

RIE BHOPAL, Faculty Profile (Last five years from 2019-2025)

Full Name:	Dr. Santosh Kumar			
Designation:	Associate professor			
Department:	Department of Education in Science and Mathematics			
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Education Qualification:	M.Sc. (Physics), Ph.D.			
Teaching Experience:	12	Research Experience:	12	
Academic Identity: (i) ORCID Id with web link: 0000-0002-4695-7583, https://orcid.org/0000-0002-4695-7583 (ii) Scopus Author Id with web link (iii) Researcher Institutional ID with web link (iv) Google Scholar Id with web link : Santosh Kumar, https://scholar.google.com/citations?hl=en&user=OPeD3CwAAAAJ (v) Vidwan Id: with web link (vi) Research gate Id with web link				
Research Interest and Fields of Specialization Fabrication of Ohmic and Schottky contacts to semiconductor materials like GaN, SiC and their characterization using current-voltage, capacitance-voltage, DLTS, etc. and study of effect of ion beams irradiation on ohmic and Schottky contacts. Science education, ICT				
Member of Academic Institutions (Board of Studies / Research Degree Committee/School Board) Present/ Past BOE, RIE, Mysore BOE, JSS college Mysore				

1. Membership of different Organizations

Indian Association of Physics Teacher

2. Research Supervision

(No. of Ph.D. Degree Awarded _____NIL_____ and Registered _____NIL_____)
 (Number of M.Phil awarded in _____NIL_____)

3. Research Projects (Completed and ongoing with title, type, fund allocated, duration and name of the funding agency)

(Title, Type, Fund Allocated, Duration, and Name of the Funding Agency)

S. No.	Title	Type	Fund Allocated	Duration	Funding Agency	Status
1	To Study the Utilization and Effectiveness of the Educational Kits	Principal Investigator (PI)	NCERT, New Delhi	2017–2019	NCERT, New Delhi	Completed
2	Hunsur Block Level Study	Member	NCERT, New Delhi	2019–2020	NCERT, New Delhi	Completed
3	Studies on Ion Beams Induced Defects in GaN Schottky Interface (MS)	Co-Principal Investigator (Co-PI)	Allocated by IUAC	2018–2020	IUAC, New Delhi	Completed
4	Studies on Ion Beams Induced Defects in GaN Schottky Interface (LEIBF)	Co-Principal Investigator (Co-PI)	Allocated by IUAC	2018–2020	IUAC, New Delhi	Completed
5	Studies on Ion Irradiation Effects on the Properties of 4H-SiC/Pd Schottky UV Photodetector (MS)	Co-Principal Investigator (Co-PI)	Allocated by IUAC	2020	IUAC, New Delhi	Completed
6	The Programme Evaluation Study of Vidya Pravesh in 30 States/UTs (Gujarat)	Member	NCERT, New Delhi	2024–2025	NCERT, New Delhi	Completed
7	Ion Implantation for Enhancing Surface Charge Density of Triboactive Materials: Towards Sustainable Energy Harvesting (LEIBF + Material Science)	Principal Investigator (PI)	Allocated by IUAC	2024	IUAC, New Delhi	Ongoing

4. Administrative Experience

I/C, Physics section, RIE, Mysore

I/C, Physics Section, RIE, Bhopal

5. Scientific Visits Abroad/ International Collaboration

NIL

6. Conference/Symposium/Workshop Attended during (2019-2025)

- Impact of 700 keV Oxygen Ion Irradiation on the Electrical Performance of Ni/Ru/n-GaN Schottky Barrier Diodes, **Santosh Kumar**, M Vinay Kumar, S Krishnaveni, International Conference on Ion Beams in Materials Engineering and Characterization (IBMEC 2024) December 03-06, 2024 Inter-University Accelerator Centre, New Delhi, India.

2. Low dose gamma irradiation effects on the electrical properties of Ni/p dose gamma irradiation effects on the electrical properties of Ni/p-GaN SBDs, Kruthika Krishnappa, **Santosh Kumar**, M. Vinay Kumar, K. Asokan, and S.Krishnaveni,ICOAM-2021, DOS in Physics SVU Tirupati, March 26 to 27-2021, Tirupati.
3. 650 keV N²⁺ ion implantation effects on the electrical proprties of Pd/Ru/n-GaN SBDs, **Santosh Kumar**, Kruthika Krishnappa , M. Vinay Kumar, V Rajagopal Reddy, K. Asokan, and S.Krishnaveni, ICOAM-2021, DOS in Physics SVU Tirupati, March 26 to 27-2021, Tirupati
4. “Low Dose Gamma Irradiation Effects on Electrical Parameters and Current Conduction Mechanism of Ni/n-GaN SBDs” **Santosh Kumar**, M Vinay Kumar, Asokan K, Krishnaveni S, International Conference on Advanced Materials, ICAM-2019, June 12-14, 2019, Department of Physics, Nirmalagiri College, Kuthuparamba, Kannur, Kerala, INDIA.
5. “650 keV Ar²⁺ Ion Implantation Effects on Electrical Properties of Ru/Pt/n-GaN Schottky Barrier Diodes” **Santosh Kumar**, M Vinay Kumar, Asokan K, V Rajgopal Reddy, Krishnaveni S, International Conference on Advanced Materials, ICAM-2019, June 12-14, 2019, Department of Physics, Nirmalagiri College, Kuthuparamba, Kannur, Kerala, INDIA.
6. “Comparison of Electrical Parameters of Ni/Pd/n-GaN and Ni/Ru/n-GaN SBDs Extracted from Different models”, **Santosh Kumar**, Vinay Kumar M. and Krishnaveni S. International Conference on Advanced Functional Materials for Energy, Environment and Health Care (AFMEEHC), March 18-20, 2019, Vijnana Bhavan, University of Mysore, Mysuru-570006.

7. A) **Research Papers Published in Journals last six years (2019-2025)**

(Include H-Index, i10 Index and total No of Citation as Per Scopus/Google Scholar):

The format of Publication details should include: Authors Name (as appeared in the journal), Title of the Paper, Name of the Journal with ISSN no, Volume, Page No, DOI:___, Year of Publication, Publisher Name, Country of Publication, Indexed, in: Scopus/Web of Science.

1. **Amini, S., Ahmed, R. F. S. M., Kumar, S., Ankanathappa, S. M., & Sannathammegowda, K.,** Electrifying waste textiles: Transforming fabric scraps into high-performance triboelectric nanogenerators for biomechanical energy harvesting, *Waste Management* (ISSN: 1879-2456), **Volume 190**, pp. 477–485, DOI: [10.1016/j.wasman.2024.10.013](https://doi.org/10.1016/j.wasman.2024.10.013), 2024, Elsevier, Netherlands, Indexed in: *Scopus*.
2. **Kumar, S., Shankaregowda, R. H., Kumar Mariswamy, V., Kandasami, A., Reddy, V. R., & Sannathammegowda, K.,** Influence of 700 KeV O³⁺ ion implantation on current transport properties of Cr/p-GaN SBD's, *Radiation Effects and Defects in Solids* (ISSN: 1042-0150), pp. 1–12, DOI: 10.1080/10420150.2024.2369135, 2024, Taylor & Francis, United Kingdom, Indexed in: *Scopus*.
3. **Kumar, S., Mariswamy, V. K., Shankaregowda, R. H., Sannathammegowda, K., & Reddy, V. R.,** Effects of 10 MeV Electron Irradiation on Electrical Properties of Ni/Pd/n-GaN Schottky Barrier Diodes, *Semiconductors* (ISSN: 1063-7826), **Volume 58**, Issue 6, pp. 512–518, DOI: [10.1134/s1063782624600785](https://doi.org/10.1134/s1063782624600785), 2024, Springer, Germany, Indexed in: *Scopus*.

4. **Mariswamy, V. K., Sannathammegowda, K., Kumar, S., & Kumar, A.,** Comparative Analysis of 50 MeV Li³⁺ and 100 MeV O⁷⁺ Ion Beam Induced Electrical Modifications in Silicon Photodetectors, *ECS Journal of Solid State Science and Technology* (ISSN: 2162-8769), **Volume 13**, Issue 9, Article ID 095001, DOI: [10.1149/2162-8777/ad7759](https://doi.org/10.1149/2162-8777/ad7759), 2024, ECS (The Electrochemical Society), USA, Indexed in: *Scopus*.
5. **Potharay, S. S., Kumar, S., & Dammalapati, U.,** An Empirical Study on Integrated Teacher Education and Bachelor of Education Programmes in Southern India, *Asia Pacific Journal of Educational Research* (ISSN: 2651-2012), **Volume 6**, Issue 1, pp. 1–27, DOI: 10.30777/APJER.2023.6.1.01, 2023, Asia Pacific Education Research Association, South Korea, Indexed in: *Scopus*.
6. **Kumar, S., Kumar, M. V., Kumar, A., Asokan, K., & Krishnaveni, S.,** Enhancement of Electrical Parameters of Ni/n-GaN SBDs under Remote and not In-flux Gamma Irradiation, *ECS Journal of Solid-State Science and Technology* (ISSN: 2162-8769), **Volume 9**, Article ID 093017, DOI: [10.1149/2162-8777/abc70a](https://doi.org/10.1149/2162-8777/abc70a), 2020, ECS (The Electrochemical Society), USA, Indexed in: *Scopus*.
7. **Nagaraj, G., Sukumar, A., Tangpu, V., & Kumar, S.,** Exploring Magnetosensitivity of Drosophila: A Novel Low-Cost Project for School Students to Inculcate Scientific Method, *International Journal of Recent Scientific Research* (ISSN: 0976-3031), **Volume 11**, Issue 02(E), pp. 37512–37516, DOI: (Not provided), 2020, (Publisher not specified), India, Indexed in: (Indexing not specified).
8. **Kumar, S., Zhang, X., Mariswamy, V. K., Reddy, V. R., Kandasami, A., Nimmala, A., Rao, S. V. S. N., Tang, J., Ramakrishna, S., & Krishnaveni, S.,** Medium Energy Carbon and Nitrogen Ion Beam Induced Modifications in Charge Transport, Structural and Optical Properties of Ni/Pd/n-GaN Schottky Barrier Diodes, *Materials* (ISSN: 1996-1944), **Volume 13**, Article ID 1299, DOI: [10.3390/ma13061299](https://doi.org/10.3390/ma13061299), 2020, MDPI, Switzerland, Indexed in: *Scopus*.
9. **Kumar, S., Kumar, M. V., & Krishnaveni, S.,** Fabrication and Analysis of the Current Transport Mechanism of Ni/n-GaN Schottky Barrier Diodes through Different Models, *Semiconductors* (ISSN: 1063-7826), **Volume 54**, Issue 2, pp. 169–175, DOI: [10.1134/S1063782620020141](https://doi.org/10.1134/S1063782620020141), 2020, Springer, Germany, Indexed in: *Scopus*.
10. **Kumar, S., Mariswamy, V. K., Kumar, A., Kandasami, A., Nimmala, A., Rao, S. V. S. N., Reddy, V. R., & Krishnaveni, S.,** Ar Ion Irradiation Effects on the Characteristics of Ru|Pt|n-GaN Schottky Barrier Diodes, *Semiconductors* (ISSN: 1063-7826), **Volume 54**, Issue 12, pp. 1641–1649, DOI: 10.1134/S1063782620120155, 2020, Springer, Germany, Indexed in: *Scopus*.

B) ARTICLES PUBLISHED IN THE EDITED BOOK

NIL

C) PAPER PUBLISHED (IN CONFERENCE PROCEEDING with ISSN Number)

D) PUBLICATION OF BOOKS (Both as Authored and Edited)

NIL

E) PREPARATION OF STUDY MATERIAL

Laboratory manual of UG and PG courses at RIE Mysore

F) EDITORSHIP OF RESEARCH JOURNAL

NIL

G) MOOCs

Coordinator and resource person for Class 8 physics videos, RIE, Mysore

8) ORGANIZATION of SEMINAR/WORKSHOP/FDP/TRAINING PROGRAM

1. Co-ordinator-21-Day Professional Development Programme for DMS and EMRS Teachers of Madhya Pradesh, 27th May, 2024 to 16th June, 2024.

2. Co-ordinator- National Conference on *“Recent Advances in Interdisciplinary Science”* February 7 to 9, 2025.

9) Other Information if any

NIL