prizes**

**2023: Associate Professor, Regular, Harcourt Butler Technical University, Kanpur, UP, India 208002.**

**2016: Assistant Professor, Regular, Madan Mohan Malaviya University of Technology, Gorakhpur, UT, India 2016-23.**

**2016: Selected for Assistant Professor, Regular, Public Service Commission, Govt. of Bihar, Bihar**

**2015: UGC- Dr. D. S. Kothari, Postdoctoral Fellowship Award, UGC-New Delhi, India, 2015**

**2013 Young Scientist Award: in “10<sup>th</sup> National Conference on Solid State Ionics (NCSSI-10)” for Best poster presentation**, organised by Department of Physics & Meteorology, Indian Institute of Technology (IIT)-Kharagpur on Dec 22-24, 2013.

**2013 C.S.I.R. Senior Research Fellowship** –by Council of Scientific & Industrial Research (CSIR) New Delhi, INDIA

**2013 U.G.C.-Research Fellowship in Science for Meritorious Student (RFSMS)** - from 21 Jan, 2013 – 31 March, 2013, by University Grant Commission (UGC), New Delhi, INDIA

**2012 C.S.I.R.-National Eligibility Test** Qualified Certificate June-2012 (ROLL NUMBER:-526622) held by Council of Scientific & Industrial Research, New Delhi, INDIA

**2011 C.S.I.R.-National Eligibility Test** Qualified Certificate June-2011 (ROLL NUMBER:-526433) held by Council of Scientific & Industrial Research, New Delhi, INDIA

**2011 Most active interacting participant award:** in deliberation of Workshop on “**Writing Research Paper**” held at Dept of Physics, B.H.U., Varanasi on June 10-11, 2011

**2010 Graduate Aptitude Test Entrance (G.A.T.E.)** Qualified Certificate, (ROLL NUMBER:- 5553382, SCORE:-351, A.I.R.-713) Organised by Indian Institute of Technology (IIT)- Guwahati, INDIA

2009 **C.S.I.R.-National Eligibility Test** Qualified Certificate December-2009 (ROLL NUMBER:-514214) held by Council of Scientific & Industrial Research, New Delhi, INDIA

2009 **Joint Entrance Screening Test (J.E.S.T.)** Qualified Certificate - ( ROLL NUMBER:-P0900771,A.I.R.-69) Organised by **ARIES**, INDIA

2009 **Graduate Aptitude Test Entrance** Qualified Certificate, (ROLL NUMBER: - PH3480248, SCORE: 323) Organised by Indian Institute of Technology (**IIT**)-Roorakee, INDIA

2008 **C.S.I.R.-National Eligibility Test** Qualified Certificate December-2008 (ROLL NUMBER:- 505051 ) held by Council of Scientific & Industrial Research, New Delhi, INDIA

2008 **N.A.S.I.-Junior Research Fellowship** from National Academy of Sciences, Allahabad, INDIA

2008 **C.S.I.R.-National Eligibility Test** Qualified Certificate June-2008 (ROLL NUMBER :-503234) held by Council of Scientific & Industrial Research, New Delhi, INDIA

2005 **Best Quiz and Poster award** For Quiz and Poster Competition in D.D.U.Gorakhpur, University, and Organised by Deen Dayal Upadhyay Gorakhpur University, Gorakhpur, INDIA