

Name: Dr. Nikhil Kumar

Father's Name: Late Shri Amar Singh

Email id: nik.jnu@gmail.com

Date of Birth: 21st Apr 1987

Nationality: Indian

Gender: Male

Address for Correspondence: Dr. Nikhil Kumar, Assistant Professor, Department of Physics, Deen Dayal Upadhaya Gorakhpur University, Gorakhpur, Uttar Pradesh, India

Permanent Address: Dr. Nikhil Kumar, 1201, Ansal Neel Padam 2, Vaishali Sector 4, Ghaziabad, Uttar Pradesh-201010

& Poorab Tola, Near MLK PG College South Gate, Balarampur, Uttar Pradesh-271201

Research and teaching Interests:

My research interest involves the area of Superconductivity, nanofabrication and nano-electronics. Being a permanent faculty in DDUGU, I have also received **DST-Inspire Faculty Fellowship Grant** of Rs 35 Lacs on my project "Nano-SQUID Magnetometry for Biomedical Applications". I have received two more grants by **IUAC New Delhi (15 Lacs)** on "Ion Beam effect on the properties of High T_c superconducting thin films" and by **UPCST (11.94 Lacs)** on "Ferromagnetic nano-particles and their applications in Magnetic Hyperthermia for Cancer therapy". Recently, I have been awarded with three "**Best Teacher's Award**" one from Department of Higher Education, **Govt of Uttar Pradesh & DDUGU**, second by **ICFAI Business School, Dehradun** (14th rank University among top Management Universities in India) and third by DDU Gorakhpur University only for my contributions in the upliftment of higher education and implementation of National Educational Policy-2020.

Academic Qualifications and Research Experience:

- Assistant Professor in Department of Physics, Deen Dayal Upadhyaya Gorakhpur University since July 3rd, 2018.
- Institute Post-Doctoral Fellow in **IIT Bombay** from 25.04.2018 to July 2nd, 2018.
- Visiting Fellow and SERB-DST National Post-Doctoral Fellow in Nanoelectronics Laboratory, **Tata Institute of Fundamental Research (TIFR), Mumbai** from 14.01.2016 to 15.09.2017 as a principle investigator of the SERB-DST funded project entitled "Fabrication and Characterization of High T_c 2D layered BSCCO thin flakes based nano SQUIDs and Hybrid Junctions."

- Received **Ph.D.** degree in Physics from **IIT Kanpur** with a CGPA of **8.86** out of 10 from July 2009- Jun 2016.
- Qualified CSIR NET-JRF, GATE (96%) and JEST (AIR-23) examinations in Physical Sciences.
- Received **Master of Science** degree with **B+ Grade** (6.01 out of 9.0, i.e. 65 % marks) in Physics from **Jawaharlal Nehru University, New Delhi, India**, in **July 2008**.
- Received the **Bachelor of Science** degree with 68% marks in Physics and Maths from Ewing Christian College, **University of Allahabad, India**, in **July 2006**.
- Intermediate in 2003 from U.P. Board with aggregate 78% marks.
- High School in 2001 from U.P. Board with aggregate 82% marks with 12th rank in the merit list of Uttar Pradesh.

Awards, Fellowships and Examinations Qualified:

1. Teaching and research excellence award by DDU Gorakhpur University felicitated on September 5th, 2022.
2. Best Teacher's Award by Department of Higher Education, **Govt of Uttar Pradesh** in collaboration with DDU Gorakhpur University felicitated on September 5th, 2021.
3. Best Teacher's Award by **ICFAI Business School**, Dehradun (14th rank among best management Universities in India) felicitated on September 3rd, 2021.
4. DST Inspire Faculty Fellowship Award research grant of **Rs 35 Lakh** on the project “ Nano-SQUID Magnetometry for Biomedical Applications”.
5. IUAC research grant including one JRF/SRF on the project “Ion beam effect on the properties of High Tc Superconducting thin films, nano Devices and ferromagnetic nano structures used for Cancer therapy.
6. UPCST grant of 11.94 lacs on the project titled “Ferromagnetic nano-particles and their applications in Magnetic Hyperthermia for Cancer therapy”
7. CSIR International travel grant award of Rs 30000 for an invited lecture in “31st International Superconductivity Symposium held in Tsukuba, Japan from Dec 12-14th, 2018” on the topic “Nano-SQUIDS and their Biomedical Applications”
8. SERB-DST NPDF on the project “Fabrication and characterization of 2D layered High Tc BSCCO based devices”.
9. Received ITS-travel grant from DST, Govt of India to attend European Conference on Applied Superconductivity (EUCAS), held in Lyon, France from September 6th to 11th, 2015.
10. Best Poster Award in Departmental workshop in IIT Kanpur.
11. CSIR-Senior Research Fellow, Aug 2011-July 2014.
10. CSIR-Junior Research Fellow, July 2009 – July 2011.

11. Joint Entrance Screening Test (JEST) 99.36 percentile (All India Rank 23rd), 2009.
12. Graduate Aptitude Test in Engineering (GATE) 95 percentile (All India Rank 448th), 2009.

Publications:

1. Apoorv Jindal, Digambar A. Jangade, **Nikhil Kumar**, Jay Kumar Vaidya, Ipsita Das, R. Bapat, J. Parmar, Bhagyashree Chalke, A. Tamizhavel & Mandar M. Deshmukh, "Growth of high quality $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ whiskers and electrical properties of resulting exfoliated flakes" **Scientific Reports**, **7**, 3295 (2017). (Equal contribution as the first author)

2. **Nikhil Kumar**, T. Fournier, H. Courtois, C. B. Winkelmann, and Anjan K. Gupta, "Reversibility Of Superconducting Nb Weak Links Driven By The Proximity Effect In A Quantum Interference Device" **Physical Review Letters**, **114**, 157003, (2015).

3. **Nikhil Kumar**, C. B. Winkelmann, Sourav Biswas, H. Courtois, , and Anjan K. Gupta, "Controlling hysteresis in superconducting constrictions with a resistive shunt", **Superconductor Science & Technology as Fast Track Communication** ,28 (2015) 072003.

4. Anjan K. Gupta, **Nikhil Kumar** and Sourav Biswas, "Temperature and Phase Dynamics in Superconducting Weak Links" **Journal of Appl. Phys.** **116**, 173901 (2014).

5. **Nikhil Kumar**, Bharat K. Gupta, Anjan K. Gupta, "Effect of constriction width on hysteresis in Superconducting Weak Links and micro-SQUIDS", **AIP Conference Proceedings**, 2369,020158 (2021)

6. **Nikhil Kumar**, T. Fournier, H. Courtois, and Anjan K. Gupta, "Fabrication and Characterization of Shunted μ -SQUIDS" **AIP Conference Proceedings**, **1591**,1591,2014

7. Sourav Biswas, **Nikhil Kumar**, C. B. Winkelmann, Herve Courtois, and Anjan K. Gupta, "Random telegraphic voltage noise due to thermal bi-stability in a superconducting weak link" **AIP Conference Proceedings**, 1731, 130001 (2016);

8. **Book chapter on Carbon Quantum Dots** Tripathi R., Singh V, Gupta B., **Kumar Nikhil**, Book Chapter on Magnetic and nanophotonic applications of carbon quantum dots"; Carbon quantum Dots for sustainable energy, **Elsevier**, Woodhead Publishing, Published by 27 January 2023, ISBN: 978-0-323-90895-5 (print), <https://doi.org/10.1016/B978-0-323-90895-5.00005-9>

9. Book Chapter on “Energy Sector and Renewables”, **Kumar Nikhil et.al. , Energy Sector and Renewables**” for the sustainable development of Poorvanchal: Issues, Strategies and Way Forward, in a book titled as “Sustainable Development of Poorvanchal; Issues, Strategies and Way Forward, Kitab Wale, Delhi, 2023, ISBN No:978-93-90702-67-1

Conference, Workshop, Orientation and FDP attended and organized:

1. Invited lecture in MMMUT in PFICEF-2024
2. Invited lecture in IIIT Jabalpur Candee 2023
3. FDP Amity University
4. FDP JNU
5. Orientation Programme organized by Ramanujan College
6. Invited lecture in Quantilase laboratory Abudhabi, UAE from 6-10 Oct, 2022
7. Invited talk on “Nano-SQUIDS and their Biomedical Applications” in 31st International Superconductivity Symposium held in Tsukuba, Japan from Dec 12-14th, 2018.
8. Invited lecture on “Use of Technology in Education” in a one week long workshop organized by DDU Gorakhpur University, on the first anniversary of National Education Policy-2020 on Aug. 7th, 2021.
9. Invited Lecture by Kendriya Vidyalaya, Gorakhpur On the topic “Digital Learning in Covid Era” during in service course of Varanasi region held on 27.12.2020.
10. Four Week induction program for faculty in Universities/ Colleges/ Institute of Higher Education from Sep 1-Sep 30, 2020 organized by Ramanujan College, University of Delhi with A+ Grade.
11. Delivered an Invited lecture at IUAC New Delhi on the topic "Effect of Ion Beam on the properties of High Tc Superconducting thin films, sensors and Ferromagnetic nano-structures used for Cancer Therapy" at the 67th Accelerator user workshop organized by IUAC, New Delhi from Dec 16-18, 2020.
12. Invited lecture in “National Conference on 'Advanced Materials : Theory & Applications 2019' to be held on September 26-28, 2019 at Hans Raj College, Delhi University on “Controlling Thermal hysteresis in Superconducting Weak Links and nano-SQUIDS”.
13. Organized One day long “BARC Outreach Program” sponsored by “Bhabha Atomic Research Center (BARC), Mumbai and DDU Gorakhpur University on 16 January 2019 as an organizing secretary.
14. Oral Presentation on “Controlling Hysteresis in Superconducting Weak Links and micro-SQUIDS” in APS March meeting in Baltimore, USA from March 6th to March 11th 2016.
15. Attended and presented the poster entitled “Controlling Hysteresis in Superconducting Constrictions with a resistive shunt” in European Conference on Applied Superconductivity (EUCAS), held in Lyon, France from September 6th to 11th, 2015.
16. Poster presentation in International Conference on Condensed Matter and Applied Physics (ICC-2015) Held in Bikaner on the topic “Effect of constriction width on hysteresis in superconducting weak links and micro-SQUIDS” during 30-31st October, 2015.
17. Presented paper entitled “Fabrication and Characterization of Shunted μ -SQUIDS” in 58th DAE-Solid State Physics Symposium in Thapar University, Patiala, Punjab, India on Dec. 17th-21st, 2013.
18. Visiting fellow in Quantum Nano-Electronics and Spectroscopy – (QNES) lab in CNRS Institute Neel, Grenoble, France from May 5th 2012 to July 30th, 2012.
19. Presented a poster entitled and “Fabrication and Characterization of micro-Superconducting Quantum Interference Devices (μ -SQUIDS)” in “National Workshop on Applications of Ion Beam in Device Fabrication and Nanotechnology” in DAVV Indore during 5th-6th March 2012.
20. Lab Visit in CNRS-Institute Neel, Grenoble, France from Nov.22nd to Nov.30th, 2010.

21. Attended CFN Summer School in Nanophotonics and Nanoelectronics in Karlsruhe, Germany from Aug.26th -Aug.29th, 2010, organized by CFN and Karlsruhe Institute of Technology.

Professional experience and Memberships:

1. Teaching Statistical Mechanics in Pre-PhD and MSc 2nd semester course, Quantum Mechanics in MSc 1st year and 2nd year, Ferroelectricity and Superconductivity in MSc 4th semester, Modern Physics (BSc 3rd year) and Waves and Oscillation (BSc 1st year) and Physics practical's in BSc 2nd year and 3rd year from July 2018 in Department of Physics, DDU Gorakhpur University.
2. Teaching assistant for Modern Physics Laboratory (PHY 315) at IIT Kanpur.
3. Teaching assistant for M.Sc. Lab (PHY461/ 462) at IIT Kanpur.
4. Teaching assistant for B.Tech (UG Lab) PHY101 at IITK.
5. Tutor for Electrodynamics course for B.Tech Students (Phy 103) at IIT Kanpur.
6. Member of American Physical Society (APS) and European Society for Applied Superconductivity (ESAS).

List of Referees:

1. Dr. Anjan Kumar Gupta
Department of Physics
Indian Institute of Technology Kanpur, India
Email: anjankg@iitk.ac.in

Phone: +91 – 512 – 259 7549
(PhD thesis advisor)

2. Prof. Herve Courtois,
Director, Nano Science
Institute Neel, Grenoble, France

Email: herve.courtois@neel.cnrs.fr
Phone: 04 76 88 11 51
(Ph.D. Collaborator)

3. Dr. Clemens B. Winkelmann
Professor, University Joseph Fourier
Institute Neel, Grenoble, France

Email: clemens.winkelmann@neel.cnrs.fr
(Ph.D. Collaborator)

Declaration:

I hereby declare that the above statements made by me are true to the best of my knowledge and belief.

Place: Gorakhpur,
Date: 17-02-2023



(NIKHIL KUMAR)