BIO-DATA

Summary:

Dr. Amitesh Kumar has been working in the area of semiconductor devices for applications in Memory, Solar Cells, Biosensors, Power Electronics etc, since 2014.

He has **36 SCI journals** with **4 Patents** (**2 granted**, 2 published) along with 12 International and 24 National conferences papers and 11 book chapters. **2 PhD students** have submitted thesis under his guidance. **1 DST project of 29 Lacs** running and 2 ISRO projects in communication. List of Publications is attached.

His works have been published in reputed SCI journals, including 6 works on IEEE Transactions**.** Recently, one of his works on synaptic devices was accepted in IEEE Transactions on Electron Devices. **Device Engineering of Dual Metal Gate-based Artificial Synapse for Enhanced Plasticity utilizing Al2O3 based Ion Conducting Electrolyte.**

Dr. Amitesh Kumar has done his B.Tech in Electrical Engineering from **Indian Institute of Technology, BHU** .He did his Ph.D. in Electrical Engineering from **Indian Institute of Technology, Indore**. He did his Postdoc Research from **University of Utah, USA** and **Indian Institute of Technology, Kanpur.**

He has been a Research Fellow awardee from **CSIR, Govt. of India**. He is currently working as Assistant Professor in Electrical Engineering at National Institute of Technology, Patna.

He has been awarded SCJP, CCNA, CCNP, ACP by respective organisations. He has also been recipient of multiple research awards for Best Presentation, DST & CSIR International Travel Support etc.

Research Interests:

Semiconductor devices for applications in Memory, Solar Cells, Biosensors, Power Electronics Neuromorphic Computing

1. ***Name and full correspondence address with contact details***

Dr. Amitesh Kumar

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Google Scholar: https://scholar.google.co.in/citations?user=lIQ7ERIAAAAJ&hl=en&authuser=2

ORCID ID : https://orcid.org/0000-0003-1315-3922

2. *Institution* : *National Institute of Technology (NIT), Patna, India*

3. *Academic Qualification*

- **Education**

S/N	Degree	Year	Subject	University/ Institution	% of Marks
1.	B. Tech	May, 2009	Electrical Engineering	Indian Institute of Technology, BHU	CPI 7.4

B. Tech Project title: *Study of Cluster Based Routing Protocol for Mobile Adhoc Networks (MANETS) And performance comparison of pro-active and reactive protocol*

Name of Project Supervisor (s) and his affiliation

1. **Prof. S.C. Gupta, Electrical Engineering, IIT-BHU**
   scgupta.eee@iitbhu.ac.in, scgupta_bhu@yahoo.com
   https://www.researchgate.net/profile/Suresh_Gupta5

2.	XII	May, 2004	English, Mathematics, Physics, Chemistry	BSEB	73.8 %
3.	X	May, 2002	English, Hindi, Mathematics, Science, Social Science, Computer studies	ICSE	92.6 %

8. *Ph.D thesis title, Guide's Name, Institute/Organization/University, Year of Award.*

S/N	Degree	Year	Subject	University/ Institution	% of Marks
1.	Ph. D.	May, 2019	Electrical Engineering	Indian Institute of Technology, Indore	CPI 7.82

Ph.D thesis title: *Fabrication and modelling of ZnO based resistive switching devices for non-volatile memory applications*

Name of Thesis Supervisor (s) and their affiliation

1. **Dr. Shaibal Mukherjee, Electrical Engineering, IIT Indore**
   shaibal@iiti.ac.in
   http://www.iiti.ac.in/people/~shaibal/leader.php

2. **Prof. Abhinav Kranti**, **Electrical Engineering, IIT Indore**
   akranti@iiti.ac.in
   http://people.iiti.ac.in/~akranti/

9. *Work experience (in chronological order).*

- **Industrial Experience**

Positions held	Name of the Institute	From	To	Pay Scale
1. Software Engineer	Verizon Data Services India (VDSI)	12-08-2009	03-12-2010	6.5 lacs per annum

Role & Responsibilities: Data-mining for Fios TV (Verizon, USA) for targeted marketing, implementing Lua scripts for Fios TV, web-services and web development/management

- **Entrepreneurship Experience**

	Positions held	Name of the Institute	From	To	Pay Scale
1.	**Senior Analyst**	Vihar IT Solutions Pvt. Ltd.	03-03-2011	30-07-2013	Owner of company

Role & Responsibilities: Entrepreneurship experience, Company management, Technical consultancy for software and web solutions

- **Research Experience**

	Positions held	Name of the Institute	From	To	Pay Scale
1.	**CSIR, Junior Research Fellow (JRF)**	Indian Institute of Technology (IIT) Indore	22 July 2014	July 2016	INR 25000.00 per month + HRA

Role & Responsibilities: Deposition & characterization of micro- and nano-structured materials, and to apply this knowledge in realizing advanced tools and devices

2.	**CSIR, Senior Research Fellow (SRF)**	Indian Institute of Technology (IIT) Indore	July 2016	Jan 2019	INR 28000.00 per month + HRA

Role & Responsibilities: Experimental fabrication, characterization, and modelling of RRAMs/Memristor for the application of non-volatile memory and neuromorphic applications

3.	**Postdoc Research Scientist**	University of Utah USA	Jan 2019	Sep 2019	USD 55,000 per annum

Role & Responsibilities: Broadly doing research related to emerging device technologies, digital design, and design automation and specifically utilizing Non-Volatile Memories (NVMs) like Resistive Random Access Memory (RRAM) in reconfigurable logic circuits, such as Field-Programmable Gate Arrays (FPGAs)

4.	**Postdoc Research Scientist**	Indian Institute of Technology Kanpur	Sep 2019	Feb 2020	INR 70000 per month

Role & Responsibilities: Optimization of various parameters of solar cells and corresponding modelling to analyze various performance parameters.

- **Academic Experience**

	Positions held	Name of the Institute	From	To	Pay Scale
1.	**Assistant Professor**	National Institute of Technology (NIT) Patna	Feb 2020	Till Present	Grade Pay, Level 11

Role & Responsibilities: Teaching and supervising laboratories of several subjects at Electrical Engineering Dept. as well working as in-charge of several institutional/departmental responsibilities and carrying out research in concerned field.

10. *Professional Recognition/ Award/ Prize/ Certificate/Fellowship received by the applicant.*

- **Research Awards**

1. **DST International Travel Support** to attend and present paper in *20th International Conference on Superlattices, Nanostructures and Nanodevices (ICSNN2018), Madrid, Spain, July 23-26, 2018*

2. **Best Presentation award**, *6th International Symposium on Integrated Functionalities***,** *December 10-13***,** *2017*

3. **CSIR International Travel Support** to attend and present paper in *Materials Research Society (MRS) Spring Meeting, Phoenix, Arizona, USA, April 2-6, 2018*

4. **MPCST International Travel Support** to attend and present paper in *34th International Conference on the Physics of Semiconductors (ICPS 2018), Montpellier, France, 2018*

5. **Indian Institute of Kanpur, Institute Postdoc Fellowship Award** to carry out research in Materials Science and Engineering Dept. for two years

6. **DST National Postdoc Fellowship Award 2020**

➢ Academic Achievements

	Name of Award	Awarding Agency	Year
1.	**Autodesk Certified Professional (ACP) (Score: 957/1000, Certiport ID: 90065872)**	*Autodesk*	*2018*
2.	**Senior Research Fellowship**	*CSIR*	*2016- 19*
3.	**Junior Research Fellowship**	*CSIR*	*2014-16*
4.	**CSIR Fellowship award**	*CSIR*	*2014*
5.	**Sun Certified Java Programmer (SCJP) (Score: 90 %, Candidate ID: SR3198768, Registration ID:PC0SYD5218)**	*Sun Professional*	*2008*
6.	**Cisco Certified Network Associate (CCNA) (Score: 947/1000 in Exam 640-802, Cisco ID: CSCO11459282; Registration ID: 226180540)**	*Cisco*	*2008*
7.	**Cisco Certified Network Professional (CCNP), BSCI & BCMSN (Score: 981/ 1000 in Exam 642-892)**	*Cisco*	*2008*

➢ Certification Courses completed

	Name of Award	Awarding Agency	Year
1.	**Reliability Engineering and Asset Management**	*Global Initiative of Academic Networks (GIAN), MHRD, India*	*2018*
2.	**Media Security and Forensics**	*Global Initiative of Academic Networks (GIAN), MHRD, India*	*2018*
3.	**Energy, Education, and Innovation**	*Global Initiative of Academic Networks (GIAN), MHRD, India*	*2018*
4.	**Advanced Pattern Recognition Techniques for Biometrics**	*Global Initiative of Academic Networks (GIAN), MHRD, India*	*2018*
5.	**Fundamentals of Solid State Physics: From Theoretical and Computational Concepts to Recent Applications in Information Technology**	*Global Initiative of Academic Networks (GIAN), MHRD, India*	*2018*
6.	**Economics of Science, Technology and Innovation: Empirical Approaches and Randomized Control Trials (RCTs)**	*Global Initiative of Academic Networks (GIAN), MHRD, India*	*2018*

7. **Inorganic chemistry of imaging: Magnetic resonance and optical imaging with coordination complexes** *Global Initiative of Academic Networks (GIAN), 2018 MHRD, India*

8. **Computationally Aided Materials Designing for Materials Genome** *Global Initiative of Academic Networks (GIAN), 2018 MHRD, India*

11. Projects

- **Projects**

	Project Title	Sponsoring Agency Institute	From	To	Amount
1.	Bio-inspired Electronic Synaptic Cells for Neuromorphic and Bio-medical applications	DST-SERB	Feb 2022	Till now	INR 28.5 Lakhs

[File No: SRG/2021/002110]

Project Highlights: The project works towards designing high-speed, high-density, highly-scalable, energy-efficient electronic synaptic cells, which can be utilized primarily for data storage and neuromorphic applications. It aims to identify and design an emerging non-volatile memory (NVM) technology, i.e., Memristor or Resistive Random Access Memory (RRAM) in the form of functional hybrid Memristor Crossbar-Array/CMOS System

2.	DST Training Program on Entrepreneurship	DST	July 2021	Till Now	INR 3.6 Lakhs

Project Highlights: DST Training Program on Entrepreneurship through Innovation and Entrepreneurship Division and Training Program on Entrepreneurship Scheme

13. *Any other Information (maximum 500 words)*

- **Internship/training**

	Name of company	Purpose	Year
1.	**Jetking Newdelhi**	*To install, configure, operate, and troubleshoot medium-size routed and switched networks, including implementation and verification of connections to remote sites in a WAN(wide area network)*	*2006*
2.	**Uttar Pradesh Power Corporation Limited (UPPCL), Azamgarh**	*Summer training at a sub-station of UPPCL, Azamgarh for around eight weeks*	*2009*

- **Technical workshop/events attended/invited**

	Name of Workshop/Events	Organizing Agency	Year
1.	**Engineering Education & Research Seminar, Radisson Blu Indore, India November 27, 2017 (Invited)**	*National Instruments*	*2017*
2.	**Friends of MP Conclave, Hotel Marriott, Indore, Jan. 3-4 2018 (Invited)**	*Govt. of Madhya Pradesh, India*	*2018*
3.	**18th International Workshop on The Physics of Semiconductor Devices (18th IWPSD), IISc, Bangalore, India, December 7-10, 2015**	*IWPSD*	*2015*

- **Social activities**

	Name of Award	Awarding Agency	Year
1.	**Rashtriya Avishkar Abhyan, Teaching Portal**	*Ministry of Human Resource and Development*	*2016*
2.	**Swachh Bharat Summer Internship 2018 Summer Internship**	*Unnat Bharat Abhiyan*	*2018*

- **Extra-curricular activities**

	Name of Award	Awarding Agency	Year
1.	**Yoga Therapy certification**	*DAVV, Govt. of Madhya-Pradesh*	*2018*
2.	**4th Edition Indore Marathon, 10 km**	*Academy of Indore Marathoners*	*2018*
3.	**Lotus 10k Run 2018**	*Indore Super Chargers*	*2018*
4.	**Cycle Marathon 50 km , 2018**	*Youjustrun*	*2018*

- **Affiliation to Professional Organizations**

	Name of Organization	Affiliation status
1.	**IEEE**	*Member (94148943)*
2.	**Indian Laser Association**	*Life Member (LM-1262)*
3.	**VIBHA (Vijnana Bharati)**	*Life Member (21101)*
4.	**Plasma Science Society of India (PSSI)**	*Life member (LM-1542)*
5.	**The Institute of Engineers (India)**	*Chartered Engineer (AM1839643)*
6.	**Indian Science Congress Association, ISCA, India**	*Life Member (L37164)*
7.	**Material Research Society, USA**	*Member (phd1401102003)*

- **Technical reviewer in journals**

	Name of journal
1.	**IEEE: Transactions on Nanotechnology**
2.	**AIP: Applied Physics Letters**
3.	**IEEE: Transactions on Computer-Aided Design of Integrated Circuits and Systems**
4.	**IET: Circuits, Devices & Systems**
5.	**Wiley : Advanced Electronics Materials**
6.	**Elsevier : Superlattices and Microstructures**

7. **AIP: Journal of Applied Physics**

- **Scientific contributions in magazines**

Name of Magazine

1. **Brainfeed Higher Education Plus**

- **Nanodevice fabrication/processing/characterization/modelling expertise**

1. **Device fabrication techniques**
   a) Dual Ion Beam Sputtering (DIBS), b) Electrodeposition, c) Hydrothermal method d) Spin-coating

2. **Device processing methods**
   a) Rapid Thermal Processing (RTP) Annealing

3. **Device characterization instruments hands-on**
   a) Keithley 4200A-SCS Parameter Analyzer, b) Keithley 2612A Sourcemeter, c) B1500 Keysight, d) Hioki 3532–50 LCR Hi-Tester, e) Variable-angle/wavelength Spectroscopic Ellipsometry, f) Cryogenic Vacuum Probe-station, g) Quantum Efficiency Measurement System, h) Solar Simulator System.

4. **Device modelling software experience**
   Matlab, COMSOL, Silvaco, Orcad-PSPICE, Quantum espresso

5. **Designing masks for semiconductor devices**
   AUTOCAD

6. **Device design (Digital design) and automation**
   PSPICE

7. **Device (Wafer/die) packaging**
   Wire-bonding (MEI1204W)

8. **Device (Wafer/die) testing**
   Probe-card (GGB), Probe-station, B1500 Semiconductor Device Parameter Analyzer

- **Other technical skills**

1. **Software skills**
   C, Data Structure, Core Java (SCJP 5.0) J2EE(servlets, jsp), C#.net

2. **Website building**
   PHP, Javascript, Asp.net, HTML

3. **Database management system**
   Sql-server 2008

4. **Networking**
   LAN management
   1. Routing: Routing protocols (RIP, EIGRP, OSPF, BGP), IP multicast design models
   2. Switching : Campus network model, STP ,VLAN ,multilayer switching, switch security

   WLAN management
   Access Points (AP), Lightweight AP operation, AP association and roaming

Important Research Achievements

1. **Using cost-effective Al electrode against expensive Pt electrodes to give Non-volatile Memory (NVM) Solution**
2. **Evading the process of electroforming in RRAM using material engineering methods to give high-performance NVMs**
3. **Universal and novel analytical model of RRAM to design RRAMs using wide range of switching materials and electrodes**
4. **Creating a Cluster-Based Routing Protocol for Mobile Adhoc Networks (MANETs) to establish adhoc networks in any isolated area devoid of network infrastructure**
5. **Organic material based RRAM device to give an eco-friendly Non-Volatile Memory (NVM) solution**

Organizing important research seminar, workshop etc.

1. FDP course **"Next-Generation Semiconductor Devices for high-end applications " (22nd-27th June 2020) was organized at Dept. of Electrical Engineering, NIT Patna**

   Coordinator: Dr. Amitesh Kumar

2. FDP course **"Renewable Energy: Research to Industry " (22nd-Aug. 13th Sep. 2020) was organized at Dept. of Electrical Engineering, NIT Patna**

   Coordinator: Dr. Amitesh Kumar

3 FDP course **"Electrical Vehicles and Mobility " from 24-01-2022 to 04-02-2022 was jointly organized by NIT Patna, MNIT Jaipur, IIIT Jabalpur**

   Coordinator: Dr. Amitesh Kumar (NIT Patna)

4 FDP course **Next-generation Applications in Electrical and Electronics Engineering" from 15th September to 20th September "** from **24-01-2022 to 04-02-2022 was organized at Dept of Electrical Engineering, NIT Patna**

   Coordinator: Dr. Amitesh Kumar (NIT Patna)

5. FDP course **"Blockchain Technology for Next-Generation Applications"** from **19th June 24th June 2023 was organized at Dept of Electrical Engineering, NIT Patna**

   Coordinator: Dr. Amitesh Kumar (NIT Patna)

6 FDP course **"Research Methodology For Social Sciences, Engineering and Management: NEP 2020 (RMSSEM 2023)"** from **10th July- 14th July 2023 was organized NIT Patna**

   Coordinator: Dr. Amitesh Kumar (NIT Patna)

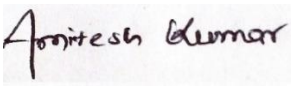
Ongoing Project

1. **Project Title : Bio-Inspired Synaptic Cells for Neuromorphic and Biomedical Applications**
   Project File No: SRG/2021/002110
   Funding Agency: Department of Science & Technology
   Amount of Project: 2900000.00

Collaborative work with different groups

1. **Hybrid Nanoelectronics Research Group** **Experimental fabrication (Ph.D. Lab)**

2.	**RMIT, Australia**	**Micro/nano fabrication facility**
3.	**Shinshu University, Japan.**	**HR-TEM**
4.	**Low Power Nanoelectronics Research Group, IIT, Indore**	**Modelling and simulation (Ph.D. Lab)**
5.	**Supramolecular Chemical Nanoscience Group, IIT Indore**	**Organic material synthesis**
6.	**RRCAT, Indore**	**Beamline facility**
7.	**SNU, Noida**	**AFM facility**

Place: **NIT Patna, India** **Signature** 

List of Publications/Projects

List of Project/Publications/Conference Proceedings/Patents/Book Chapters	
i)	**List of Projects (Running)**
	Project Title : Bio-Inspired Synaptic Cells for Neuromorphic and Biomedical Applications Project File No: SRG/2021/002110 Funding Agency: Department of Science & Technology Amount of Project: 2900000.00
ii)	**Google Scholar Profile** **Citations 564 h-index 13 i10-index 16** **Q1 Journals: 19 Q2 Journals: 14 Q3 Journals: 1**
iii)	**List of Patents (Granted)**
1	Dual-ion beam sputtered cost-effective and non-volatile resistive memory devices Inventors: Shaibal Mukherjee and **Amitesh Kumar**, Patent Application No. 201621020046, March 24, 2023 (Status: Granted).
2.	A System For Maximum Power Optimization Of Fuel Cell Inventors: **Amitesh Kumar** and Balmukund Kumar, Patent Application No. 202331026979, October 10, 2023 (Status: Granted).
iv)	**List of Patents (Published)**
3.	A Field Effect Transistor Based Biosensor Device For Detection Of Cancer Cell, *Application No.: 202331035246*, Inventors: **Amitesh Kumar**, Anirban Kolay, *Filed Date: 19th May 2023,* (Status: Published)
4.	ΠI-Conjugated Compound For Resistive Switching Device, and method of fabrication Inventors: Apurba K. Das, Shaibal Mukherjee, Rohit Jadhav and **Amitesh Kumar**, Patent Application No. 201921027542, Jan 15, 2021 (Status: Published).
v)	**Publications in International Journals**
1.	Anirban Kolay; **Amitesh Kumar** Liver cancer rapid-testing POC low-cost diagnostic unit using novel dual-gate source-extended TFET based biosensor. Sensors Actuators A. Phys. 369, 115131 (2024**). Sensors and Actuators : A . Physical (Impact factor: 4.6, Q1)** https://doi.org/10.1016/j.sna.2024.115131
2.	Reetwik Bhadra, Ramesh Kumar, **Amitesh Kumar,** Device Engineering of Dual Metal Gate-based Artificial Synapse for Enhanced Plasticity utilizing Al2O3 based Ion Conducting Electrolyte" **IEEE Transactions on Electron Devices, 2024 (Impact factor: 3.1 Q2)** (DOI: 10.1109/TED.2024.3367663).
3.	Rahul Kumar, **Amitesh Kumar,** Effective-diode-based analysis of industrial solar photovoltaic panel by utilizing novel three-diode solar cell model against conventional single and double solar cell**. Environmental Science and Pollution, 2024** DOI:10.1007/s11356-024-32474-z. **(Impact factor: 5.8, Q1)**
4.	Pritam Kumar and **Amitesh Kumar,** Device engineering of lead-free double perovskite (Cs 4 CuSb 2 Cl 12 & Cs 2 AgBiBr 6)/crystalline silicon high-performance eco-friendly tandem solar cells, **Silicon**, 2024 **(Impact factor: 2.9, Q2)**
5.	Parshuram Singh , **Amitesh Kumar**, Device Engineering of Highly-Efficient Eco-Friendly Novel $FASnI_3$ Based Tandem Photovoltaic Cells. **Silicon** (2023) **(Impact factor: 2.9 Q2)**. https://doi.org/10.1007/s12633-023-02717-8
6.	Pritam Kumar and **Amitesh Kumar**, High - performance optimization and analysis of Cs 2 AgBiBr 6 - based lead - free double perovskite solar cells, **Journal of Materials Science: Materials in Electronics**. 34, 1810 (2023), https://doi.org/10.1007/s10854-023-11225-9 **(Impact Factor:** 2.8 **Q2**)

7.	Parshuram Singh , **Amitesh Kumar**, Device engineering of double perovskite based solar cells towards high-performance, eco-friendly solar cells, **Optical and Quantum Electronics** 55 (4), 304 https://doi.org/10.1007/s11082-023-04580-8 **(Impact Factor:** 2.79 **Q2**)
8.	Anirban Kolay; **Amitesh Kumar** A Novel Liver Cancer POC Diagnostic Detection Technique by a Gate-engineered Source-extended TFET Device. **Medical Engineering and Physics (Impact factor: 2.2 Q3)**
9.	Chinmay Bera, Rajib Kumar Mandal, **Amitesh Kumar**. *A Novel Redacted Extended Kalman Filter and Fuzzy Logic-Based Technique for Measurement of State-of-Charge of Lithium-Ion Battery*. Journal of Electrochemical Energy Conversion and Storage. 2024 Nov 1;21(4). . **(Impact factor: 2.5 Q2)**
10.	Pritam Kumar and **Amitesh Kumar**, Design And Optimization Of High-Performance Eco-Friendly Perovskite Solar Cells: Utilizing Famasngei3 & Csgei3 As Absorbers And Tuning HTL & Interface Parameters, **International Journal of Modern Physics B** . **(Impact factor: 2.0 Q2)**
11.	Balmukund Kumar, **Amitesh Kumar**, *A Novel Adaptive Flower Pollination Algorithm for Maximum Power Tracking of Photovoltaic Systems under Dynamic Shading Conditions*", **Iranian Journal of Science and Technology, Transactions of Electrical Engineering, (Impact factor: 2.0 Q2)**
12.	Deepti, P. S. Mondal, C. Pal, **Amitesh Kumar**, and S. Majumder, "Label-free ultrasensitive electrochemical dopamine sensor fabrication using a low-cost pencil graphite electrode," ***Colloids And Surfaces A-Physicochemical And Engineering Aspects***. *Eng. Asp.*, vol. 671, no. February, p. 131630, 2023, https://doi.org/10.1016/j.colsurfa.2023.131630. **(Impact factor: 5.2 Q1)**
13.	Sanjay Kumar, D. Kumbhar; Mayank Dubey, **Amitesh Kumar,** Tukaram D. Dongale, Somanath D. Pawar, and Shaibal Mukherjee Exploring Statistical Approaches for Accessing the Reliability of Y2O3-based Memristive Devices, **Microelectronic Engineering, (Impact factor: 2.3 Q2)**
14.	Aaryashree, Pratik V. Shinde, **Amitesh Kumar,** Dattatray J. Late and Chandra Sekhar Rout, *Recent advances in 2D black phosphorus based materials for gas sensing applications*, **J. Mater. Chem. C**, Vol. 9, pp. 3773-3794, Feb. 2021, **10.1039/D0TC05565D (Impact factor: 7.05 Q1)**
15.	Mangal Das, **Amitesh Kumar**, Sanjay Kumar, Biswajit Mandal, Gaurav Siddharth, Pawan Kumar, Myo Than Htay, and Shaibal Mukherjee, *Impact of interfacial SiO2 on dual ion beam sputtered Y2O3-based memristive system*, **IEEE Transactions on Nanotechnology**, vol. 19, no. 153134, pp. 332-337, May 1, 2020 (**Impact Factor: 2.86 Q2)** 10.1109/TNANO.2020.2987200
16.	Mangal Das, **Amitesh Kumar**, Sanjay Kumar, Biswajit Mandal, Md Arif Khan and Shaibal Mukherjee, *Effect of Surface Variations on the Performance of Yttria based Memristive System*, **IEEE Electron Device Letters**, vol. 39, no. 12, pp. 1852-1855, December 2018. **(Impact factor: 3.43 Q1) 10.1109/LED.2018.2878953**
17.	Brajendra S. Sengar, Vivek Garg, **Amitesh Kumar**, Praveen Dwivedi, *Numerical Simulation: Design of High-Efficiency Planar p-n Homojunction Perovskite Solar Cells*, **IEEE Transactions on Electron Devices**, Volume: 68, Issue: 5, pp. 2360 - 2364, March 2021, **IEEE**, DOI: 10.1109/TED.2021.3066454**(Impact factor: 3.1 Q2)**
18.	Brajendra S. Sengar, Vivek Garg, Gaurav Siddharth, **Amitesh Kumar**, Sushil Kumar Pandey, Mayank Dubey, VictorV. Atuchin, Shailendra Kumar, and Shaibal Mukherjee, *Improving the Cu2ZnSn(S,Se)4-based photovoltaic conversion efficiency by back contact modification*, **IEEE Transactions on Electron Devices**, Volume: 68, Issue: 6, pp. 2748 – 2752, April 2021, **IEEE**, DOI: 10.1109/TED.2021.3071105**(Impact factor: 3.1 Q2)**
19.	Md Arif Khan, Rohit Singh, Ritesh Bhardwaj, **Amitesh Kumar**, Amit Kumar Das, Pankaj Misra, Abhinav Kranti, and Shaibal Mukherjee, *Enhanced sheet charge density in DIBS grown CdO alloyed ZnO buffer based heterostructure*, **IEEE Electron Device Letters**, vol. 39, issue 6, pp. 1-4, June 2018. **(Impact factor: 3.048 Q1) 10.1109/LED.2018.2829761**
20.	Praveen Dwivedi, Rohit Singh, Brajendra S. Sengar, **Amitesh Kumar**, Vivek Garg, *A New Simulation Approach of Transient Response to Enhance the Selectivity and Sensitivity in Tunneling Field Effect Transistor-Based Biosensor*, **IEEE Sensors**, Volume: 21, Issue: 3, pp. 3201 - 3209, Feb 2021, **IEEE**, DOI: 10.1109/JSEN.2020.3028153 **(Impact factor: 2.36 Q1)**

21.	Vivek Garg, Brajendra S. Sengar, Pankaj Sharma, **Amitesh Kumar**, Aaryashree, Shailendra Kumar, Shaibal Mukherjee, *Sputter-instigated plasmon-enhanced optical backscattering layer in ultrathin solar cells: Application of GZO in CIGSe material system*, **Solar Energy**, vol. 174, pp. 35-44, September 2018. **(Impact factor: 4.37 Q1)** **https://doi.org/10.1016/j.solener.2018.08.074**
22.	Vivek Garg, Brajendra S. Sengar, Vishnu Awasthi, **Amitesh Kumar**, Rohit Singh, Shailendra Kumar, C. Mukherjee, V. V. Atuchin, and Shaibal Mukherjee, *Investigation of dual-ion beam sputter-instigated plasmon generation in TCOs: A case study of GZO*, **ACS Applied Materials and Interfaces**, vol. 10, no. 6, pp. 5464−5474, January 2018. **(Impact factor: 7.5 Q1)** **https://doi.org/10.1021/acsami.7b15103**
23.	Brajendra S. Sengar , Vivek Garg , **Amitesh Kumar** , Shailendra Kumar , and Shaibal Mukherjee, *Surface layer investigation of dual ion beam sputtered Cu2ZnSn(S,Se)4 thin film for open circuit voltage improvement*, **Journal of Physics D: Applied Physics,** vol. 51, no. 31LT01, pp. 1-16, July 2018. **(Impact factor: 2.588 Q1)** **https://doi.org/10.1088/1361-6463/aacf13**
24.	Vivek Garg, Brajendra S. Sengar, Vishnu Awasthi, **Amitesh Kumar**, Sushil K. Pandey, Shailendra Kumar, Mukul Gupta, and Shaibal Mukherjee, *Investigation of valence electron excitation and plasmonic enhancement in sputter grown NMZO thin films: For energy harvesting applications*, **Optical Materials**, vol. 88, pp. 372-377, December 2018. **(Impact factor: 2.320 Q1)** **https://doi.org/10.1016/j.optmat.2018.12.002**
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vi) Publications in International Conferences:	
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4.	**Amitesh Kumar**, Mangal Das, Brajendra S. Sengar, Biswajit Mandal, Rohit Singh, Abhinav Kranti and Shaibal Mukherjee, *Novel forming-free resistive memory based on dual ion beam sputtering engineered oxygen vacancies/interstitial defects in ZnO*, **Materials Research Society (MRS) Spring Meeting, Phoenix, Arizona, USA**, April 2-6, 2018.
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11.	**Amitesh Kumar**, Mangal Das, Sanjay Kumar, Ruchi Singh, Pawan Kumar, Abhinav Kranti and Shaibal Mukherjee, *Dual Ion Beam Sputtered RRAMs Exhibiting Quantum Conductance* , **Materials Research Society (MRS) Spring Meeting, Phoenix, Arizona, USA**, April 22-26, 2019.
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17	Prabhakar Kumar; Rajnish Kumar; Balmukund Kumar; **Amitesh Kumar Design of a High Performance PMSM for Electric Vehicles, 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET), June 2022, NIT Patna**
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24	Anirban Kolay; Parshuram Singh; Reetwik Bhadra; **Amitesh Kumar** *Dielectrically modulated source side cavited SOI FET-Based Bio-sensor,* **2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET), June 2022, NIT Patna**